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The Process and Product of T & I High School Level Vocational Education in the United States. Volume II- The Process Variables.

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The primary objective of this study was to provide a description of the process variables of trade and industrial education, such as curriculum, facilities, guidance and placement services, teachers and instructional methods, advisory committees and community relations, and administration. Data were collected from a stratified random sample of 100 vocational and comprehensive high schools that offered three or more trade and industrial education courses. Graduates from these schools in 1953, 1958, and 1962 totalled 10,805, and followup information was collected from 5,327 of these. Some findings were: (1) Vocational graduates who work in their field of study do better than academic graduates on all occupational outcome measures. (2) School adjustment performance of the two types of graduates was not significantly different. (3) The socioeconomic origins of academic teachers was higher than that of vocational teachers. (4) 14 percent of the schools had a college preparatory track for vocational students. (5) 25 percent of the schools had less than 80 percent of the major shop equipment required to meet course objectives. (6) The mean age of schools was 27 years. (7) The average counselo r spent 12 hours per week in personal student conferences, which averaged 23 minutes in length, and (8) 21 percent of the schools had no placement coordinator, 71 percent had a part-time coordinator, and 8 percent had full-time coordinators. (EM)

THE PROCESS AND PRODUCT OF T&I HIGH SCHOOL LEVEL VOCATIONAL EDUCATION IN THE UNITED STATES

THE PROCESS VARIABLES

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The study herein reported was completed by the Project Director, M. U. Eninger, while temporarily affiliated with the American Institutes for Research for the purpose of completing the study. The conception, execution and write-up of the study are the sole responsibility of the Project Director. The American Institutes for Research had the nominal role of contractor.

THE PROCESS AND PRODUCT OF T&I HIGH SCHOOL LEVEL VOCATIONAL EDUCATION IN THE UNITED STATES

Volume II
THE PROCESS VARIABLES

M. U. ENINGER
Project Director

April 1968

EDUCATIONAL SYSTEMS RESEARCH INSTITUTE
Pittsburgh, Pennsylvania

FOREWORD

The primary study objective was to provide a survey sample description of the process and products of T&I secondary school vocational education. Of necessity, such description covers a multitude of variables related to curriculums and courses, general and shop facilities, guidance and placement services, teachers and claimed instructional methods, advisory committees and community relations, administrative policies and practices and yet other areas of description. Data was obtained and analyzed on a total of 4,700 independent variables. Some are, in the minds of educators, highly relevant to the quality of vocational education. Others are a question mark. Their relevance is supported by neither data nor professional opinion. Still others are minor to the point where hindsight makes one wonder why they were included.

Not suprisingly, the end result has the classic limitation of the broad-brush survey approach. It scratches the surface of a multitude of vocational education facets, but says nothing in great depth about most of what is touched upon. This was, of course, anticipated. Nevertheless, it leaves one vaguely uncomfortable, with a feeling of having missed the essence of vocational education. Clearly, more intensive research is needed to describe in depth such elusive aspects of vocational education as the teaching process, the guidance process, the motivational process and others with high face validity for effective vocational education. Broad-brush survey studies tend to lean toward the variables that are relatively easy to describe, e.g. number of courses offered, teacher years of experience in the teaching profession, square feet of classroom space and other simple count-the-number variables. Unfortunately, there seems to be a law operating that goes something like this: The easier it is to describe, the less relevant it is to the ultimate concern.

The foregoing is not an apology. The study is the first comprehensive United States survey of the process and product variables related to vocational education. It has important data that should make an impact upon both vocational and general education planning at Federal, state and local levels. Further, it should lay to rest some very common misconceptions about vocational education.

ACKNOWLEDGMENTS

The study was made possible by the time and effort of the State Directors of Vocational Education in the pre-data collection phases of the study, the help of the hundreds of school personnel who completed lengthy questionnaires and the generous cooperation of thousands of vocational program graduates who described their post-school experiences in the world of work. To them and all others who helped in the collection of the data, the writer is warmly appreciative.

Appreciation is also expressed to the following early supporters of or advisors to the study: Walter M. Arnold, formerly Assistant Commissioner for Vocational Education, U.S. Office of Education; M. D. Mobley, formerly Executive Secretary, American Vocational Assiciation; Joseph N. Nerden, Professor, North Carolina State University; Rupert N. Evans, Dean, College of Education, University of Illinois; Byrl R. Shoemaker, State Director of Vocational Education, Ohio; John N. Struck, State Director of Vocational Education, Pennsylvania; and Gerald B. Jones, formerly State Director of Vocational Education, North Carolina.

Then, there are the project personnel who stood fast when all seemed confusion and who persevered through the seemingly endless drudgery of data processing:

- Mary Fall, Senior Research Associate
- Barbara Weekley
- Michele Ryan
- Carron McCauley
- Robert Gianetti
- William Grandi
- Richard Powell

and the secretaries who typed, and typed, and typed some more:

- Jane Murphy
- Ruth Widdowson

Lastly, appreciation is expressed to the Ford Foundation, which supported the first phase of the project (Volume I), and the U.S. Office of Education, which supported the final phase (Volume II).

M. U. Eninger

April, 1968

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INTRODUCTION AND STUDY OBJECTIVES

Introduction

The study began in 1963, the same year in which the United States Vocational Education Act became law. It describes the process and product of trade and industrial (T&I) secondary school vocational education in the United States. The bulk of the study data was collected in the Spring and Fall of 1964. At that time, the monies provided by the Vocational Education Act had not yet influenced changes in the way vocational education was being conducted. Since that time, estimated expenditures for vocational education in the United States through the year 1966 were as follows:

SOURCE	FISCAL YEARS 1964-1966
Federal	$ 445,756,000
State	528,282,000
Local	764.277,000
Total	$1,738,315,000

It is conceivable that vocational education, as described by the present study, has changed significantly in the interim three years under the impact of the 1963 Vocational Education Act. In that case, the study describes T&I vocational education as it was before the influences of the 1963 Vo-Ed Act. It provides a bench mark of data against which changes in vocational education can be measured in the future.

What is more likely, however, is that T&I vocational education has not changed substantially in terms of the variables reported by this study. Fundamental changes come slowly. Undoubtedly, there are individual school systems that have thoroughly reappraised their T&I vocational programs and instituted changes of substance to expand and upgrade the quality of their programs. Nevertheless, it is a reasonable assumption that the descriptions of T&I vocational education in the United States as reported herein still apply today. There is no data to prove otherwise.

Study Objectives

1. To describe the relevant dimensions of post-graduation occupational and educational experiences of a nation-wide sample of T&I course graduates randomly selected from the classes of 1953, 1958 and 1962.

The measures of description included:

- Time required to get the first full-time job.
- Methods used to get the first full-time job.
- Relatedness of first job to course studied.
- Reasons for failure to get jobs in field studied.
- Initial and terminal earnings on jobs held.
- Satisfaction ratings on jobs held.
- Relatedness of all jobs held to course studied.
- Geographic mobility of vocational graduates.
- Employment security since graduation.
- Employer stability since graduation.
- Earnings progression since graduation.
- Amount and type of post-high school education.
- Amount and type of college level education.
- Non-vocational measures reflecting personal growth.

2. To compare vocational and academic program graduates from the same schools and graduating classes in terms of post-secondary school occupational, educational and other relevant experiences. The primary emphasis of the comparison was in terms of the aforementioned occupational measures. The purpose was to determine whether vocational graduates did better, not as well or about the same as academic program graduates with a comparable amount of formal education.

3. To determine the effects upon the graduate's occupational and educational experiences of basic variables as (1) the type of school attended, i.e. vocational and comprehensive school, (2) the size of the school attended, i.e. less than 500 pupil enrollemnt, between 500 and 1500 and greater than 1500, (3) the economy level at the time of graduation, i.e. the general unemployment rate and (4) the race of the graduates.

The findings with respect to the above objectives were reported in The Process and Product of T&I High School Level Vocational Education in the United States, Volume I, The Product. For reader convenience, a summary of some of those findings is presented in Chapter 2.

The remaining objectives of the study were as follows:

4. To describe the relevant school characteristics of a randomly drawn, stratified sample of 100 secondary schools offering a T&I vocational program. The schools described were the same schools from which vocational and academic program graduates were selected for follow-up study. The basic areas of school variable description included the nature of the vocational curriculum and course offerings, curriculum planning and development, shop and general school facilities, teacher and administrative personnel, instructional methods and equipment, sutdent services such as counseling and job placement services and other school characteristics that were either of general interest to vocational educators or potentially related to the post-school experiences of graduates.

5. To describe the relevant human resource characteristics of the vocational and academic program graduates selected for follow-up study. The major areas of description included general intelligence measures, scholastic

aptitude and achievement measures, scholastic performance in vocational and non-vocational subjects, reflections of school adjustment such as absenteeism and disciplinary school histories and other factors available in school records that were potentially related to post-graduation occupational and educational experiences.

6. To identify what relationships, if any, are demonstratable between school and student characteristics, on the one hand, and the post-secondary school occupational and educational experiences of T&I program graduates. The next section provides a discussion of the reasoning related to this objective.

7. To provide general recommendations for action and research related to improving the efficiency and effectiveness of T&I vocational education in the United States. It takes neither great expertise nor wisdom to make armchair recommendations as to what the vocational educator should or should not do. Any recommendations made will have roots in and support from the study data. Even with data support, it must be recognized that recommendations for federal, state or local level action must be evaluated in the light of all relevant information necessary for decision-making. Research studies rarely, if ever, provide the total ingredients for decision-making. At the best, they tend to provide partial inputs to the decision-making process. More will be said about this later.

STUDY DESIGN AND PROCEDURES

One reason why many hasty and ill-conceived jumps are made from research findings to action decisions is that too little attention is paid to the research methodology. A proper understanding of the research design and procedure is necessary to establish the limitations of research findings. This section attempts to provide a broad brush description of the study design and procedures. Minor technical details are reserved for Appendix Section 1.

The Vocational Equation

The basis concept of vocational education that provides the theoretical framework for the study is diagrammed in Figure 1. The vocational equation can be summarized as follows: The near-term vocational outcomes experienced by vocational program graduates are an interaction product of (1) relevant school system characteristics, (2) relevant student human resource characteristics and (3) relevant economic characteristics of the functional region served by the school system. Figure 1 indicates the potentially relevant areas of variables that may be related to the vocational outcomes indicated at the right of the equation.

The equation derives its significance from attempts to evaluate the effectiveness of vocational education in terms of the occupational and other experiences of graduates. Thus, for example, it has been a long standing, albeit poorly practiced principle to evaluate vocational programs in terms of the relatedness of job history to vocational courses studied. Whether the implied criterion should be a yardstick for evaluating vocational program effectiveness is not the issue. What is the issud is whether vocational outcomes of any kind are to be used as evaluation measures. The view taken nere is that such outcomes have been and will continue to be a significant part of the total evaluation process.

On that basis, there are solid practical reasons why the potential relationships between school, student and region characteristic variables and the vocational outcome variables should be explored. If we know the variables that are significantly related to the vocational outcomes, then we have a basis for modifying the outcomes in the desired directions--within the limitations of what can and cannot be manipulated to influence outcomes. From this viewpoint, the vocational equation represents a complex of un-explored hypotheses about what effects the vocational outcomes and the relative degree of influence among the so-called input variables, i.e. the school system, the student human resource and the regional economu. The first study report* has already established that the general level of the economy at the time of job-seeking has a strong influence on many of the vocational outcomes. The relatedness of the first job held to the vocational

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* Eninger, M.U. The Process and Product of T&I High School Level Vocational Education in the United States, Volume I, The Product. Pittsburgh: American Institutes for Research, 1965.

THE SCHOOL SYSTEM		THE HUMAN RESOURCE		THE OPPORTUNITY		THE VOCATIONAL OUTCOME
CURRICULUM AND COURSES		GENERAL INTELLIGENCE				TIME TO GET FIRST JOB
INSTRUCTIONAL METHODS		APTITUDES AND ABILITIES				EMPLOYMENT SECURITY
GENERAL AND SHOP FACILITIES		SUBJECT GRADE PERFORMANCE				JOB RELATEDNESS TO TRAINING
TEACHER CHARACTERISTICS	X	SCHOOL SOCIAL ADJUSTMENT	X	LOCAL STATE REGIONAL NATIONAL MANPOWER REQUIREMENTS FOR T&I OCCUPATIONS	=	REPORTED JOB SATISFACTION
GUIDANCE AND OTHER SERVICES		INTERESTS AND ATTITUDES				INITIAL JOB EARNINGS
SCHOOL MANAGEMENT		PERSONAL CHARACTERISTICS				EARNINGS PROGRESSION
PLUS OTHER INPUT VARIABLES		PLUS OTHER INPUT VARIABLES				PLUS OTHER OUTCOMES

FIGURE 1. THE VOCATIONAL EQUATION: THE GENERAL HYPOTHESIS IS THAT THE VOCATIONAL OUTCOMES EXPERIENCED BY T&I GRADUATES IS AN INTERACTION PRODUCT OF SCHOOL, STUDENT AND OCCUPATIONAL OPPORTUNITY VARIABLES

course taken, for example, decreases as the general unemployment rate increases. However, even during a recession period in the economy, the graduates of some schools do remarkably better in obtaining jobs in the occupational fields studied than do the graduates of other schools operating in essentially the same economic climate. The economy, or more specifically the employment opportunity alone does not account for such differences. The obvious next step is to determine what other variables do account for the differences. That is one of the major tasks of the present study.

A side comment is appropriate on the use of vocational outcome measures to evaluate vocational program effectiveness. It is clear that there is no one to one relationship between school variables and the vocational outcomes. Stated differently, the schools do not have, and never will have, potentially 100 percent control over even the shortest term vocational outcomes. The best of instruction in the most modern of shops coupled with the best of organized placement effort is still likely to see a decline in the relatedness of jobs to training where there is a severe downturn in the economy of the region served by the schools. The converse is equally the case. Where there is a general upsurge in the economy, poor quality instruction, given under conditions of inadequate and obsolescent equipment and culminating with no school interest in placing graduates into the fields for which trained is still likely to see an increase in the relatedness of jobs to training. The point is made to illustrate that there are limitations and requirements in the use of vocational outcome measures to assess vocational program effectiveness. Other relevant factors must be taken into account. More will be said about this problem in the chapter on general conclusions and recommendations.

The Sampling Procedure

The initial task was to identify the schools in the United States that offered a secondary school level T&I program. The starting point was a United States Office of Education Directory, Preparatory Trade and Industrial Training Programs in Public Schools. Because the directory was two years old, it was updated by asking state directors of vocational education to review the section applicable to their state and to add, delete or change entries to bring the directory up-to-date. The directory so modified resulted in a count of 2068 secondary schools offering a T&I program. However, 1401 of these schools offered only one or two vocational courses. The decision was made to sample only schools that offered three or more T&I vocational courses on the grounds that those offering less were not sufficiently in the business of vocational education to warrant inclusion in the survey.

There were 667 public secondary schools in United States that offered three or more T&I courses. Table 1 shows the number and percentage of such schools in eight geographic regions.

A stratified random sample of 100 schools was drawn from the population of 667 schools offering three or more T&I courses. The sample was stratified on geographic region, total school enrollment and type of school.

The geographic stratification was based upon eight United States Office of Education administrative regions. Table 1 shows how both the

TABLE 1. DISTRIBUTION OF THE POPULATION AND SAMPLE OF SCHOOLS OFFERING THREE OR MORE T&I COURSES BY GEOGRAPHIC REGIONS

GEOGRAPHIC REGION	POPULATION		SAMPLE	
	N	%	N	%
New England	72	10.8	11	11.0
Mideast	162	24.3	24	24.0
Great Lakes	100	15.0	15	15.0
Plains	48	7.2	7	7.0
Southeast	196	29.4	29	29.0
Southwest	54	8.1	8	8.0
Rocky Mountains	8	1.2	1	1.0
Far West & Pacific	27	4.0	5	5.0
UNITED STATES	667	100.0	100	100.0

school population and school sample were distributed among the regions. Each region is represented in the sample in approximate proportion to its contribution to the United States total of schools as defined above. Thus, sample statistics correctly reflect the regional distribution of schools.

The total school enrollment stratification was introduced on the hypothesis that pupil enrollment was a variable related to many of the measures describing school characteristics. Table 2 shows how both the school population and school sample were distributed in three enrollment categories. Each enrollment category is represented in the sample in approximate proportion to its representation in the population of schools. Thus, sample statistics closely reflect the distribution of schools in the enrollment categories described.

TABLE 2. DISTRIBUTION OF THE POPULATION AND SAMPLE OF SCHOOLS OFFERING THREE OR MORE T&I COURSES BY TOTAL SCHOOL ENROLLMENT

ENROLLMENT	POPULATION		SAMPLE	
	N	%	N	%
Less than 500	177	26.5	32	32.0
500 - 1500	284	42.6	38	38.0
More than 1500	206	30.9	30	30.0
UNITED STATES	667	100.0	100	100.0

The type of school stratification was introduced because one of the objectives of the study was to compare comprehensive with vocational schools. Table 3 shows how both the population and sample schools were distributed in the type of school categories. Each type of school is represented in the sample in approximate proportion to its representation in the population. For analysis purposes, the three categories of vocational schools were reduced to one. The sample consisted of 50 comprehensive schools and 50 vocational schools.

TABLE 3. DISTRIBUTION OF THE POPULATION AND SAMPLE OF SCHOOLS OFFERING THREE OR MORE T&I COURSES BY TYPE OF SCHOOL (1964)

TYPE OF SCHOOL	POPULATION		SAMPLE	
	N	%	N	%
Vocational	162	24.3	27	27.0
Technical	55	8.3	9	9.0
Vocational-technical	79	11.8	14	14.0
Comprehensive	371	55.6	50	50.0
UNITED STATES	667	100.0	100	100.0

The 8 x 3 x 2 stratification resulted in a distribution of the population of schools into the cells shown in Table 4. Governed by the restrictions of proportionate sampling described earlier, a sample N was determined for each of the 48 stratification cells. The required number of schools was drawn at random for each cell. Table 4 shows both the distribution of the population and sample schools in the stratification matrix.

Figure 2 shows the geographic distribution of the school sample. The titles and city location of the schools are listed in Appendix Section 1.

The Data Instruments

The following data instruments were developed:

1. School Principal Data Form. The questionnaire provided data in five broad categories: (1) course offerings, changes and development, (2) general school facilities, (3) general teacher information, (4) general data on student adjustment and services, (5) administrative personnel and relations with community and school board. For details, consult the G-1 form in Appendix Section 1.

2. Vocational Course Data Form. The questionnaire was used to provide the following kinds of data about each vocational course offered by the school: type of course schedule; grade in which first offered; course entry requirements; industrial arts background of students; instructor assessments of student reading, writing and arithmetic abilities; recent course content changes; examination policies; enrollment, dropout and course completion

TABLE 4. SCHOOL SAMPLE STRATIFICATION DESIGN

GEOGRAPHIC REGION		TOTAL SCHOOL ENROLLMENT											
		VOCATIONAL				COMPREHENSIVE				ALL SCHOOLS			
		<500	500-1500	>1500	ALL	<500	500-1500	>1500	ALL	<500	500-1500	>1500	ALL
New England	P	49	11	0	60	0	12	0	12	49	23	0	72
	S	8	2	0	10	0	1	0	1	8	3	0	11
Mideast	P	19	39	16	74	6	44	38	88	25	83	54	162
	S	4	5	2	11	3	4	6	13	7	9	8	24
Great Lakes	P	3	19	21	43	0	24	33	57	3	43	54	100
	S	1	6	0	7	0	2	6	8	1	8	6	15
Plains	P	11	4	5	20	3	18	7	28	14	22	12	48
	S	2	2	1	5	0	1	1	2	2	3	2	7
Southeast	P	66	15	2	83	14	74	25	113	80	89	27	196
	S	11	3	1	15	0	9	5	14	11	12	6	29
Southwest	P	0	0	4	4	3	12	35	50	3	12	39	54
	S	1	0	0	1	1	3	3	7	2	3	3	8
Rocky Mountains	P	0	0	1	1	0	2	5	7	0	2	6	8
	S	0	0	0	0	0	0	1	1	0	0	1	1
Far West & Pacific	P	3	5	3	11	0	4	12	16	3	9	15	27
	S	1	0	1	2	0	0	3	3	1	0	4	5
UNITED STATES	P	151	93	52	296	26	190	155	371	177	283	207	667
	S	28	18	5	51	4	20	25	49	32	38	30	100

P - population values S - sample values

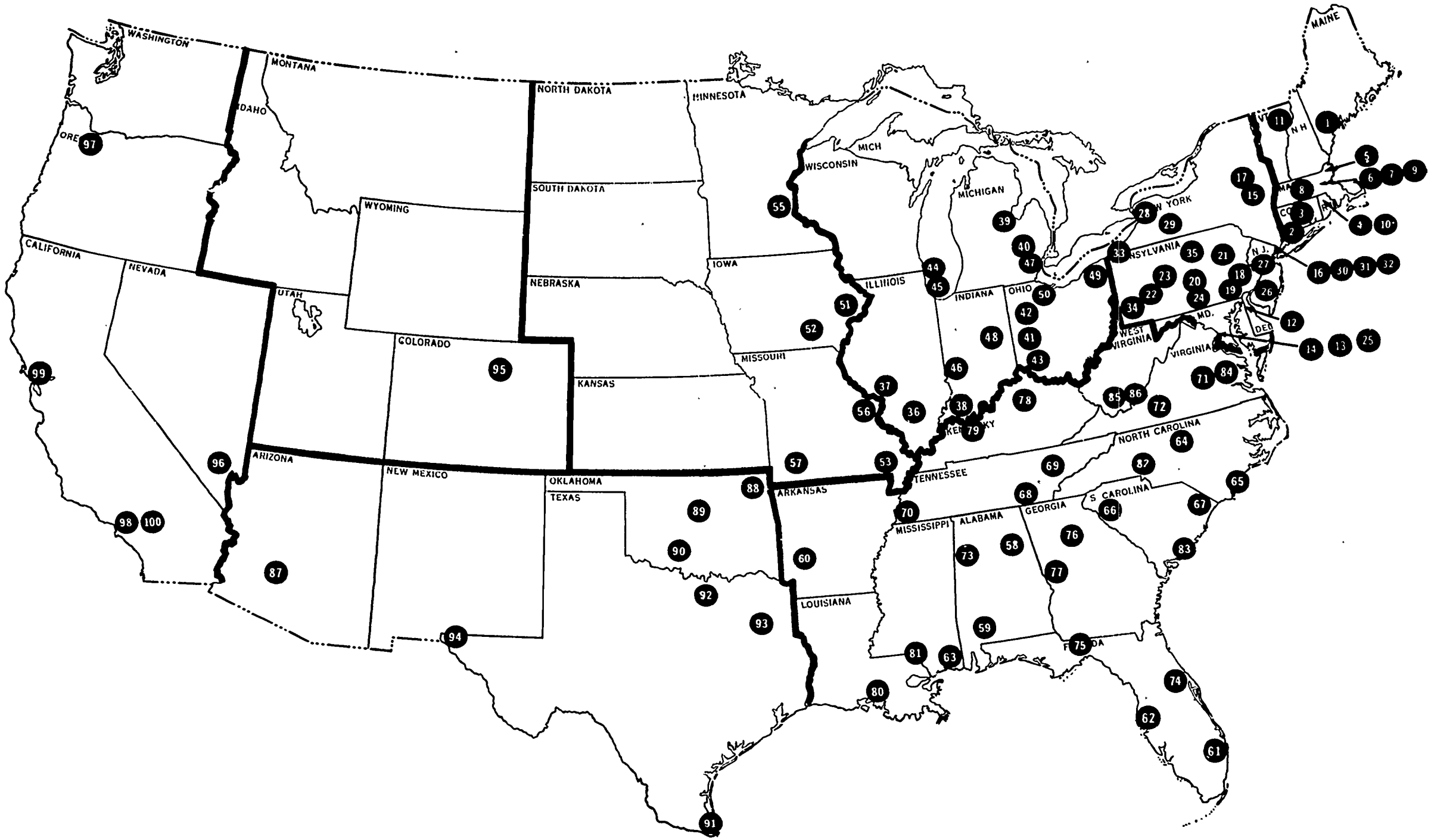

FIGURE 2. GEOGRAPHIC DISTRIBUTION OF SCHOOL SAMPLE SURVEYED BY THE STUDY
(See Appendix Section 1 for identification of schools.)

data; job placement role of instructor; and other miscellaneous information of general interest. For details, consult the S-1 form in Appendix Section 1.

3. Vocational Shop Data Form. The questionnaire provided an inventory of major shop equipment and auxiliary facilities with instructor assessments on availability and adequacy. In addition, an overall shop rating was provided together with miscellaneous information on shop use. For details, consult the S-2 form in Appendix Section 1.

4. General Classroom Form. The questionnaire provided descriptions of classroom environmental controls, furnishings and instructional equipment. Space was provided for teachers to indicate additional classroom needs. For details, consult the S-3 form in Appendix Section 1.

5. Library Personnel and Services Form. The questionnaire provided data on library facilities, books and periodicals; library policies and procedures; and library personnel background and qualifications. For details, consult the S-4 form in Appendix Section 1.

6. Vocational Teacher Form. The questionnaire provided data on teacher socio-economic origins, educational background and certification, occupational history, summertime and part-time employment, annual income, non-teaching school activities, instructional methods and equipment use and other information about the individual teacher. For details, consult the S-5 form in Appendix Section 1.

7. Counseling Personnel and Services Form. The questionnaire provided data on the school's counseling and guidance program, facilities and materials in use, occupational and educational backgrounds of counselors and other data descriptive of counseling personnel. For details, consult the S-6 form in Appendix Section 1.

8. Placement Personnel and Services Form. The questionnaire provided data on the school's placement policies and procedures, the background of placement personnel and assessment of the adequacy of placement services by the person in charge of the job placement function. For details, consult the S-7 form in Appendix Section 1. Also, consult the S-1 form for additional placement information.

9. Student Record Form. This was to be a standard form for recording school record data about graduates. Experience in the field caused the form to be abandoned in favor of school record photocopies. To the extent that it was possible, the data information requested by the form was obtained from the schools. For details, consult the S-8 form in Appendix Section 1.

Every research report writer has enecdotes to tell about what happened during the study. We will tell one, and no more.

When the original proposal was being considered for funding by the Ford Foundation, it was remarked that the proposed project staff was uniquely qualified to the the survey because it has no experience with vocational education. Presumably, it would not be hampered by preconceived notions about the kind of data to collect. It was a flattering observation.

Unfortunately, it lost its brilliance when the time came to develop the data forms. After a preliminary phase of interviewing vocational educators, ranging from teachers to state directors of vocational education, and reading somewhat hastily large quantities of indigestible literature on vocational education, most of which substituted lofty opinions for data, the staff managed to draft the nine questionnaires described earlier. The original drafts were submitted to an advisory panel* of seasoned vocational educators for their critical review. A two day conference was held in Pittsburgh to facilitate their comments. It was a memorable experience to hear the professionals disagree so heartily with each other--and, of course, with our data form drafts. Needless to say, the latter underwent drastic revisions. So much for the unique advantage of undertaking research in a controversial field without any prior experience.

The Data Collection Procedure

The start to finish procedure for collecting the school data involved four basic steps:

1. Getting school agreement to participate.
2. Requesting pre-school visit completion of data forms.
3. Visiting schools to finalize data collection.
4. Obtaining school records on the graduate "returns".

For those interested in methodology, a brief discussion of each step follows:

1. School agreement to participate. A specimen set of all materials with a covering letter and a brochure describing the study was mailed to state directors of vocational education in the states containing the schools. It was requested that they lend assistance in getting the schools to agree to participate. Telephone contact was used to clarify the request and to answer questions. It was left to the judgment of the state directors as to how best to proceed. As a rule, protocol was followed by contacting school district superintendents first. The latter were also provided with a specimen package of materials to be used at the schools.

The state directors reported the schools that tentatively agreed to participate. It was a credit to their spirit of cooperation that 94 of the 100 schools originally sampled agreed to participate.

Once tentative agreement was known, the school principals received the materials and instructions in sufficient quantities to undertake the data collection. Phone contacts were timed with the arrival of the materials. This proved to be essential. It established rapport with the principals, enabled discussion of questions not covered by the instructions, and provided an opportunity to re-emphasize assurances of school and school personnel anonymity in the final research report. The telephone contact was also used to arrive at a date for visiting schools. Principals were urged to call collect if any problems or questions arose. Many found it necessary to do so.

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* The panel members are identified and gratefully acknowledged at the front of this report.

Each school principal was provided with a token honorarium of 100 dollars for coordinating the data collection at the school. The honorarium was small considering the time and effort involved in many of the larger schools.

2. Pre-school visit completion of data forms. The questionnaires were demanding in two ways. First, the shop instructors were requested to complete separate data forms (S-1, S-2 and S-5). Second, the nature of the data requested often meant considerable work in developing the data. For example, shop instructors were asked to develop a complete inventory of major shop equipment, stating quantities, model numbers and manufacturers. The magnitude of the effort ruled out interview as the vehicle for data collection. Therefore, school visits were scheduled so that almost all schools had a full month or more to complete their data forms. Some of the more conscientious instructors worked over a period of several weeks getting the data together.

The school principals, either directly or through delegation, coordinated the data collection during this phase. Each person was requested to retain his completed data forms in an envelope provided for this purpose until he was interviewed at the time of the school visit. This was necessary because some items on the data forms requested critical evaluation of facilities, equipment and school pupil services. Collection of data forms by principals might have discouraged some from giving frank answers. About 85 percent of the data forms were so retained by the persons who completed them. The others were collected by enthusiastic principals who wanted to make certain the data forms were completed when the visitation team arrived. No doubt, some were also curious about what was said.

3. School visits by project teams. Each school was visited for two days by a two-person project team. The pair consisted of a senior person in charge of coordinating the visit and a research assistant. There were a total of seven such teams.

The visits had several purposes. The primary one was to review the completed or partially completed data forms in a confidential interview in order to explore certain items in depth and to check for the completeness of data. The school visit was also used to collect various kinds of exhibits, to arrange with personnel for the possibility of further contacts, to obtain permission to use teacher signatures when writing to graduates, and generally to get a feel for the vocational education process. The last was particularly of great value because it provided a background of recollections and understandings that influenced data interpretation and recommendations. Most of what was learned by school visit experiences did not provide data for the study. It did, however, make the data more meaningful, e.g. the very poor rating one instructor gave his machine shop was confirmed by recollection of the shop: the floor was half concrete and half packed earth, the machines a conglomeration of local industry cast-offs and the materials stacked helter-skelter for lack of storage facilities and all housed in a dingy former garage.

One important point deserves emphasis. At no time did the project team generate data through personal assessments or evaluations. All

data was generated by school personnel. The visiting team merely finalized data collection.

The interviews proved to be valuable in correcting misinterpretations of items and in expanding open-ended response items. About 90 percent of the data forms came back with the project teams. The other 10 percent straggled in by mail weeks and sometimes months later. The great majority of participants were cooperative, conscientious and even enthusiastic about the study. They seemed to be grateful that vocational education was getting some national attention.

The 100 school visitations were completed during the Spring and Fall of 1964. They unquestionably added to the completeness and correctness of the data collected.

4. Collection of school record data. The initial plan called for transcribing school record data onto a standard form at the time of the school visit with the aid of school clerical help. This proved to be time-consuming and costly, so later the decision was made to request photocopies of the school records of graduates who returned the follow-up survey questionnaire. Experience showed this to be a mistake. It was assumed that the data requested by the blank school record form would be on the records when sent for later. This was not the case for a large number of schools. Some of the data was simply not kept. In other instances, it was scattered over several record sources. Furthermore, in some schools the records were not the same for the three graduating classes surveyed. In the end, it required considerable mail and telephone effort to retrieve missing data and some kinds of data proved unobtainable. Hindsight forces the conclusion that more complete school record data would have been obtained had the original plan to use a standard form been followed. It would also have greatly reduced the laborious job of coding school record data.

2 THE VOCATIONAL OUTCOMES: ANOTHER LOOK

INTRODUCTION

This chapter is essentially a summary of the research report, The Process and Product of T&I High School Level Vocational Education in the United States, Volume 1, The Product. Much of the present report will refer to the findings of the earlier report. Hence, the reader may find a summary chapter useful. For a more detailed account, the reader is referred to the original report.*

The Need for Evaluative Data

Any system with less than a tolerable degree of imperfection requires periodic critical evaluation in terms of clearly defined, measurable objectives if it is to be changed in the direction of a more perfect system. The statement applies to all systems, including public vocational education.

Critical self-evaluation is essential for the expansion and improvement of vocational education. What vocational education can least afford is defensive attitudes that seek to deny or discredit shortcomings pointed out by those concerned with improvements. In the long run, such attitudes are self-defeating.

Until about 1963, public vocational education in the United States was a barely tolerated stepchild. It stood last in the line for public support, and when it got to the point where the resources were being handed out, the cupboards were close to being bare. Outside the professional field, there was little recognition of the importance of strong, effective systems of public vocational education. Indeed, there was considerable opposition to the idea of a broad-based, widely expanded vocational education. Much of that opposition still exists today. The Vocational Education Act of 1963, however, represented a breakthrough. Vocational education got, at least in principle, its long-awaited public recognition. That recognition was spurred by technological changes in the economy that were steadily increasing unemployment among young people with no occupational training.

The 1963 Vocational Education Act made provisions for expanding and improving the quality of vocational education. Significantly, it also called upon the states to develop and implement procedures for evaluating how effectively vocational education was meeting its objectives. This was a healthy recognition of the need for more objective evaluation than has characterized vocational education in the past.

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* Eninger, M.U. The Process and Product of T&I High School Level Vocational Education in the United States. Volume 1, The Product. Pittsburgh: American Institutes for Research, 1965.

What Kinds of Evaluative Data?

Vocational education, no less than general education, is a complex process. There are many areas in need of evaluative scrutiny, e.g. curriculum, facilities, teacher education, instructional methods, guidance and other student services and especially the management of the whole interacting process. The ultimate evaluative data, however, must be concerned with the post-school experiences of the vocational graduates in the world of work. Why? Because that is where the pay-offs are. That is where the effectiveness of vocational education systems must, in the final analysis, be assessed. No matter how fine the facilities, how enlightened the instructional procedure, how sound the curriculum, one would seriously question the effectiveness of vocational education, for example:

- If vocational graduates had great difficulty in finding full-time employment.
- If only a small percentage of those who wanted jobs could find employment in the fields for which trained.
- If those who found jobs in the field for which trained left in large numbers because of belated awareness that they were unsuited for the work.
- If the employment security of vocational graduates was less than that experienced by non-vocational graduates with comparable years of education.

These and other negative possibilities concerning post-school occupational experiences point out the need for evaluative yardsticks that measure vocational education effectiveness in terms of post-school experiences of graduates.

The Occupational Measures

The survey of T&I vocational graduates developed data for several types of post-school occupational measures that were calculated for individual graduates and for their schools. Some of these measures will later be recommended as standing evaluative measures for the purpose of assessing how well schools are meeting their vocational education objectives. The measures are defined and explained briefly as follows:

1. Placement time (months required to get the first full-time job). Graduates who sought full-time work after graduation were asked to indicate how long it took them to find their first full-time job. The measure was not applied to those who did not seek full-time work upon graduation. Excluded were those who went into military service, full-time post-secondary school ecudation or were otherwise unavailable for full-time work. The measure is expressed in terms of mean and median months required to find the first full-time job.

2. Relatedness of jobs to training. For each full-time job held since high school, the graduates indicated whether the job was (1) the same as, (2) highly related to, (3) slightly related to, or (4) completely

unrelated to the occupation studied in school. Such ratings were weighted 4, 3, 2 and 1 respectively to permit a quantitative expression of job to training relatedness.

The weighted ratings were used to calculate three separate relatedness measures: (1) first job relatedness, (2) present job relatedness and (3) relatedness of all jobs held. The measures were expressed as mean and median values for direct to work graduates.

3. Reported job satisfaction. For each full-time job held, the graduates rated their job satisfaction either (1) very satisfied, (2) satisfied, (3) dissatisfied or (4) very dissatisfied. Such ratings were rated 4, 3, 2 and 1 respectively to permit a quantitative expression of job satisfaction.

The weighted ratings were used to calculate three separate job satisfaction measures: (1) job satisfaction reported for the first job, (2) job satisfaction reported for the present job and (3) job satisfaction reported for all jobs held. The measures were expressed as mean and median values.

4. Earnings and earnings progression. For each full-time job held, the graduates reported their starting and terminating hourly rates. This permitted the calculation of three earnings measures: (1) first job starting hourly rate, (2) present job hourly rate, and (3) percentage of earnings increase of present hourly rate over first job starting hourly rate. The measures are expressed as mean and median values.

5. Employment security. The graduates provided data necessary to calculate the percentage of their total employable time that they were fully employed. Employable time was defined as the potential number of months available for employment minus any months of military service, full-time school attendance or unemployability because of physical incapacity.

Two employment security measures were calculated. The first covered the period from the month and year of graduation to the cut-off month of the survey, i.e. June, 1964. The second measure covered the period that began with the date of the first full-time job and ended with the survey cut-off point. The latter measure is introduced in this chapter for the first time. In effect, it excludes from employment security the unemployment that preceded the first full-time job. Thus, it describes what percentage of the graduate's employable time, starting with his first job, was spent fully employed. Unless otherwise stated, it is this measure of employment security that is discussed in this chapter.

6. Employer stability. Graduates provided data on the number of separate employer full-time jobs held and the duration of each such job in months. This permitted the calculation of two measures of employer stability: (1) number of full-time jobs held and (2) mean duration in months of full-time jobs held. The latter measure turned out to be of questionable value because the relatively small number of jobs held meant the mean duration was highly subject to extreme duration values.

7. Geographic mobility. For each full-time job held, graduates reported whether or not the job involved a move to a new city, and if so, the number of miles involved in the move. The resultant data permitted the calculation of two geographic mobility measures: (1) number of new city moves and (2) miles moved per new city move. The measures have a bearing on what constitutes the functional labor market served by the schools.

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In Volume 1, most of these occupational measures were analyzed in terms of comparisons between: (1) the three graduating classes of 1953, 1958 and 1962, (2) the vocational and comprehensive schools, (3) the small, medium and large enrollment schools, (4) the vocational and academic program graduates and (5) the minority and non-minority group graduates. To set the stage for what follows in later chapters, the present chapter will primarily emphasize data obtained for 1962 graduates and will not repeat Volume 1 findings that are related to the above implied issues escept where a special purpose is served.

The Non-Occupational Measures

The survey of the T&I vocational graduates developed data on several types of post-school non-occupation measures. Their potential as evaluative measures is open to question. They are defined and explained briefly below:

1. Years of accumulated college education. Graduates who attended college indicated their average class hours per week and the months of college attendance. A year of college education was set equivalent to 540 hours, the amount of hours that would have been accumulated at the rate of 15 class hours per week for nine months. This permitted a quantitative expression of the total amount of college education accumulated up to June, 1964 by both full-time and part-time attenders.

2. Months of accumulated non-college education. Graduates who attended non-college post-secondary sources of education, i.e. public or private trade schools, commerical or business schools, military service specialist schools, adult continuation schools, etc., indicated their average class hours per week and their months of attendance. A month of such education was set equivalent to 160 hours, the amount of hours that would have been accumulated at the rate of 40 hours per week for four weeks. This permitted a quantitative expression of the total amount of non-college, post-secondary school education accumulated as of June, 1964 for both full-time and part-time attenders.

3. Conversational interests. Graduates were asked to rate the frequency with which they engaged in 14 common topics of conversation. (See the questionnaire in Appendix Section 2 for a listing of the conversational topics.) The frequency ratings were on a four point scale weighted as follows: 4-almost always, 3-frequently, 2-seldom and 1-almost never. The mean of the individual topic ratings provided a conversational interest measure for each graduate. The higher the score, the greater the range and

frequency of conversational interests.

4. Leisure activities. Graduates were asked to rate the frequency of involvement in 19 common types of leisure activities. (See the questionnaire in Appendix Section 2 for a listing of the leisure activities.) The frequency ratings were again on a four point scale weighted as follows: 4-almost daily, 3-frequently, 2-infrequently and 1-almost never. The mean of the individaul ratings provided a leisure activity measure for each graduate. The higher the score, the greater the range and frequency of his leisure activities.

5. Organization affiliation. Graduates were asked to indicate their participation status in 12 common types of community organizations. (See the questionnaire in Appendix Section 2 for a listing of these organizations.) The participation status was indicated on a four point scale weighted as follows: 4-incumbent officer, 3-active member, 2-inactive mem- and 1-non-member. The mean of the individual weights provided a measure of each graduate's organization affiliation. The higher the score, the more active his involvement in community organizations.

6. Attitude toward former school. Graduates were asked to rate each of the listed school characteristics. (See the questionnaire in Appendix Section 2 for a listing of the school characteristics.) The ratings were indicated on a four point weighted scale as follows: 4-excellent, 3-good, 2- satisfactory and 1-poor. The mean of the individual ratings provided an attitude score for each graduate toward his former school.

* * * * * * * *

The non-occupational measures, excepting some type of attitude toward former school measure, are not suggested as evaluative measures. They were included in the study for special purposed other than exploring their suitability as evaluative measures.

THE SURVEY PROCEDURE

What follows is a general description of the survey procedure. The reader who wishes a more detailed account is referred to Volume I.

The Pre-return Graduate Sample

The T&I vocational graduates selected for follow-up survey came from the 100 school sample described in Chapter 1. Three graduating classes were surveyed: 1953, 1958 and 1962. The survey period terminated in June, 1964. Thus, the three graduating classes were respectively eleven, six and two years out of school.

The graduates selected for survey at each school were selected randomly from course graduate rosters. Where possible, an equal number were selected from each T&I course offered by the school to assure that all courses would be adequately represented.

Table 1 shows the distribution of T&I graduates by type of school and class year. The sample contained a greater number of graduates from vocational schools than from comprehensive schools, because the former had larger graduating classes.

TABLE 1. DISTRIBUTION OF T&I GRADUATES SELECTED FOR FOLLOW-UP STUDY BY CLASS YEAR AND TYPE OF SCHOOL

TYPE OF SCHOOL	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Vocational	1779	60.4	2002	54.7	2379	56.7	6160	57.0
Comprehensive	1166	39.6	1659	45.3	1820	43.3	4645	43.0

Table 2 shows the distribution of T&I graduates by geographic region and class year. The percentage distribution of graduates by geographic region corresponds remarkably with the percentage distribution of schools by geographic region. The Southeast, for example, contributed 29 percent of the total school sample and 27.5 percent of the total T&I graduate sample selected for follow-up. The correspondence was entirely the product of applying the selection principles described in the previous section.

TABLE 2. DISTRIBUTION OF T&I GRADUATES SELECTED FOR FOLLOW-UP STUDY BY CLASS YEAR AND GEOGRAPHIC REGION

GEOGRAPHIC REGION	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
New England	345	11.7	426	11.6	500	11.9	1271	11.8
Mideast	809	27.5	971	26.5	1042	24.8	2822	26.1
Great Lakes	384	13.0	556	15.2	683	16.3	1623	15.0
Plains	301	10.2	283	7.7	371	8.8	955	8.8
Southeast	803	27.3	1038	28.4	1133	27.0	2974	27.5
Southwest	128	4.3	215	5.9	255	6.1	598	5.5
Rocky Mountains	21	0.7	31	0.8	36	0.8	88	0.8
Far West & Pacific	154	5.2	141	3.8	179	4.3	474	4.4

Table 3 shows the distribution of T&I graduates by trade and class year. In rank order, the five most frequently drawn upon trades were automobile mechanics (15.2%), machinist (14.9%), electrican (10.9%), drafting (4.1%) and printing (7.0%). The percentages reflect indirectly the relative frequency with which courses were offered in the one hundred school sample.

Questionnaire Contact Procedure

A maximum of seven mail contacts was made with the graduates, if necessary, to solicit the return of the questionnaire. Return of the questionnaire at any step of the contact schedule terminated further contacts. Table 4 shows the contact schedule and the type of mail contacts used to stimulate a questionnaire return.

TABLE 4. SCHEDULE OF MAIL CONTACTS. (All contacts but the fourth were mailed from local post offices.)

CONTACT NUMBER	ORDINAL DAY	NATURE OF CONTACT	CONTACT INTERVAL
1	1	School letter plus questionnaire	-
2	4	Reminder/thank you post card	3
3	10	Second reminder post card	6
4	24	A.I.R. letter plus questionnaire	14
5	38	Third reminder post card	14
6	52	Principal's letter plus questionnaire	14
7	60	Final principal/instructor letter	8

TABLE 3. DISTRIBUTION OF T&I GRADUATES SELECTED FOR FOLLOW-UP STUDY BY CLASS YEAR AND TRADE*

TRADE	YEAR OF GRADUATION							
	1953		1958		1962		COMBINED	
	N	%	N	%	N	%	N	%
Auto mechanics	412	14.0	565	15.4	668	15.9	1645	15.2
Auto body repair	42	1.4	58	1.6	84	2.0	184	1.7
Aircraft mechanics	37	1.2	49	1.3	40	1.0	126	1.2
Air conditioning/heating	0	0.0	10	0.3	23	0.5	33	0.3
Building trades	62	2.1	102	2.8	104	2.5	268	2.5
Carpentry	144	4.9	167	4.6	146	3.5	457	4.2
Commercial art	51	1.7	67	1.8	78	1.8	196	1.8
Drafting (all types)	209	7.1	305	8.3	256	6.1	770	7.1
Electricity	337	11.4	403	11.0	436	10.4	1176	10.9
Electronics	42	1.4	94	2.6	171	4.1	307	2.8
Food trades	11	0.4	37	1.0	52	1.2	100	0.9
Foundry	11	0.4	12	0.3	15	0.3	38	0.4
Machine shop	462	15.7	569	5.5	580	13.8	1611	14.9
Masonry	26	0.9	88	2.4	69	1.6	183	1.7
Mill/cabinetry	213	7.2	197	5.4	191	4.5	601	5.6
Metal trades	66	2.2	39	1.1	57	1.4	162	1.5
Painting/decorating	9	0.3	13	0.4	14	0.3	36	0.3
Plumbing	43	1.5	37	1.0	38	0.9	118	1.1
Printing	213	7.2	235	6.4	305	7.3	753	7.0
Radio/television	94	3.2	92	2.5	126	3.0	312	2.9
Sheet metal	77	2.6	105	2.9	109	2.6	291	2.7
Shoe repair	8	0.3	24	0.6	17	0.4	49	0.4
Tailoring	11	0.4	33	0.9	39	0.9	83	0.8
Upholstery	13	0.4	15	0.4	16	0.4	44	0.4
Welding	147	5.0	123	3.4	190	4.5	460	4.2
Other than above	205	7.0	222	6.1	375	8.9	802	7.4

* Actual course titles do not in all cases correspond with the trade titles listed above. Efforts were made to give each vocational course an equal representation within a school.

The reader is referred to Volume I for exhibits of the mail contacts and a more detailed account of the graduate contact procedure.

The Post-return Graduate Sample

The results of the seven contact procedure are revealed by Table 5 which shows the number and percentage of returns based upon initial mailings and upon cases located through the mails.

As expected, the percentage of address unknown cases increased with increased years out of school. Almost a third of the 1953 graduates could not be located. The percentage of returns also decreased with increased years out of school. The 1962 graduates yielded only a 60 percent return.

TABLE 5. VOCATIONAL COURSE GRADUATE RETURNS

TYPES OF CONTACTS AND RETURNS	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Initial mailing to graduates	2945	-	3654	-	4199	-	10798	-
Cases returned "address unknown"	959	32.6	1052	28.8	621	14.8	2632	24.5
Cases contacted by mailings	1986	67.4	2602	71.2	3578	85.2	8166	75.5
Returns (based on initial mailing)	1185	40.2	1694	46.4	2555	60.8	5434	50.5
Returns (based on cases contacted)	1185	59.7	1694	65.1	2555	71.4	5434	66.6

The substantial percentage of address unknown and nonrespondent cases in each of the graduating classes contacted made it necessary to apply a correction sample procedure to check the possibility that the respondents generated significantly different data from the address unknowns and the nonrespondents. This procedure and the results are described in a later section of the chapter. For a complete analysis of the survey returns, see Volume I.

Let us consider the nature of the post-return graduate sample. Table 6 shows the number of usable returns for T&I graduates in comprehen-

TABLE 6. DISTRIBUTION OF T&I GRADUATES WHO RETURNED USABLE QUESTIONNAIRES BY TYPE OF SCHOOL AND YEAR OF GRADUATION

TYPE OF SCHOOL	YEAR OF GRADUATION							
	1953		1958		1962		COMBINED	
	N	%	N	%	N	%	N	%
Vocational*	715	61.5	939	56.6	1453	58.4	3122	58.6
Comprehensive	448	38.5	720	43.4	1033	41.6	2205	41.4

* Includes vocational, technical and vocational-technical schools.

sive and vocational schools. Notice that the final sample contained a higher percentage of graduates from vocational schools. That is because the pre-return sample from vocational schools was larger than from comprehensive schools and also because the percentage returns from vocational school graduates was slightly better than from comprehensive school graduates.

Table 7 shows how the post-return sample was distributed in terms of the total enrollments of the schools from which they came. Notice that the final sample represents a fairly equal division of respondents that came from small, medium and large enrollment schools.

TABLE 7. DISTRIBUTION OF T&I GRADUATES WHO RETURNED USABLE QUESTIONNAIRES BY SCHOOL ENROLLMENT AND YEAR OF GRADUATION

ENROLLMENT*	YEAR OF GRADUATION							
	1953		1958		1962		COMBINED	
	N	%	N	%	N	%	N	%
Less than 500	419	36.0	545	32.8	786	31.6	1755	32.9
500 - 1500	438	37.7	650	39.2	918	36.9	2017	37.9
More than 1500	306	26.3	464	28.0	782	31.5	1555	29.2

* As of October, 1963.

Table 8 shows how the post-return sample was distributed in terms of geographic regions in which they went to school. The regional percentages for the combined sample correspond closely to the school representation percentages shown in Table 1, Chapter 1. Thus, the regions are represented in the graduate sample in approximate proportion to their representation in the school sample and in the population of the United States schools offering three or more T&I courses.

TABLE 8. DISTRIBUTION OF T&I GRADUATES WHO RETURNED USABLE QUESTIONNAIRES BY REGION AND YEAR OF GRADUATION

GEOGRAPHIC REGION	YEAR OF GRADUATION							
	1953		1958		1962		COMBINED	
	N	%	N	%	N	%	N	%
New England	222	19.1	274	16.5	365	14.7	863	16.2
Mideast	375	32.2	495	29.8	674	27.1	1549	29.1
Great Lakes	121	10.4	233	14.0	390	15.7	749	14.1
Plains	107	9.2	121	7.3	226	9.1	454	8.5
Southeast	231	19.9	372	22.4	543	21.8	1153	21.6
Southwest	46	4.0	96	5.8	133	5.3	275	5.2
Rocky Mountains	12	1.0	20	1.2	23	0.9	55	1.0
Far West & Pacific	49	4.2	48	2.9	132	5.3	229	4.3

Finally, Table 9 shows how the post-return sample was distributed among the T&I courses offered by the schools. The differences in course representation in the final sample reflect the differences in course offering frequency. Thus, automobile mechanics and machine shop offered respectively by 89 and 76 percent of the schools have a relatively high representation in the final sample, whereas plumbing and metal trades, offered by 13 and 12 percent of the schools respectively, have a very low representation in the final sample. The course mix represented by the final sample is a reasonable approximation of the course mix in the population of T&I graduates to which the study generalizes its findings.

TABLE 9. DISTRIBUTION OF T&I GRADUATES WHO RETURNED USABLE QUESTIONNAIRES BY CLASS YEAR AND TRADE*

TRADE AND INDUSTRY TRADES	YEAR OF GRADUATION							
	1953		1958		1962		COMBINED	
	N	%	N	%	N	%	N	%
Auto mechanics	144	12.7	239	14.7	389	15.9	772	14.8
Auto body repair	16	1.4	25	1.5	49	2.0	90	1.7
Aircraft mechanics	16	1.4	19	1.2	29	1.2	64	1.2
Air conditioning/heating	0	0.0	9	0.6	26	1.1	35	0.7
Building trades	28	2.5	40	2.5	41	1.7	109	2.1
Carpentry	56	4.9	58	3.6	78	3.2	192	3.7
Commercial art	15	1.3	24	1.5	39	1.6	78	1.5
Drafting	73	6.4	125	7.7	208	8.5	406	7.8
Electricity	128	11.3	193	11.9	264	10.8	585	11.2
Electronics	7	0.6	31	1.9	122	5.0	160	3.1
Food trades	5	0.4	14	0.9	29	1.2	48	0.9
Foundry	3	0.3	4	0.2	9	0.4	16	0.3
Machine shop	197	17.3	286	17.6	353	14.4	836	16.0
Masonry	10	0.9	16	1.0	29	1.2	55	1.1
Mill/cabinetry	102	9.0	115	7.1	125	5.1	342	6.6
Metal trades	22	1.9	18	1.1	40	1.6	80	1.5
Painting/decorating	3	0.3	9	0.6	7	0.3	19	0.4
Plumbing	22	1.9	24	1.5	21	0.9	67	1.3
Printing	86	7.6	100	6.2	174	7.1	360	6.9
Radio/television	35	3.1	43	2.6	87	3.6	165	3.2
Sheet metal	36	3.2	54	3.3	66	2.7	156	3.0
Shoe repair	1	0.1	4	0.2	6	0.2	11	0.2
Tailoring	2	0.2	10	0.6	17	0.7	29	0.6
Upholstery	6	0.5	6	0.4	4	0.2	16	0.3
Welding	41	3.6	45	2.8	98	4.0	184	3.5
Other than above	82	7.2	115	7.1	140	5.7	337	6.5

* Actual course titles do not in all cases correspond with the trade titles listed above. Efforts were made to give each vocational course an equal representation within a school.

THE OCCUPATIONAL OUTCOMES

Volume 1 of the report presents the vocational outcomes separately for the classes of 1953, 1958 and 1962. In addition, comparative data is presented for vocational vs. comprehensive schools; large, medium and small enrollment schools; geographic regions; vocational vs. academic graduates and for some outcome measures, the different T&I courses. It is beyond the scope of this chapter to review all those findings. The primary emphasis will be the findings related to the 1962 vocational graduates because that is the group that is used in this report to explore the relationships between school and student characteristic variables and the vocational outcomes. Several new analyses were done since the original report. These will be reported herein. The reader is referred to Volume 1 for the analyses indicated above.

First Job Placement Time

•How long did it take the 1962 vocational graduates to find their first full-time job after graduation? Table 10 provides the data for the graduates who went directly to work after graduation.*

The mean and median time in months required to get the first full-time job were 1.7 months and 1 month respectively. The distribution tells the story more exactly. About 35 percent had a full-time job immediately upon graduation. Another 14 percent got their job within two weeks after graduation. Another 20 percent required about a month to get their first post-school full-time job. Thus, 69 percent of the graduates were fully employed within one month of graduation. The equivalent percentage for the 1958 recession year graduates was 63 percent and for the 1953 boom year graduates it was 78 percent. The percentages verify that the general economy level has a definite influence on placement time.

The distribution of school means on this measure shows a wide range of individual school differences. Some schools do much better than others in terms of placement time. Six schools had a mean placement time of two weeks or less, whereas fifteen had a mean placement time of four months or more. It cannot be concluded that school placement time differences are wholly attributable to differences in organized placement effort. Undoubtedly, some of the school differences on this measure are

* About 74 percent of the 1962 graduates went directly to work. Of the balance, 10.4 percent went to college, 13.6 percent went into military service and 1.5 percent continued full-time in a public or private vocational school. A comparison of the 1953, 1958 and 1962 graduating classes revealed an interesting trend. Fewer graduates are going directly to work. The percentage dropped from 82.5 for the 1953 graduates to 74.2 for the 1962 graduates. Increased entry into military service accounts for most of the difference.

TABLE 10. FIRST JOB PLACEMENT TIME: DISTRIBUTION OF 1962 VOCATIONAL GRADUATES AND SCHOOLS IN TERMS OF MONTHS REQUIRED TO GET FIRST FULL-TIME JOB, BASED ON DIRECT TO WORK GRADUATES

MONTHS TO FIRST FULL-TIME JOB	PLACEMENT TIME DISTRIBUTIONS						MONTHS CLASS INTERVALS
	GRADUATES			SCHOOLS			
	N	%	C%	N	%	C%	
≧ 8	84	4.9	100.0	0	0.0	-	≧7.1
7	12	0.7	95.1	1	1.0	100.0	6.1 - 7.0
6	34	2.0	94.4	2	2.0	99.0	5.1 - 6.0
5	30	1.8	92.4	3	3.0	97.0	4.1 - 5.0
4	72	4.3	90.6	9	9.0	94.0	3.1 - 4.0
3	131	7.8	86.3	14	14.0	85.0	2.1 - 3.0
2	169	10.0	78.5	44	44.0	71.0	1.1 - 2.0
1	330	19.5	68.5	21	21.0	27.0	0.6 - 1.0
0.5	236	14.0	49.0	6	6.0	6.0	0.1 - 0.5
0	591	35.0	35.0	0	0.0	0.0	0.0
NUMBER	1689			100			NUMBER
MEAN	1.7			1.9			MEAN
MEDIAN	1			1.6			MEDIAN
S.D.	2.9			1.2			S.D.

reflections of differences in local skill manpower requirements. More will be said about placement activities in a later chapter.

It may be of incidental interest to know that 1962 academic direct to work graduates required a mean of 2.8 months to obtain their first full-time post-school job. That is a full mean month longer than the time required by vocational graduates.

Relatedness of Jobs Held to Training

•How related was their first full-time job to vocational training? Table 11 provides the data for the direct to work graduates.

The mean and median job to training relatedness for 1962 vocational graduates is respectively 2.4 and 2 on a scale ranging from 4 (same occupation) to 1 (completely unrelated occupation). This indicates that a sizable percentage of graduates are not going into the occupations for which trained. The exact story is given by the distribution values; 29.1 percent went into the occupation for which trained; 19.3 percent went into a highly related occupation; 14 percent went into a slightly related occupation and 37.6 percent went into a completely unrelated occupation.

Comparable data for the recession year class of 1958 and the boom year class of 1953 indicates that the economy level does have a slight influence on the relatedness of first job to training. About 33 percent of the 1953 graduates entered the occupation studied in school, whereas only 28 percent of the 1958 graduates did so. Similarly, 33 percent of the 1953 graduates entered a completely unrelated occupation, whereas 41 percent of the 1958 recession year graduates did so.

The relatedness of first job held to training correlates substantially and inversely (r=-.60) with time required to get the first job. The longer it takes to get the first job, the less likely is it to be in the field for which trained. The relationship points up the importance of an organized effort by schools to place graduates into jobs.

TABLE 11. RELATEDNESS OF FIRST JOB TO TRAINING: DISTRIBUTION FOR 1962 VOCATIONAL GRADUATES AND THEIR SCHOOLS, BASED ON DIRECT TO WORK GRADUATES

RELATEDNESS CATEGORY*	FIRST JOB RELATEDNESS						RELATEDNESS CLASS INTERVALS
	GRADUATES			SCHOOLS			
	N	%	C%	N	%	C%	
4	460	29.1	29.1	0	0.0	0.0	3.7 - 4.0
				1	1.0	1.0	3.4 - 3.6
				4	4.0	5.0	3.1 - 3.3
3	306	19.3	48.4	14	14.0	19.0	2.8 - 3.0
				17	17.0	36.0	2.5 - 2.7
				20	20.0	56.0	2.2 - 2.4
2	222	14.0	62.4	25	25.0	81.0	1.9 - 2.1
				11	11.0	92.0	1.6 - 1.8
				5	5.0	97.0	1.3 - 1.5
1	595	37.6	100.0	3	3.0	100.0	1.0 - 1.2
NUMBER	1583			100			NUMBER
MEAN	2.40			2.32			MEAN
MEDIAN	2			2.3			MEDIAN
S.D.	1.25			0.50			S.D.

* 4-same occupation, 3-highly related occupation, 2-slightly related occupation, 1-completely unrelated

The school differences are highly interesting. Some schools clearly do a better job of placing graduates into the fields for which trained than others. Nineteen percent of the schools have a mean first job relatedness of less than 2. That means most of their graduates are going into occupations completely unrelated to their vocational training. At the other extreme, nineteen percent of schools scored 2.8 or better, an indication that the great majority of graduates in these schools are going into the occupation for which trained or a highly related occupation.

The differences do not necessarily reflect circumstances over which schools have complete control. There may be differences in local manpower requirements for skilled occupations. Some of the schools were in areas that still had relatively high unemployment rates in 1962. The relationship between school performance in placing graduates into the occupations for which trained and the nature and intensity of their placement efforts is discussed in a later chapter.

• How related is their present job to vocational training? About 56 percent of the 1962 graduates held 2 or more full-time jobs up to June, 1964. There is the possibility that their first full-time job does not tell the complete job-to-training relatedness story. Circumstances may have forced some to accept work in occupations unrelated to their vocational training until they could get into the fields for which trained. This possibility is revealed by the relatedness of their present job (June, 1964) to training and a comparison with first job relatedness. Table 12 provides the data on the relatedness of present job to the T&I course studied.

The relatedness of jobs held two years after graduation is not substantially different from the relatedness of the first job held. Whereas 29 percent took their first job in the occupation studied, two years later, there were 26 percent in the occupation studied. Similarly, whereas 19 percent took their first job in a highly related occupation, two years later, 18 percent were in a highly related occupation. Thus, the possibility that there was a significant delayed entry into the occupation for which trained finds no data support. The opposite seems to be the case. There is a net loss of graduates out of the occupations for which trained as time goes by.

Almost 48 percent of the 1962 graduates started to work in their field of study; two years later the percentage in the field was 44 percent, a net loss of four percent. About 45 percent of the 1958 graduates started to work in their field of study; six years later the percentage in the field was 39 percent, a net loss of six percent. About 51 percent of the 1953 graduates secured their first job in their field of study; eleven years later the percentage in the field was 36 percent, a net loss of fifteen percent. This data indicates that the net movement is consistently out of the field of training.

From the standpoint of the relatedness of the first full-time job to T&I course studied, there is shifting both toward and away from the occupations studied as the years go by. Some shift from occupations the same as or highly related to what was studied in school. Others shift

from completely unrelated or slightly related occupations to what was studied. The net shift, however, is toward unrelated occupations. Table 13 provides an analyses of the relatedness shifting that took place between first and present jobs for the 1953, 1958 and 1962 vocational graduates. The percentages are based on the number of cases in each first job relatedness category.

TABLE 12. RELATEDNESS OF PRESENT JOB TO TRAINING: DISTRIBUTIONS FOR 1962 VOCATIONAL GRADUATES AND THEIR SCHOOLS, BASED ON DIRECT TO WORK GRADUATES

RELATEDNESS CATEGORY*	PRESENT JOB RELATEDNESS						RELATEDNESS CLASS INTERVALS
	GRADUATES			SCHOOLS			
	N	%	C%	N	%	C%	
4	408	25.9	25.9	0	0.0	0.0	3.7 - 4.0
				1	1.0	1.0	3.4 - 3.6
				2	2.0	3.0	3.1 - 3.3
3	286	18.2	44.1	9	9.0	12.0	2.8 - 3.0
				19	19.0	31.0	2.5 - 2.7
				26	26.0	57.0	2.2 - 2.4
2	284	18.1	62.2	19	19.0	76.0	1.9 - 2.1
				14	14.0	90.0	1.6 - 1.8
				7	7.0	97.0	1.3 - 1.5
1	595	37.8	100.0	3	3.0	100.0	1.0 - 1.2
NUMBER	1573			100			NUMBER
MEAN	2.3			2.25			MEAN
MEDIAN	2			2.3			MEDIAN
S.D.	1.2			0.49			S.D.

* 4-same occupation, 3-highly related occupation, 2-slightly related occupation, 1-completely unrelated

Of the 1962 graduates who started out in the occupation studied, 74 percent were still in that occupation and another 6 percent shifted to a highly related occupation. The major shift, however, was out of the field of study. Twenty percent shifted to a slightly related or completely unrelated occupation. The same pattern applies to the classes of 1953 and 1958. Of the 1953 graduates who started out in the occupation studied, 53 percent were in the same occupation after eleven years, and another 9 percent were in a highly related occupation. Thus, 62 percent were still in their field of study. Thirty-eight percent left the occupation studied for an unrelated or only slightly related occupation. The data for the class of 1958 lies between that for the 1962 and 1953 class years. All show a substantial loss of graduates out of the occupation studied. The major proportion of the loss is to unrelated fields.

TABLE 13. ANALYSIS OF RELATEDNESS SHIFTING PATTERNS BETWEEN FIRST JOB AND PRESENT JOB (1964) FOR 1953, 1958 AND 1962 DIRECT TO WORK VOCATIONAL GRADUATES

FIRST JOB RELATIONSHIP TO T&I OCCUPATION STUDIED		PRESENT JOB (1964) RELATIONSHIP TO T&I OCCUPATION STUDIED	YEAR OF GRADUATION					
			1953		1958		1962	
			N	%	N	%	N	%
SAME TRADE	1953 32.2% 1958 28.3% 1962 29.1%	Same Trade	147	53.1	198	64.9	359	74.0
		Highly Related	25	9.0	33	10.8	28	5.8
		Slightly Related	33	11.9	19	6.2	38	7.8
		Unrelated Trade	72	26.0	55	18.0	60	12.4
HIGHLY RELATED	1953 18.3% 1958 16.6% 1962 19.3%	Same Trade	15	9.8	15	8.4	22	6.9
		Highly Related	71	46.4	110	61.5	219	68.7
		Slightly Related	21	13.7	18	10.1	28	8.8
		Unrelated Trade	46	30.1	36	20.1	50	15.1
SLIGHTLY RELATED	1953 16.3% 1958 14.0% 1962 14.0%	Same Trade	4	2.8	7	4.8	16	7.1
		Highly Related	16	11.3	12	8.2	18	8.0
		Slightly Related	87	61.7	88	60.3	152	67.9
		Unrelated Trade	34	24.1	39	26.7	38	17.0
UNRELATED TRADE	1953 33.2% 1958 41.1% 1962 37.6%	Same Trade	21	7.4	48	11.0	35	5.8
		Highly Related	23	8.1	27	6.2	36	6.0
		Slightly Related	44	15.5	65	14.8	70	11.6
		Unrelated Trade	195	68.9	298	68.0	464	76.7

The same phenomena is revealed by those who started out in an occupation highly related to the occupation studied. For each class year, less than 10 percent shifted into the occupation studied. The percentage that shifted out of their field of study ranged from 24 percent for the 1962 graduates to 44 percent for the 1953 graduates. Again, we see that the bulk of the shifting is out of the field of study; with each passing year, more leave.

•How about those whose first full-time job is out of their field of training? Do they go back? Yes, some do, but most do not.

Of the 1962 graduates who started out in an unrelated or slightly related occupation, about 13 percent were in the occupation studied or a highly related occupation two years later. The rest were still out of their field of study. The other class years showed the same trends. Of the 1958's who started out of their field of study, 16 percent were in their field six years later. Of the 1953's who started out of their field of study, 14 percent were in their field eleven years later. For all class years, the great majority of those who start in occupations out of their field of study remain out.

The overall picture is one of movement into and out of the field of study, with the net movement being substantially out.

Does this necessarily reflect poorly on vocational education? Not at all! Undoubtedly, some yet to be determined percentage of this shifting is vertical movement within companies to new positions of responsibility that are unrelated to vocational courses studied or entry occupations. The balance of the shifting, one can safely conclude, is probably in the direction of greater opportunities in other fields. These points are made to head off anyone pinning the donkey's tail on vocational education because there is substantial movement out of the occupations for which trained. The entry occupations for which vocational students are trained are stepping stones for better opportunities for many graduates. This is hardly something for which vocational education can be faulted. What is disturbing is the very high percentage that never enter the field for which trained, i.e. the same occupation studied or highly related occupations.

•How do the schools compare in terms of their graduates' present job to training relatedness?

The individual school differences cover almost the entire range of performance. At the low extreme, there are three schools whose graduates, two years after graduation, are almost entirely in occupations completely unrelated to what was studied. At the upper end, there are three schools with the great majority of their graduates either in the occupation studied or highly related occupations. The rest of the schools are normally distributed between the extremes. Evidence is presented in Volume 1, Chapter 3, that these school differences are stable over the years surveyed. Some schools do a year in, year out, better job of placing their graduates into the occupations for which trained than others. Moreover, their graduates tend to stick to their occupational fields longer than those from other schools.

Hourly Earnings

Earnings of vocational graduates are influenced by many factors, such as type of occupation, labor market demand, geographic region and others. Nevertheless, it is of interest to know how vocational graduates as a group do in terms of earnings.

•What is the vocational graduate's hourly starting rate on his first job? Table 14 shows the distribution of hourly starting rates for the 1962 direct to work graduates and the mean equivalent rates for the school.

The mean and median starting rates are $1.47 and $1.25 respectively. About 71 percent of the graduates started with an hourly rate of $1.50 or less. Converted to annual income, the median hourly rate amounts to $2600 per year. That's about 56 percent less than the 1960 median annual earnings of the male civilian labor force ($4621). It is clear that the vocational graduates start very low on the earnings ladder.

Notice the considerable range of school differences on this measure. Undoubtedly, many factors are responsible and most are beyond the control of the school, e.g. types of courses offered, local labor market conditions, labor organization of graduates, degree of labor unionization in the locality served by the school and possibly the quality of student resource that the school channels into its T&I vocational program. Later chapters will provide the results of analyses to determine what school and student resource variables are related to this measure.

TABLE 14. FIRST JOB STARTING HOURLY RATES: DISTRIBUTION FOR 1962 VOCATIONAL GRADUATES AND THEIR SCHOOLS, BASED ON DIRECT TO WORK CASES

HOURLY EARNINGS CLASS INTERVALS	INITIAL EARNINGS DISTRIBUTIONS						HOURLY EARNINGS CLASS INTERVALS
	GRADUATES			SCHOOLS			
	N	%	C%	N	%	C%	
>4.00	3	0.1	100.0	0	0.0	-	2.26 - 2.50
3.51 - 4.00	5	0.3	99.9	3	3.0	100.0	2.01 - 2.25
3.01 - 3.50	11	0.7	99.6	11	11.0	97.0	1.76 - 2.00
2.51 - 3.00	58	3.7	98.9	22	22.0	86.0	1.51 - 1.75
2.01 - 2.50	92	5.8	95.2	47	47.0	64.0	1.26 - 1.50
1.51 - 2.00	296	18.7	89.4	13	13.0	17.0	1.01 - 1.25
1.01 - 1.50	901	56.9	70.7	4	4.0	4.0	.76 - 1.00
.51 - 1.00	218	13.8	13.8	0	0.0	0.0	.51 - .75
NUMBER	1584			100			NUMBER
MEAN	$ 1.47			$ 1.46			MEAN
MEDIAN	$ 1.25			$ 1.42			MEDIAN
S.D.	0.55			0.27			S.D.

•How do the starting hourly rates of vocational graduates compare with the rates earned by academic direct to work graduates?

In 1953, the academics had a mean hourly starting rate of $1.43 vs. $1.31 for the vocationals. In 1958, the difference was reduced. The academics had a mean hourly starting rate of $1.46 vs. $1.42 for the vocationals. However, in 1962, the difference disappeared. The vocationals started

at a mean of $1.47 an hour vs. $1.46 for the academics. The trend suggests that the vocationals will soon, if not already doing so, start at higher hourly rates than academic graduates who go directly to work.

•How do the starting hourly rates of those who entered the occupation studied in school or a highly related occupation compare with those who entered completely unrelated or only slightly related occupations? Table 15 presents the comparative data.

Those in the same or highly related occupations start out with slightly less hourly earnings on the average than those who start out in unrelated or slightly related occupations. The differences shown in Table 15 are not significant for the 1958 and 1962 graduates. It must be remembered, however, that those who start in the fields for which trained are the beginners and apprentices in skilled craft occupations. Their status is still that of learners who are not highly productive from a skilled craft standpoint. Understandably, their hourly rates would tend to be low. It is only after their productive skills have been developed that their hourly rates would reflect their earning power.

TABLE 15. STARTING HOURLY EARNINGS ON FIRST JOB: COMPARISON OF HOURLY RATES OF THOSE IN AND OUT OF THE FIELD FOR WHICH TRAINED, BASED ON DIRECT TO WORK GRADUATES ONLY

YEAR OF GRADUATION	FIRST JOB STARTING HOURLY EARNINGS					
	SAME/HIGHLY RELATED			SLIGHTLY/UNRELATED		
	N	MEAN	S.D.	N	MEAN	S.D.
1953	426	1.26	0.47	425	1.37	0.55
1958	485	1.41	0.44	591	1.42	0.54
1962	752	1.45	0.41	804	1.48	0.65

•What are the vocational graduates' hourly earnings on their present job, (June, 1964) two years after graduation? Table 16 provides the data. The mean hourly rate rose 35 percent to $1.99 from the starting rate of $1.47 per hour. The median rate rose 48 percent, from $1.25 to $1.85. After two years of employment, the 1962 vocational graduate was earning at the rate of a mean annual income of $3848. The percentage of graduates earning $1.50 an hour or less dropped from 72 percent to 27 percent after two years.

Again, notice the considerable range of school differences. At the low end, 11 percent of the schools had mean present hourly rate earnings of less than $1.50. At the upper end, 7 percent of the schools had mean present hourly rates higher than $2.50. Later chapters will present data to account for the school differences.

TABLE 16. PRESENT JOB (1964) HOURLY RATES: DISTRIBUTION FOR 1962 VOCATIONAL GRADUATES AND THEIR SCHOOLS, BASED ON DIRECT TO WORK GRADUATES

HOURLY EARNINGS CLASS INTERVALS	PRESENT EARNINGS DISTRIBUTIONS						HOURLY EARNINGS CLASS INTERVALS
	GRADUATES			SCHOOLS			
	N	%	C%	N	%	C%	
>5.00	6	0.4	100.0	1	1.0	100.0	3.01 - 3.25
4.51 - 5.00	7	0.4	99.6	1	1.0	99.0	2.76 - 3.00
4.01 - 4.50	3	0.2	99.2	5	5.0	98.0	2.51 - 2.75
3.51 - 4.00	13	0.8	99.0	7	7.0	93.0	2.26 - 2.50
3.01 - 3.50	58	3.7	98.2	30	30.0	86.0	2.01 - 2.25
2.51 - 3.00	183	11.5	94.5	26	26.0	56.0	1.76 - 2.00
2.01 - 2.50	373	23.5	83.0	19	19.0	30.0	1.51 - 1.75
1.51 - 2.00	511	32.2	59.5	10	10.0	11.0	1.26 - 1.50
1.01 - 1.50	384	24.2	27.3	1	1.0	1.0	1.01 - 1.25
.51 - 1.00	50	3.1	3.1				
NUMBER	1588			100			NUMBER
MEAN	$ 1.99			$ 1.95			MEAN
MEDIAN	$ 1.85			$ 1.97			MEDIAN
S.D.	0.69			0.35			S.D.

• How do the present job hourly rates of vocational graduates compare with comparable rates earned by academic direct to work graduates?

After two years, the 1962 vocationals were earning a higher hourly rate than the academics who went directly to work ($1.99 vs. $1.87). The twelve cents an hour difference is equivalent to about $250 per year. After six years, the 1958 vocationals also earned a higher hourly rate than their academic counterparts ($2.49 vs. $2.38). After eleven years, the 1953 vocationals were earning a lower mean hourly rate than their academic counterparts ($2.99 vs. $3.05). The reversal is not substantial considering the lapse of years, but it does suggest the possibility that the academics catch up with and eventually surpass the vocationals in earnings. Data will be presented later to show that this is not the case when academics are compared with vocationals who entered their field of study.

• How do the present hourly earnings of those in the occupations studied or highly related occupations compare with those in unrelated or slightly related occupations? Table 17 presents the comparative data for the three graduating classes.

TABLE 17. PRESENT HOURLY EARNINGS: COMPARISON OF PRESENT HOURLY EARNINGS OF THOSE IN AND OUT OF THE FIELD FOR WHICH TRAINED, BASED ON DIRECT TO WORK GRADUATES ONLY

YEAR OF GRADUATION	HOURLY EARNINGS ON PRESENT JOB (1964)					
	SAME/HIGHLY RELATED			SLIGHTLY/UNRELATED		
	N	MEAN	S.D.	N	MEAN	S.D.
1953	310	3.22	0.97	515	2.89	1.01
1958	438	2.60	0.84	601	2.39	0.80
1962	680	2.05	0.60	866	1.95	0.75

The differences clearly favor the graduates who entered the fields for which trained. There is a 33 cent hourly difference for 1953 graduates which is equivalent to about $686 per year, a 21 cent difference for the 1958 graduates (about $437 per year) and a 10 cent difference for the 1962 graduates (about $208 per year). Notice that as the years go by the earnings gap increases. Here again is a strong argument for vigorous school effort to place their graduates into the occupations for which trained. Within two years, those so placed will be earning more, and their rate of earnings increase will be greater in the years that follow, at least up to eleven years after graduation and probably for all years thereafter.

•How do the present job hourly rates of vocational graduates who entered their field of study compare with the rates of academic direct to work graduates?

After two years, the 1962 vocationals who entered their field of study were earning a mean of 18 cents more per hour than the 1962 direct to work academics ($2.05 vs. $1.87). The difference is equivalent to $374 a year. After six years, the 1958 vocationals who entered their field of study earned a mean of 25 cents an hour more than the 1958 direct to work academics ($2.60 vs. $2.35). The difference is equivalent to $520 a year. After eleven years, the 1953 vocationals who entered their field of study were earning 17 cents more per hour than the 1953 direct to work academics ($3.22 vs. $3.05). It is clear that the academic direct to work graduates never caught up with the earnings of the vocationals who entered occupations in their field of study.

•How much have the hourly rates increased over the first two years of employment? Table 18 provides the data.

The mean and median percentage increase of present job hourly rates over first job starting rates was 39 and 35 percent respectively. The percentage increases for individual graduates range from zero to over 100 percent in some cases. At the low extreme, 21 percent have had no increase over their first job starting rate. One cannot help but wonder

why. At the other extreme, 23 percent have had a 61 percent or better increase in a two year period. The overall picture is one of impressive earnings progression.

The mean and median percentage increase for the 1958 graduates was 86 and 70 percent respectively. For the 1953 graduates, the equivalent values were 133 and 130 percent respectively. The trend suggested by this data is that the rate of earnings increase is greatest in the first several years.

The distribution of schools on this measure is interesting. Scored on the basis of their graduates' performance, it is apparent that there are substantial school differences. This suggests that there are differential factors related to the schools which influence the earnings progression of their graduates. The most obvious factor that suggests itself is the kind of occupations represented by their course offerings. Subsequent chapters will discuss what factors are related to the individual school differences on this measure.

TABLE 18. PERCENTAGES OF EARNINGS INCREASES OVER FIRST TWO YEARS OF EMPLOYMENT FOR 1962 VOCATIONAL GRADUATES WHO WENT DIRECTLY TO WORK

PERCENT EARNINGS INCREASE	EARNINGS INCREASE					
	GRADUATES			SCHOOLS		
	N	%	C%	N	%	C%
≥91	54	4.2	100.0	0	0.0	-
81 - 90	53	4.1	95.8	1	1.0	100.0
71 - 80	80	6.2	91.7	0	0.0	99.0
61 - 70	105	8.2	85.5	1	1.0	99.0
51 - 60	111	8.7	77.3	12	12.0	98.0
41 - 50	137	10.7	68.6	27	27.0	86.0
31 - 40	126	9.8	57.9	28	28.0	59.0
21 - 30	161	12.6	48.1	22	22.0	31.0
11 - 20	114	8.9	35.5	8	8.0	9.0
1 - 10	73	5.7	26.6	1	1.0	1.0
0	267	20.9	20.9	0	0.0	0.0
NUMBER	1281			100		
MEAN	39.3			37.9		
MEDIAN	35			39		
S.D.	30.1			12.8		

It follows from earlier presented vocational and academic graduate earnings data that vocational graduates experience a substantially greater percentage earnings increase from their starting hourly rates on their first jobs to their present hourly rates, two, six and eleven years later. (See Table 45, page 2-60 for the data.)

Reported Job Satisfaction

The job satisfaction experienced by the vocational graduates is a reflection, in part, of their adjustment to the world of work. For that reason, the vocational educator may be concerned with reported job satisfaction.

•How satisfied were the direct to work vocational graduates with their first full-time job? Table 19 provides the data.

The mean reported first job satisfaction is 2.9, indicating a high degree of job satisfaction. About 30 percent reported they were very satisfied. Another 43 percent reported they were satisfied. Only 9 percent reported being very dissatisfied. This data is in line with what normally is reported by job satisfaction surveys. Most people report satisfaction with their work.

Schools, when scored in terms of the mean job satisfaction reported by their graduates, also show considerable individual differences. One explanation is that schools differ in terms of their success in placing their

TABLE 19. REPORTED JOB SATISFACTION WITH FIRST FULL-TIME JOB: DISTRIBUTIONS FOR GRADUATES AND SCHOOLS, BASED ON 1962 GRADUATES WHO WENT DIRECTLY TO WORK

JOB SATISFACTION RATING*	FIRST JOB SATISFACTION						SATISFACTION CLASS INTERVALS
	GRADUATES			SCHOOLS			
	N	%	C%	N	%	C%	
4	468	29.4	100.0	11	11.0	100.0	3.4 - 3.6
				12	12.0	89.0	3.1 - 3.3
3	678	42.6	70.6	34	34.0	77.0	2.8 - 3.0
				30	30.0	43.0	2.5 - 2.7
2	304	19.1	28.0	11	11.0	13.0	2.2 - 2.4
				1	1.0	2.0	1.9 - 2.1
1	141	8.9	8.9	1	1.0	1.0	1.6 - 1.8
NUMBER	1591			100			NUMBER
MEAN	2.93			2.89			MEAN
MEDIAN	3			2.9			MEDIAN
S.D.	0.91			0.35			S.D.

* 4-very satisfied, 3-satisfied, 2-dissatisfied, 1-very dissatisfied

graduates into the fields for which trained, and this, in turn, differentially influences the job satisfaction of their graduates. This interpretation is confirmed by the moderately high .62 correlation between school mean first job relatedness and job satisfaction scores.

•How do vocational graduates compare with academic direct to work graduates in terms of first job reported job satisfaction?

The vocationals reported higher job satisfaction than the academics. For the 1962 vocationals, the mean reported job satisfaction was 2.9 vs. 2.7 for the academics. For the 1958 vocationals, the mean was 2.9 vs. 2.8 for the academics. And for the 1953 vocationals, it was 3.0 vs. 2.7 for the academics. While the differences consistently favor the vocationals, they are not substantial differences.

However, the differences do become impressive when one compares vocationals who entered their field of study with the academics. For 1953, 1958 and 1962, the comparison data is 3.3 vs. 2.8, 3.3 vs. 2.7 and 3.3 vs. 2.8 respectively. The differences are significantly and substantially in favor of the vocationals who have entered their field of study.

•How does the first job satisfaction of graduates who entered the occupation studied or highly related occupation compare with that of those who entered unrelated or slightly related occupations? Table 20 provides the data.

For each of the three graduating classes, those who entered the field for which trained reported significantly greater satisfaction with their jobs than those who entered unrelated or only slightly related work. One cannot say for certain that it is the relatedness of their work that makes those in the field experience greater job satisfaction. It can be argued that those with a greater potential for satisfaction are those who go into the field for which trained. We prefer the first alternative, namely, that the relatedness of jobs held to course studied influences job satisfaction. Those who enter the field for which trained experience a continuity between effort and outcome, a sense of pay-off in which embryo skills are further developed. Undoubtedly, this has to do with the greater job satisfaction they report. Possibly another contributing factor is their greater amount of earnings.

TABLE 20. REPORTED SATISFACTION WITH THE FIRST JOB: COMPARISON OF THOSE IN AND OUT OF THE FIELD FOR WHICH TRAINED, BASED ON DIRECT TO WORK GRADUATES

YEAR OF GRADUATION	SATISFACTION ON FIRST JOB					
	SAME/HIGHLY RELATED			SLIGHTLY/UNRELATED		
	N	MEAN	S.D.	N	MEAN	S.D.
1953	447	3.28	0.72	438	2.70	0.90
1958	493	3.29	0.73	605	2.60	0.93
1962	759	3.28	0.76	814	2.60	0.92

•How satisfied were the direct to work vocational graduates with their present (June, 1964) jobs? Table 21 provides the data.

TABLE 21. REPORTED JOB SATISFACTION WITH PRESENT JOB DISTRIBUTIONS FOR GRADUATES AND SCHOOLS, BASED ON 1962 GRADUATES WHO WENT DIRECTLY TO WORK

JOB SATISFACTION RATING*	PRESENT JOB SATISFACTION						SATISFACTION CLASS INTERVALS
	GRADUATES			SCHOOLS			
	N	%	C%	N	%	C%	
4	683	43.3	100.0	2	2.0	100.0	3.7 - 4.0
3	657	41.6	56.7	20	20.0	98.0	3.4 - 3.6
2	169	10.7	15.1	46	46.0	78.0	3.1 - 3.3
1	69	4.4	4.4	24	24.0	32.0	2.8 - 3.0
				8	8.0	8.0	2.5 - 2.7
NUMBER	1578			100			NUMBER
MEAN	3.2			3.22			MEAN
MEDIAN	3			3.3			MEDIAN
S.D.	0.8			0.28			S.D.

* 4-very satisfied, 3-satisfied, 2-dissatisfied, 1-very dissatisfied

About 56 percent of the 1962 vocational graduates had held two or more full-time jobs by June, 1964. Thus, more than half, when reporting present job satisfaction are referring to a job other than their first full-time job. Table 21 shows an improvement in reported job satisfaction for the present job over the starting job. Whereas 29 percent reported they were very satisfied with their first job, 43 percent reported so for their present job. At the other extreme, whereas 9 percent reported they were very dissatisfied with their first job, only 4 percent reported so for their present job.

There is no mystery about the direction of the change. Understandably, those who are dissatisfied with their first job will tend to move on to other jobs as their situation permits until they achieve a tolerable level of job satisfaction. The process of increasing job satisfaction with increased years out of school continues up to and probably beyond the first eleven years out of school. The mean present job satisfaction reported by 1953 graduates was 3.6, whereas their mean first job

satisfaction was 3.0. The mean present job satisfaction of the 1958 graduates was 3.4, whereas their mean first job satisfaction was 2.9. Undoubtedly, what is being reflected by these differences is the adjustment to work process, i.e. movement to more compatible jobs as well as greater acceptance of the realities of the world of work. Jobs like shoes become more comfortable with age when there is an initial good fit.

• How does the present job satisfaction of those in the occupation studied or a highly related occupation compare with that of graduates in unrelated or slightly related occupations? Table 22 provides the data.

TABLE 22. REPORTED SATISFACTION WITH PRESENT (JUNE, 1964) JOB: COMPARISON OF THOSE IN AND OUT OF THE FIELD FOR WHICH TRAINED, BASED ON GRADUATES WITH ≥ 6 MONTHS EMPLOYABLE TIME

YEAR OF GRADUATION	PRESENT JOB SATISFACTION					
	SAME/HIGHLY RELATED			SLIGHTLY/UNRELATED		
	N	M	S.D.	N	M	S.D.
1953	364	3.70	0.52	638	3.43	0.72
1958	545	3.65	0.56	839	3.29	0.78
1962	726	3.54	0.62	935	3.03	0.86

The data convincingly demonstrate that those who stay in the occupation studied or highly related occupations experience greater job satisfaction than those whose present jobs are in unrelated or only slightly related occupations. The 1953 graduates who are in the field studied reported a mean percentage job satisfaction of 3.7 on the four point scale where 4 is equivalent to highly satisfied. We have, so far, two strong arguments for schools making a vigorous effort to place their T&I graduates into the fields for which trained. Such graduates earn significantly more than those who enter unrelated fields of work, and they report significantly greater job satisfaction.

• How do the vocational graduates compare with their direct to work academic counterparts in terms of job satisfaction reported with the present job?

The comparisons still favor the vocationals. For the 1953 graduates, it was 3.6 vs. 3.3. For the 1958 graduates, it was 3.4 vs 3.2. And for the 1962 graduates, it was 3.2 vs. 3.0. Thus, even after eleven years out of school, the vocationals report greater job satisfaction than do the direct to work academics.

These differences are even greater when one compares vocational graduates presently in their field of study with the direct to work academics. For the 1953 graduates, the comparative data is 3.7 vs. 3.3; for the 1958 graduates, it is 3.7 vs. 3.2; and for the 1962 graduates, it is 3.5 vs. 3.0. Thus, to borrow a phrase, the happiest of the lot (in terms of job satisfaction) are the vocational graduates who have entered and stayed with their field of study.

Employment Security

The employment security of vocational graduates, defined in terms of the percentage of employable time that a graduate was fully employed, is of interest because it has a bearing on his accumulated earnings. It is not sufficient to know that he enjoys a higher hourly rate than his direct to work academic program counterpart, or that, if in the field for which trained, he has a higher hourly rate than those not in the field.

● What has the employment security of the 1962 vocational graduate been for the period terminating June, 1964? Table 23 provides the data.

The employment security herein discussed is the percentage of the graduate's employable time that he was fully employed, where employable time begins with his first full-time job. The measure excludes pre-first job unemployment.

The mean and median employment security of the 1962 vocational graduates was 92.5 and 100 percent respectively. About 65 percent of the graduates were fully employed 100 percent of their employable time since obtaining their first job. Another 15 percent were fully employed between 90 and 99 percent of their employable time. Thus, the overall employment security experienced by the vocational graduates is high, particularly when one takes into account that the first two years out of school is the period for relatively active employer changing.

TABLE 23. EMPLOYMENT SECURITY: DISTRIBUTIONS FOR 1962 VOCATIONAL GRADUATES AND THEIR SCHOOLS, BASED ON DIRECT TO WORK GRADUATES

PERCENTAGE CLASS INTERVALS	EMPLOYMENT SECURITY						PERCENTAGE CLASS INTERVALS
	GRADUATES			SCHOOLS			
	N	%	C%	N	%	C%	
100	1009	64.6	64.6	6	6.0	6.0	100
90 - 99	228	14.6	79.2	26	26.0	32.0	95 - 99
80 - 89	122	7.8	87.0	38	38.0	70.0	90 - 94
70 - 79	73	4.7	91.7	21	21.0	91.0	85 - 89
60 - 69	51	3.3	95.0	4	4.0	95.0	80 - 84
50 - 59	27	1.7	96.7	2	2.0	97.0	75 - 79
40 - 49	19	1.2	97.9	2	2.0	99.0	70 - 74
30 - 39	14	0.9	98.8	0	0.0	99.0	65 - 69
20 - 29	8	0.5	99.3	1	1.0	100.0	60 - 64
10 - 19	4	0.3	99.6				
0 - 9	6	0.4	100.0				
NUMBER	1561			100			NUMBER
MEAN	92.5			91.7			MEAN
MEDIAN	100			93			MEDIAN
S.D.	15.3			6.3			S.D.

For the 1958 graduates, the mean and median employment security was 92.5 and 100 percent respectively. For the 1963 graduates, the figures were 93.6 and 99 percent respectively. It is clear that vocational graduates enjoy a high degree of employment security through periods of economic boom and recession.

Notice the wide range in school mean percentages on this measure. At the top of the distribution, six schools had mean employment security of 100 percent. All their graduates were fully employed 100 percent of their employable time after obtaining their first full-time job. At the other extreme, there are five schools with a mean employment security score of less than 80 percent. One cannot say, at this point, how much of these individual school differences are attributable to functions within the control of the school. Later chapters will analyze this problem.

● How do vocational and academic direct to work graduates compare in terms of employment security? The comparative data is provided in Table 24 for two measures of employment security.

TABLE 24. EMPLOYMENT SECURITY: COMPARISON OF EMPLOYMENT SECURITY OF VOCATIONAL AND ACADEMIC GRADUATES, BASED ON DIRECT TO WORK GRADUATES ONLY

CLASS YEARS	TYPES OF EMPLOYMENT SECURITY MEASURES*	DIRECT TO WORK GRADUATES							
		VOCATIONALS				ACADEMICS			
		N	M	S.D.	MDN	N	M	S.D.	MDN
1953	Employment Security 1	919	92.3	14.8	98	177	91.5	14.1	96
	Employment Security 2	887	93.6	14.3	99	164	94.2	11.8	99
1958	Employment Security 1	1362	87.8	17.3	94	208	84.9	19.0	94
	Employment Security 2	1090	92.5	15.3	100	192	92.2	15.8	100
1962	Employment Security 1	1689	86.6	18.0	94	254	82.4	21.8	91
	Employment Security 2	1561	92.5	15.3	100	234	91.7	17.4	100

* Employment security 1 covers the period from date of graduation to June, 1964.
Employment security 2 covers the period from date of first job to June, 1964.

On employment security calculated from the date of graduation, the vocationals are consistently higher than the academics. This is because the latter require twice as long as the vocationals to find their first full-time job. On employment security calculated from the date of the first job on, there are no significant differences between the two groups. Stated differently, both experience about the same amount of employment or under employment from their first full-time job onwards.

The picture changes, however, when the vocationals at work in their field of study are compared with the academics. The former enjoy significantly greater employment. On employment security calculated from the date of graduation, the 1953, 1958 and 1962 comparative data is 95.4 vs. 91.5 percent, 91.8 vs. 84.9 percent and 91.4 vs. 82.4 percent, all percentages in favor of the vocationals. On employment security calculated from the date of the first job, the 1953, 1958 and 1962 comparative data is 96.2 vs. 94.2 percent, 95.0 vs. 92.7 percent and 95.9 vs. 91.7 percent. Again, all percentages are in favor of the vocationals who were working in their field of study on June, 1964. Moreover, the differences are sufficiently impressive to conclude that vocationals whose occupations are in their field of study have significantly greater employment security than direct to work academics.

● How does the employment security of those who entered the occupation studied or a highly related occupation compare with those who entered unrelated or only slightly related occupations? Table 25 provides the data.

TABLE 25. EMPLOYMENT SECURITY: COMPARISON OF EMPLOYMENT SECURITY OF THOSE WHO STARTED IN AND OUT OF THE FIELD FOR WHICH TRAINED, BASED UPON DIRECT TO WORK CRADUATES

YEAR OF GRADUATION	EMPLOYMENT SECURITY					
	SAME/HIGHLY RELATED			SLIGHTLY/UNRELATED		
	N	M	S.D.	N.	M.	S.D.
1953	442	94.2	13.6	429	93.2	15.0
1958	480	94.7	11.7	590	91.2	16.5
1962	738	94.2	13.1	779	90.9	17.0

Those who entered the field for which trained enjoyed greater employment security. Here, again, is an argument why schools should make a vigorous planned effort to place graduates in their field of study. The point assumes that a high percentage of those who did not enter the field studied had the qualifications but not the opportunity. Volume 1, Chapter 5 presents supporting evidence. The single most frequently reported reason for not getting the first job in the field was inability to find a job in the field of training.

Employer Stability

• How many employers (jobs) have the 1962 direct to work vocational graduates had over their first two years of employment? Table 26 provides the data.

TABLE 26. NUMBER OF FULL-TIME JOBS HELD: DISTRIBUTIONS FOR VOCATIONAL GRADUATES AND SCHOOLS, BASED ON 1962 DIRECT TO WORK GRADUATES

NUMBER OF FULL-TIME JOBS	NUMBER OF FULL-TIME JOBS						NUMBER OF JOBS CLASS INTERVALS
	GRADUATES			SCHOOLS			
	N	%	C%	N	%	C%	
≥7	6	0.4	100.0				
6	17	1.0	99.6	1	1.0	100.0	3.0 - 3.4
5	41	2.5	98.6	10	10.0	99.0	2.5 - 2.9
4	97	6.0	96.1	43	43.0	89.0	2.0 - 2.4
3	252	15.6	90.1	40	40.0	46.0	1.5 - 1.9
2	511	31.6	74.5	6	6.0	6.0	1.0 - 1.4
1	695	42.9	42.9				
NUMBER	1619			100			NUMBER
MEAN	2.0			1.99			MEAN
MEDIAN	2			2.2			MEDIAN
S.D.	1.2			1.06			S.D.

The mean and median number of employers (jobs) experienced by the graduates is 2 and 2 respectively. The distribution shows that 43 percent have had one employer, another 32 percent have had two employers. Only 10 percent have had more than three employers. Even so, the data gives a picture of considerable exploratory moving during the first two years. There is evidence that such movement soon slows down. The mean number of full-time jobs held by 1958 graduates, in a six year period, was 2.5. The equivalent data for 1953 graduates, over an eleven year period, was 3.1 employers (jobs). The overall picture is one of a high degree of employer stability among the majority of vocational graduates after an initial period of new employer moves. Even this initial period reflects more stability than movement. The multiple movers are a relatively small minority.

The distribution of school means on this measure is, as expected, over a narrow range. Even so, there are significant individual school differences in the generation of multiple movers. Whether these differences are stable from year to year is another matter. One possible interpretation is that the opportunity to change jobs is greater in some of the labor markets served by the schools than in others. Later chapters will indicate what school and graduate characteristics are related to the employer stability measure.

•How do those who entered the occupation studied or a highly related occupation compare in number of jobs held with those who entered unrelated or only slightly related occupations? Table 27 provides the data.

The differences are neither significant nor consistant in direction. Apparently employer stability is unrelated to whether or not vocational graduates start out in their field of training.

TABLE 27. EMPLOYER STABILITY: COMPARISON OF THE NUMBER OF FULL-TIME JOBS HELD BY THOSE WHO STARTED IN AND OUT OF THE FIELD FOR WHICH TRAINED, BASED ON DIRECT TO WORK GRADUATES ONLY

YEAR OF GRADUATION	EMPLOYER STABILITY					
	SAME/HIGHLY RELATED			SLIGHTLY/UNRELATED		
	N	M	S.D.	N	M	S.D.
1953	449	3.4	1.87	440	3.0	1.84
1958	495	2.7	1.62	606	2.6	1.49
1962	766	1.9	1.13	817	2.0	1.19

Geographic Mobility

The geographic mobility of vocational graduates, defined in terms of the number of new city moves and the distances moved, has an important bearing on the problem of defining the geographic labor market area served by their schools and determing course offerings.

Table 28 provides a distribution of the graduates in terms of the number of new city moves made in the first two years out of school. Clearly, there is not a high degree of geographic mobility of vocational graduates in their early employment years. About 87 percent had never moved out of the community in which they went to school. Thus, the true labor market served by T&I program offering schools is a commuting distance radius from the city in which they are located. Until something occurs that changes the geographic mobility of such graduates, schools should recognize that the labor market for which they are developing occupational skills is, in the main, a local labor market. The average age of the secondary school graduate is 18 years; this is not the age at which one can expect a great deal of mobility in the sense of job-seeking in other cities, states or regions.

Also, it must be understood that the movers among the 1962 graduates did not necessarily move on their own. It is very likely that in many cases the parents made a new city move and the graduate went along. Unfortunately, this circumstance was not anticipated in the construction of the questionnaire, and there is no basis for saying what percentages were self-movers or with-family movers.

Even where new city moves have been made, the majority were under 300 miles. Thirty-two percent of the moves were within 50 miles, twenty-four percent were between 51 and 150 miles and 18 percent were between 151 and 300 miles. Thus, 73 percent of the new city moves were within 300 miles.

These data again point out the relatively restricted labor market served by the schools.

The school mean values are also interesting. Notice that 26 percent of the schools scored zero on this measure, meaning none of their direct to work graduates left the community between graduation and June, 1964. At the other extreme, four percent have a mean value of greater than one new city move per graduate. We cannot, at this point, say what the local factors are that stimulate the geographic mobility of the graduates of some schools. The point will be analyzed in later chapters.

TABLE 28. GEOGRAPHIC MOBILITY: DISTRIBUTIONS FOR 1962 VOCATIONAL GRADUATES AND THEIR SCHOOLS, BASED ON DIRECT TO WORK GRADUATES ONLY

NUMBER OF NEW CITY MOVES	NUMBER OF NEW CITY MOVES						NUMBER OF MOVES CLASS INTERVALS
	GRADUATES			SCHOOLS			
	N	%	C%	N	%	C%	
4	2	0.1	100.0	1	1.0	100.0	1.3 - 1.5
3	13	0.7	99.9	3	3.0	99.0	1.0 - 1.2
2	54	3.1	99.2	1	1.0	96.0	0.7 - 0.9
1	168	9.5	96.1	11	11.0	95.0	0.4 - 0.6
0	1533	86.6	86.6	58	58.0	84.0	0.1 - 0.3
				26	26.0	26.0	0.0
NUMBER	1770			100			NUMBER
MEAN	0.18			0.20			MEAN
MEDIAN	0			0.2			MEDIAN
S.D.	0.52			0.40			S.D.

One can also ask whether those who did make a new city move in connection with their first full-time job had more success in finding jobs in their fields of study than the non-movers. Table 29 provides the data.

Of the 1953 graduates who made a new city move in connection with their first job, 37 percent entered an occupation in their field of study in contrast with 52 percent of the non-movers. For the class of 1958, the new city movers also did less well (33 percent vs. 46 percent for the non-movers). Only the class of 1962 movers had more success than the non-movers in finding jobs in their field of study (51 percent vs. 50 percent for the non-movers). The difference is negligible and not significant. The individual class year percentages for the movers are based on a relatively small number of cases, and the percentages may not be reliable estimates of population parameters. For that reason, the class year data was also combined. On that basis, 43 percent of the movers entered occupations in

their field of study, whereas 49 percent of the non-movers did so.

It can not be concluded that the movers would have done better if they had stayed. However, it looks like mere movement to new locations does not increase the percentage of graduates who enter the occupation for which trained.

TABLE 29: COMPARATIVE RELATEDNESS OF FIRST JOB TO COURSE STUDIED FOR THOSE WHO MOVED AND DID NOT MOVE TO A NEW CITY IN CONNECTION WITH THEIR FIRST FULL-TIME JOB

NEW CITY MOVES REPORTED BY GRADUATES IN CONNECTION WITH THEIR FIRST FULL-TIME JOB			RELATEDNESS OF FIRST JOB TO COURSE STUDIED							
			SAME		HIGHLY RELATED		SLIGHTLY RELATED		UNRELATED	
			N	%	N	%	N	%	N	%
1953	Movers	(N=52)	12	23.1	7	13.5	11	21.1	22	42.3
	Non-movers	(N=816)	266	32.6	155	19.0	131	16.0	264	32.4
1958	Movers	(N=78)	14	17.9	12	15.4	14	17.9	38	48.7
	Non-movers	(N=1008)	294	29.2	170	16.9	138	13.7	406	40.2
1962	Movers	(N=128)	46	35.9	19	14.9	22	17.2	41	32.0
	Non-movers	(N=1497)	442	29.5	301	20.1	202	13.5	552	36.9
ALL	Movers	(N=258)	72	27.9	38	14.7	47	18.2	101	39.2
	Non-movers	(N=3321)	1002	30.2	626	18.8	471	14.2	1222	36.8

THE NON-OCCUPATIONAL OUTCOMES

The non-occupational measures reviewed include (1) accumulated college education, (2) accumulated non-college, post-secondary school education, (3) conversational interests, (4) leisure activities, (5) organization affiliation and (6) attitudes toward former schools. With the exception of the latter, these measures are of little value as potential evaluative measures. They are reviewed primarily because there may be general reader interest in these outcomes and also because later chapters will report on relationships between student characteristics and these measures. The reader is referred to Volume I for a complete presentation and discussion of the non-occupational experiences of the T&I vocational graduates.

College Education

The percentage of 1953, 1958 and 1962 vocational graduates who reported they went directly to full-time college studies is 8.3, 8.8 and 10.2 percent respectively. The data suggests a slightly increasing trend which can be expected to increase more rapidly with the current and anticipated growth of community colleges.

The percentage of 1953, 1958 and 1962 vocational graduates who reported some college education between graduation and the survey cutoff date, June, 1964 is 21, 17 and 15 percent respectively. The differences between this latter set of percentages and the first set given above represent graduates who at some later point decided on college attendance. One might call them deferred college attenders. They include mostly part-time attenders.

•Do they last in college? About 64 percent of the 1962 vocational graduates who went directly to full-time college studies were still attending college in June, 1964, the survey cutoff date. Thirty-six percent apparently dropped out. The equivalent drop-out percentage of the 1962 academic program graduates who went directly to college was 24 percent.

Table 30 provides data on the amount of college education accumulated by the 1962 graduates as of June, 1964.

A word of explanation is in order. The graduates did not report years of accumulated college work as such. They reported hours of class attendance per week and the number of months of college attendance. With that raw data basis, a college year was defined as 15 or more hours of class attendance per week for nine months for a total of 540 class hours. This made it possible to put part-time and full-time attenders on a common denominator basis, i.e. accumulated class hours and the conversion into equivalent years of college education.

The distribution of school means is based upon the accumulated years of college education of their graduates. The suggestion of school differences is clear. Twenty-two schools had a score of zero, meaning none of their graduates attended college. Perhaps one should stress the reverse side of the coin. There were some graduates in each of seventy-eight percent of the schools who reported attending college.

TABLE 30. COLLEGE EDUCATION: DISTRIBUTIONS FOR ALL 1962 VOCATIONAL GRADUATES AND SCHOOLS

YEARS OF COLLEGE	COLLEGE EDUCATION						MEAN YEARS CLASS INTERVAL
	GRADUATES			SCHOOLS			
	N	%	C%	N	%	C%	
2.0	159	6.5	100.0	0	0.0	-	0.76 - 1.00
1.5	48	2.0	93.5	3	3.0	100.0	0.51 - 0.75
1.0	66	2.7	91.5	14	14.0	97.0	0.26 - 0.50
0.5	75	3.1	88.8	61	61.0	83.0	0.01 - 0.25
0.0	2094	85.7	85.7	22	22.0	22.0	0.0
NUMBER	2442			100			NUMBER
MEAN	0.26			0.05			MEAN
MEDIAN	0			0.1			MEDIAN
S.D.	0.77			0.13			S.D.

Why vocational educators are defensive about the high percentage of non-college attendance by these graduates is a mystery. College attendance is not the objective of T&I curriculum planning. There is no reason to be apologetic for not accomplishing what one never set out to accomplish. To the criticism that vocational education is terminal education in the sense that those who change their minds and later want to go to college can not go, the best answer is the data given earlier. Clearly an impressive percentage do report college attendance, considering that T&I vocational programs are not college preparatory programs. When vocational educators are defensive about such percentages, they introduce a questionable set of values into the philosophy of vocational education. Indeed, they undermine their own position by tacitly conceding that some college is better than no college and the more college, the better. Considering the nature of the human resource that enters their programs and for which their programs are developed, such values may harm vocational education by inducing strong motivation to "enrich" and further "enrich" T&I programs until they approach or reach a college preparatory status.

Non-college Education

The percentage of 1953, 1958 and 1962 vocational graduates who reported they went directly to full-time non-college studies, i.e. private or public trade/technical schools, business/commercial schools or other type of post-secondary, non-college schools is 0.7, 1.4 and 1.5 percent respectively. It is clear that full-time non-college education is not a major factor in the continuing education of vocational graduates.

The percentage of 1953, 1958 and 1962 vocational graduates who reported some type of post-secondary, non-college education for the period between graduation and the survey cutoff date of June, 1964 is 26.5, 20.1 and 12.5 percent respectively.* For the combined graduating classes, the following percentages reported attending the sources of post-high school education listed below:

Military specialist school	21.7%
Correspondence courses	9.6
Company courses	8.2
Public trade/technical schools	7.1
Private trade/technical schools	5.2
Adult continuation school	4.7

The percentages are not mutually exclusive. They include both part-time and full-time attenders.

Table 31 provides a distribution of the amount of non-college education, expressed in months, accumulated by the 1962 graduates. A month of non-college education was defined as the equivalent of 40 hours per week for four weeks.

TABLE 31. NON-COLLEGE EDUCATION: DISTRIBUTIONS FOR ALL 1962 VOCATIONAL GRADUATES AND SCHOOLS

MONTHS OF NON-COLLEGE EDUCATION	NON-COLLEGE EDUCATION						MEAN MONTHS CLASS INTERVALS
	GRADUATES			SCHOOLS			
	N	%	C%	N	%	C%	
≧10	49	16.0	100.0	19	23.2	100.0	≧5.5
9	4	1.3	84.9	4	4.9	76.8	5.1 - 5.5
8	4	1.3	83.6	4	4.9	71.9	4.6 - 5.0
7	3	1.0	82.3	2	2.4	67.0	4.1 - 4.5
6	9	2.9	81.3	5	6.1	64.6	3.6 - 4.0
5	9	2.9	78.4	8	9.7	58.5	3.1 - 3.5
4	20	6.5	75.5	5	6.1	48.8	2.6 - 3.0
3	44	14.4	69.0	6	7.3	42.7	2.1 - 2.5
2	58	19.0	54.6	10	12.2	35.4	1.6 - 2.0
1	109	35.6	35.6	19	23.2	23.2	1.0 - 1.5
0	2145	87.5	-	18	18.0	-	0
NUMBER	306			82			NUMBER
MEAN	4.5			4.6			MEAN
MEDIAN	2			3.3			MEDIAN
S.D.	5.6			2.9			S.D.

* Does not include military specialist school attendance or correspondence school courses.

Of the 12.5 percent who reported some type of post-secondary school, non-college education, the mean and median months of such education accumulated was 4.5 and 2.0 months respectively. The distribution of school means on this measure is interesting. The graduates of 18 percent of the schools reported no post-secondary education. At the other end of the distribution, 19 percent of the schools had mean scores of 5.6 or more months of non-college education accumulated by their graduates. The reasons for school differences on the measure cannot be specified. They may represent differences in opportunity for such education in the school community, differences in the felt need for further education among the graduates or, what is more likely, a combination of both.

One can conclude that post-graduation, non-college education or training involves a minority of the graduates if one excludes military specialist school attendance.

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The next three measures reported, i.e. conversational interests, leisure activities and organization affiliation, were designed primarily to compare vocational and academic graduates in non-occupational activities which might be a reflection of "total person" education. The general educator has long maintained an interest in educating the "total person". The vagueness of the concept has not prevented criticism from being directed at vocational education, the principal charge being that vocational programs do not provide the broad education provided by academic programs. The three measures were designed to put the criticism to a test. It was assumed that the education of the "total person" would be reflected in the topics he chooses for social conversation, in the ways he spends his leisure time and in the degree to which he participates in community organizations. Hence, the measures that are described in the following sections.

Conversational Interests

The graduates were asked to rate how frequently they engaged in fourteen common topics of conversational interest.* A four point weighted scale permitted the calculation of a mean rating ranging from 1 to 4. The higher the value, the greater the range and frequency of conversational interests.

Table 32 presents the distributions obtained for 1962 direct to work vocational and academic graduates.

There is no significant difference in range of conversational interests between academic and vocational graduates. Whatever the difference in their secondary school education, they are not reflected in their range of conversational interests. To the extent that the underlying assumptions are correct, this finding does not support the theory that academic graduates are more broadly educated as "total persons" than vocational graduates. Or, if they are, it certainly does not carry over into their post-school conversational interests.

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* Work, religion, politics, business conditions, world affairs, national affairs, state affairs, community problems, hobbies, sports, athletics, music, art, literature, government matters, labor union matters and family.

TABLE 32: CONVERSATIONAL INTERESTS: COMPARISON OF CONVERSATIONAL INTERESTS OF 1962 VOCATIONAL AND ACADEMIC GRADUATES, BASED ON DIRECT TO WORK GRADUATES ONLY

MEAN RANGE OF INTERESTS*	CONVERSATIONAL INTERESTS					
	VOCATIONAL			ACADEMIC		
	N	%	C%	N	%	C%
3.7 - 4.0	2	0.1	100.0	2	0.8	100.0
3.4 - 3.6	19	1.2	99.9	5	2.0	99.2
3.1 - 3.3	58	3.6	98.7	15	6.0	97.2
2.8 - 3.0	192	11.8	95.1	28	11.3	91.2
2.5 - 2.7	473	29.0	83.3	90	36.1	79.9
2.2 - 2.4	443	27.2	54.3	54	21.7	43.8
1.9 - 2.1	235	14.4	27.1	35	14.1	22.1
1.6 - 1.8	138	8.5	12.7	11	4.4	8.0
1.3 - 1.5	54	3.3	4.2	8	3.2	3.6
1.0 - 1.2	15	0.9	0.9	1	0.4	0.4
NUMBER	1629			249		
MEAN	2.4			2.5		
MEDIAN	2.3			2.6		
S.D.	0.4			0.5		

* 4-almost always, 3-frequently, 2-seldom, 1-almost never

The differences between graduates within each group are considerable. They run the range from being almost non-conversational in such topics as politics, business, world affairs, art, government and other common conversational topics to being virtual chatterboxes about everything. Since this seems to be the human range, the data has some face validity.

It is unlikely that the individual differences are attributable to any school characteristics. Ninety-three percent of the school means fell within a narrow range of 2.2 to 2.7. The differences are more likely correlated with differences in personal characteristic measurables, such as general intelligence, aptitudes, interests and other student characteristics. This is not the same as saying schools have no influence on the conversational interests of their students. It does not suggest that, if there are such influences on range of interests, there is very little difference between schools. In short, one school does just about as well as the other.

Leisure Activities

The graduates were asked to rate how frequently they engaged in nineteen common leisure activities,* i.e. almost daily, frequently, infrequently or almost never. The weighted frequency categories permitted the calculation of a mean leisure activity index ranging from 1 to 4. The higher the value, the greater the range and frequency of leisure activities.

Table 33 presents the distributions obtained for the 1962 direct to work vocational and academic graduates.

TABLE 33. LEISURE ACTIVITIES: COMPARISON OF LEISURE ACTIVITIES OF 1962 VOCATIONAL AND ACADEMIC GRADUATES, BASED ON DIRECT TO WORK GRADUATES ONLY

LEISURE ACTIVITY RANGE*	LEISURE ACTIVITY DISTRIBUTIONS					
	VOCATIONAL			ACADEMIC		
	N	%	C%	N	%	C%
3.7 - 4.0	3	0.2	100.0	0	0.0	-
3.4 - 3.6	3	0.2	99.8	0	0.0	-
3.1 - 3.3	10	0.6	99.6	0	0.0	-
2.8 - 3.0	56	3.4	99.0	7	2.8	100.0
2.5 - 2.7	245	15.0	95.6	44	17.8	97.2
2.2 - 2.4	479	29.4	80.6	78	31.5	79.4
1.9 - 2.1	467	28.7	51.2	73	29.4	47.9
1.6 - 1.8	290	17.8	22.5	39	15.7	18.5
1.3 - 1.5	70	4.3	4.7	7	2.8	2.8
1.0 - 1.2	6	0.4	0.4	0	0.0	0.0
NUMBER	1629			248		
MEAN	2.1			2.17		
MEDIAN	2.0			2.3		
S.D.	0.4			0.3		

* 4-daily, 3-frequently, 2-infrequently, 1-never

* Reading newspapers, reading non-fiction books, reading general magazines, reading trade books or periodicals, attending educational courses, attending lectures, discussions, engaging in craft hobbies, working in a home workshop, collecting objects, attending spectator sports, engaging in performing arts, listening to music at home, watching television programs, entertaining or visiting friends, going to movies and gardening.

There is no significant difference in the range or overall frequency of leisure activities between academic and vocational graduates. Thus, the differences in their educational programs are not reflected in their range of leisure activities. This finding, too, does not support the contention that academic graduates are more broadly educated "total persons" than vocational graduates. Or, if they are, it is not reflected in the range of leisure activities.

There are differences between the two types of graduates on some of the leisure activities, but the differences are less impressive than the similarities. For example, academic graduates read general magazines slightly more frequently (2.8 vs. 2.6) than vocational graduates, whereas vocational graduates engage in craft hobbies a little more frequently (1.9 vs. 1.7) than the academics. The differences do not add up to a strong argument that academic graduates have had more "total person" education than vocationals. The reader is referred to Volume I, Chapter II for a more complete presentation of data and discussion.

There are virtually no school differences on this measure. Ninety-seven percent of the schools had a mean score, based on what their graduates reported, of between 1.9 and 2.4. Clearly, in whatever ways the schools are different, the differences do not influence differences in range of leisure activities among their graduates. Such differences are more likely attributable to available opportunities and personal characteristics that are not the product of formal education.

Organization Affiliation

The graduates were asked to indicate their degree of involvement in twelve types of community organizations,* i.e. not a member, inactive member, active member or officer. The four point weighted scale permitted the calculation of a mean value ranging from 1 to 4. The higher the value, the greater the degree of organization affiliation.

Table 34 presents the distributions obtained for the 1962 direct to work vocational and academic graduates.

Two things are clear: (1) There is a very low degree of organization affiliation with both kinds of graduates two years after leaving high school. Except for religious organization affiliation, they are non-joiners at that age. (2) There is no difference whatsoever between the two types of graduates.

With increased years out of school, organization affiliation does increase, but not greatly. For the 1958 vocational and academic direct to work graduates, the mean values were 1.3 and 1.3 respectively, a very slight increase over the 1962 graduate values with still no difference between the two types of graduates.

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* Religious, political, service, athletic, labor union, fraternal, veterans, business or trade, cultural, civic, youth and professional.

TABLE 34. ORGANIZATION AFFILIATION: COMPARISON OF ORGANIZATION AFFILIATION OF 1962 VOCATIONAL AND ACADEMIC GRADUATES, BASED ON DIRECT TO WORK GRADUATES ONLY

ORGANIZATION AFFILIATION CLASS INTERVALS*	ORGANIZATION AFFILIATION					
	VOCATIONAL			ACADEMIC		
	N	%	C%	N	%	C%
3.1 - 3.3	0	0.0	-	1	0.4	100.0
2.8 - 3.0	17	1.1	100.0	0	0.0	99.6
2.5 - 2.7	3	0.2	98.9	0	0.0	99.6
2.2 - 2.4	10	0.6	98.7	2	0.8	99.6
1.9 - 2.1	39	2.4	98.1	1	0.4	98.8
1.6 - 1.8	73	4.5	95.7	15	6.1	98.4
1.3 - 1.5	425	26.3	91.2	74	30.0	92.3
1.0 - 1.2	1050	64.9	64.9	154	62.3	62.3
NUMBER	1617			247		
MEAN	1.2			1.2		
MEDIAN	1.1			1.1		
S.D.	0.3			0.3		

* 4-incumbent officer, 3-active member, 2-inactive member, 1-non-member

There was also no significant difference in organization affiliation between the 1953 vocational and academic graduates. Thus, if there are any differences in "total person" education between academic and vocational programs, they are not reflected in the degree to which their respective graduates participate in community organizations.

* * * * * * * * *

One must agree that such measures as breadth of conversational interests, range of leisure activities and degree of organization affiliation may not be a reflection of what some educators have in mind when they invoke the concept of educating the "total person". However, the burden of providing an operational definition of the concept that permits putting it to the test belongs to the general educator.

Attitude Toward Former School

What is the general attitude that vocational graduates hold toward their former schools? The attitude measure is a mean of separate ratings of ten school characteristics. Table 35 shows how the 1962 graduates distributed on the measure.

TABLE 35. ATTITUDE TOWARD FORMER SCHOOL: DISTRIBUTION FOR GRADUATES AND SCHOOLS, BASED ON ALL 1962 VOCATIONAL GRADUATES

MEAN SCHOOL RATING*	ATTITUDE TOWARD FORMER SCHOOL					
	GRADUATES			SCHOOLS		
	N	%	C%	N	%	C%
3.7 - 4.0	241	9.9	100.0	0	0.0	-
3.4 - 3.6	402	16.5	90.1	1	1.0	100.0
3.1 - 3.3	551	22.7	73.6	27	27.0	99.0
2.8 - 3.0	498	20.5	50.9	55	55.0	72.0
2.5 - 2.7	366	15.1	30.4	16	16.0	17.0
2.2 - 2.4	214	8.8	15.3	1	1.0	1.0
1.9 - 2.1	110	4.5	6.5	0	0.0	0.0
1.6 - 1.8	39	1.6	2.0	0	0.0	-
1.3 - 1.5	7	0.3	0.4	0	0.0	-
1.0 - 1.2	2	0.1	0.1	0	0.0	-
NUMBER	2430			100		
MEAN	3.0			3.0		
MEDIAN	2.9			3.0		
S.D.	0.52			0.20		

* 4-excellent, 3-good, 2-fair, 1-poor

The mean attitude of 3.0 indicates that the graduates have a generally high opinion of their former schools. However, individual scores cover the entire attitude range. Some apparently have a low opinion of their former schools. About 6.5 percent of the graduates gave their schools a rating of 2.1 or less. That would indicate they rated their schools

* Quality of instruction from shop instructors, quality of instruction from academic teachers, condition of shop facilities and equipment, general physical condition of school, vocational counseling given students, help given to students in finding jobs, opportunity for extracurricular activities, interest shown by teachers in student problems, reputation of the school in the community, strictness of school in maintaining disciplin

"fair" or "poor" on most of the ten characteristics. At the other extreme, about 10 percent rated their former schools 3.7 or better. That means they rated their former schools excellent on most of the ten rated characteristics. Individual ratings tell more about the individual than the school. Where there is a general agreement among the graduates, some inferences may be drawn about the schools. A look at the distribution of the school means on this measure indicates that there are individual school differences, but the differences are not very great. The extreme ratings made by some individuals are in apparent disagreement with how most graduates saw their former schools. The lowest rated school had a mean rating of slightly better than "fair" (2.0).

For a detailed analysis of how graduates rated each of the ten school characteristics, consult Volume I, Chapter 8.

•How does the attitude toward former school of those who entered the occupation studied or a highly related occupation compare with the attitude of those who entered unrelated or only slightly related occupations? Table 36 provides the data.

TABLE 36. ATTITUDE TOWARD FORMER SCHOOL: COMPARISON OF THOSE 1962 VOCATIONAL GRADUATES WHO STARTED IN AND OUT OF THE FIELD FOR WHICH TRAINED, BASED ON DIRECT TO WORK GRADUATES

YEAR OF GRADUATION	ATTITUDE TOWARD FORMER SCHOOL					
	SAME/HIGHLY RELATED			SLIGHTLY/UNRELATED		
	N	M	S.D.	N	M	S.D.
1953	448	2.9	0.55	437	2.8	0.59
1958	491	3.0	0.52	603	2.8	0.56
1962	763	3.1	0.50	815	2.9	0.55

Those who entered the field for which trained have a slightly higher opinion of their former school than those who entered occupations out of their field of training. The differences, however, are small.

THE CORRECTION SAMPLE RESULTS

Correction Sample Procedure

Of the 10,798 graduates selected for survey, 50.5 percent returned questionnaires, 24.5 percent were address unknown cases which could not be located and 25 percent were assumed to be unwilling to respond because first-class mailings were accepted but no questionnaires were forthcoming. The total non-respondence for both reasons raised the serious possibility that all parameter estimates based upon the sample that returned questionnaires were subject to an unknown degree of non-respondent bias.

To check on the possibility of such bias and also to provide a basis for correcting the parameter estimates in the event the bias was revealed, a correction sample procedure was applied. Briefly stated, the procedure was as follows:

1. Selection of corrective sample cases. The procedure called for an intensive search and interview effort to be applied to 10 percent (N=263) of the address unknowns and 10 percent (N=273) of the non-respondents. The number of cases of each type that were taken from each year of graduation was proportioned to percentage contribution of each class year to the total address unknown cases and total non-respondent cases. Once those numbers were determined, cases were randomly selected from each school's address unknown and non-respondent cases in approximate proportion to each school's percentage contribution to class year total address unknown and non-respondent cases. Thus, the 10 percent correction samples were random samples, stratified proportionately in terms of class years and schools.

2. Search and follow-up procedure. The names that were selected were turned over to a nation-wide credit investigation and interview agency. The latter initiated search procedures, interviewed the graduates who were located and returned completed questionnaires for data analysis.

Correction Sample Results

The intensive search and interview effort was, as expected, not a 100 percent success. Some of the address unknowns could not be located despite the rigorous search procedures. Some of the non-respondents refused to be interviewed. The returns, however, are considered adequate to check the possibility of serious bias in the uncorrected sample. Table 37 shows the correction sample returns by year of graduation and all years combined. Of the 200 non-returns, 124 (23 percent) could not be located, 34 (6 percent) refused to be interviewed and the balance were either deceased, institutionalized or in military service.

TABLE 37. CORRECTION SAMPLE RETURNS BY YEAR OF GRADUATION AND ALL YEARS COMBINED

CORRECTION SAMPLE CATEGORIES	YEAR OF GRADUATION							
	1953		1958		1962		COMBINED	
	N	%	N	%	N	%	N	%
Address unknown total	96	-	105	-	62	-	263	-
Address unknown returns	59	61.5	55	52.4	34	54.8	148	56.3
Non-respondent total	80	-	91	-	102	-	273	-
Non-respondent returns	46	57.5	69	75.8	73	71.6	188	68.9
Total correction sample	176	-	196	-	164	-	536	-
Total returns	105	59.6	124	63.3	107	65.2	336	62.7

Table 38 shows the parameter estimates obtained from the 1962 vocational graduates on both occupational and non-occupational measures for the uncorrected sample and the correction sample. The significance of difference test results are reported as are the corrected parameter estimates where correction was warranted.

The three job-to-training relatedness measures generated t values that were significant at the 1 percent or better level of confidence. Thus, the correction sample means were significantly lower than the uncorrected sample means. This indicates that the latter sample presents a slightly more favorable job-to-training relatedness picture than really is the case. The truth is somewhere between each of the pairs of means. Because the 1962 uncorrected means are based upon a 60 percent return, a corrected mean can be obtained by weighting the uncorrected and correction sample means by 60 and 40 respectively. (See Volume 1 for the correction procedure details.)

A comparison of the corrected means with the original uncorrected means shown in Table 38 shows nothing is altered in terms of conclusions to be drawn. The differences are too small to be of practical significance. Stated otherwise, the non-respondents are not sufficiently different from the respondents on these measures to greatly change the parameter estimates obtained.

Three measures generated significant t values at the 5 percent level of confidence: (1) present job present hourly earnings, (2) percentage of employable time fully employed and (3) the index of leisure activities. Application of the correction procedure resulted in the corrected parameter estimates shown in Table 38.

None of the parameter estimates for the other measures require correction. It is most significant that the geographic mobility measures do not warrant correction. The address unknown cases that were found after intensive

TABLE 38. ANALYSIS OF CORRECTION SAMPLE FOR THE 1962 VOCATIONAL GRADUATES

OCCUPATIONAL AND NON-OCCUPATIONAL MEASURES	PARAMETER ESTIMATES BASED ON UNCORRECTED GRADUATE SAMPLE			PARAMETER ESTIMATES BASED ON CORRECTION GRADUATE SAMPLE			DIFFERENCE TEST	CORRECTED PARAMETER ESTIMATES
	N	MEAN	S.D.	N	MEAN	S.D.	t	
Months to first full-time job	1689	1.71	2.86	75	1.63	2.42	.24	-
First job relatedness to training	1705	2.38	1.25	83	1.84	1.14	3.86**	2.2
Present job relatedness to training	1694	2.31	1.22	79	1.86	1.11	3.22**	2.1
All job relatedness to training	1744	2.31	1.11	84	1.84	1.04	3.80**	2.1
Reported satisfaction - first job	1713	2.93	0.92	83	3.01	0.85	.78	-
Reported satisfaction - present job	1697	3.24	0.82	78	3.37	0.65	1.38	-
Reported satisfaction - all jobs	1748	3.04	0.74	83	3.14	0.58	1.21	-
Starting earnings - first job	1705	1.48	0.52	81	1.58	0.64	1.67	-
Present earnings - present job	1709	1.99	0.66	79	2.15	0.67	2.10*	2.05
Earnings percentage increase	1615	42.9	44.04	74	45.5	44.69	1.32	-
Employment security 1	1561	92.5	15.32	75	96.3	9.08	2.13*	94.0
Employment security 2	1653	86.0	18.56	84	88.2	15.70	.92	-
Number of full-time jobs	1743	1.96	1.15	84	1.88	0.99	.63	-
Number of new city moves	1666	0.18	0.52	84	0.14	0.44	.69	-
Distance moved in miles	1605	0.45	3.22	78	0.26	2.25	.51	-
Amount of college education	1862	0.10	0.37	84	0.04	0.01	1.49	-
Amount of non-college education	1862	0.48	2.02	84	0.93	3.47	1.92	-
Attitude toward former school	1851	2.9[illegible]	0.53	84	2.95	0.49	.68	-
Conversational range index	1799	2.38	0.44	83	2.35	0.47	.61	-
Leisure activity range index	1799	2.16	0.37	83	2.07	0.32	2.18*	2.1
Organization affiliation index	1785	1.24	0.31	83	1.23	0.22	.29	-

**-Significant at .01 level of confidence

*-Significant at .05 level of confidence

search were mainly found in the same cities in which they had gone to school. Thus, the pre-correction sample conclusion about very little geographic mobility among T&I vocational graduates is upheld.

Tables 39 and 40 present the correction sample results for the classes of 1958 and 1953 respectively. In no instance did a required correction change the parameter estimate sufficiently to alter or in any way influence the generalizations and conclusions based upon the uncorrected sample returns.

TABLE 39. ANALYSIS OF CORRECTION SAMPLE FOR THE 1958 VOCATIONAL GRADUATES

OCCUPATIONAL AND NON-OCCUPATIONAL MEASURES	PARAMETER ESTIMATES BASED ON UNCORRECTED GRADUATE SAMPLE			PARAMETER ESTIMATES BASED ON CORRECTION GRADUATE SAMPLE			DIFFERENCE TEST	CORRECTED PARAMETER ESTIMATES
	N	MEAN	S.D.	N	MEAN	S.D.	t	
Months to first full-time job	1162	2.27	4.09	94	1.52	2.65	1.75	-
First job relatedness to training	1436	2.22	1.24	117	2.08	1.28	1.17	-
Present job relatedness to training	1392	2.21	1.20	117	1.92	1.13	2.52*	2.05
All job relatedness to training	1461	2.18	1.05	117	1.93	1.01	2.48*	2.03
Reported satisfaction - first job	1435	2.92	0.91	115	2.84	0.94	.90	-
Reported satisfaction - present job	1392	3.43	0.72	113	3.33	0.82	1.40	-
Reported satisfaction - all jobs	1460	3.12	0.65	116	3.02	0.74	1.58	-
Starting earnings - first job	1408	1.50	0.56	111	1.49	0.51	.18	-
Present earnings - present job	1417	2.49	0.81	111	2.55	0.94	.74	-
Earnings percentage increase	1311	78.8	64.64	98	78.2	61.38	.17	-
Employment security 1	1090	92.5	15.30	92	96.1	9.34	2.22*	94.4
Employment security 2	**62	87.8	17.30	116	91.4	15.37	2.45*	89.7
Number of full-time jobs	1459	2.48	1.50	118	2.64	1.54	1.11	-
Number of new city moves	1484	0.32	0.72	118	0.27	0.81	.72	-
Distance moved in miles	1322	1.00	5.45	117	1.79	8.73	1.41	-
Amount of college education	1547	0.46	1.42	119	0.43	1.19	.22	-
Amount of non-college education	1547	1.06	3.89	119	1.30	4.84	.64	-
Attitude toward former school	1535	2.87	0.55	118	2.78	0.59	1.70	-
Conversational range index	1498	2.45	0.42	117	2.36	0.39	2.24*	2.40
Leisure activity range index	1501	2.17	0.36	117	2.05	0.29	3.52**	2.11
Organization affiliation index	1486	1.28	0.30	118	1.27	0.25	.35	-

**-Significant at .01 level of confidence

*-Significant at .05 level of confidence

TABLE 40. ANALYSIS OF CORRECTION SAMPLE FOR THE 1953 VOCATIONAL GRADUATES

OCCUPATIONAL AND NON-OCCUPATIONAL MEASURES	PARAMETER ESTIMATES BASED ON UNCORRECTED GRADUATE SAMPLE			PARAMETER ESTIMATES BASED ON CORRECTION GRADUATE SAMPLE			DIFFERENCE TEST	CORRECTED PARAMETER ESTIMATES
	N	MEAN	S.D.	N	MEAN	S.D.	t	
Months to first full-time job	919	1.23	2.68	80	0.95	2.51	.90	-
First job relatedness to training	1074	2.42	1.23	100	2.21	1.24	1.63	-
Present job relatedness to training	1030	2.16	1.17	94	2.02	1.13	1.11	-
All job relatedness to training	1087	2.22	1.11	100	2.05	1.02	1.61	-
Reported satisfaction - first job	1074	3.00	0.87	100	3.00	0.75	.00	-
Reported satisfaction - present job	1022	3.51	0.68	91	3.53	0.54	.27	-
Reported satisfaction - all jobs	1087	3.17	0.61	100	3.16	0.55	.16	-
Starting earnings - first job	1038	1.39	0.55	91	1.42	0.52	.50	-
Present earnings - present job	1041	3.03	0.94	86	3.10	0.96	.66	-
Earnings percentage increase	926	126.1	78.64	78	117.3	74.17	.53	-
Employment security 1	987	93.6	14.3	80	97.5	6.74	2.41*	96.2
Employment security 2	1029	91.9	15.02	96	93.4	15.25	.96	-
Number of full-time jobs	1090	3.05	1.83	100	2.94	1.62	.58	-
Number of new city moves	1097	0.44	0.88	100	0.39	0.72	.55	-
Distance moved in miles	959	2.06	10.45	95	1.58	6.21	.44	-
Amount of college education	1114	0.78	1.95	100	0.88	2.11	.49	-
Amount of non-college education	1119	1.55	4.40	100	1.33	5.25	.47	-
Attitude toward former school	1111	2.80	0.58	100	2.77	0.56	.50	-
Conversational range index	1097	2.47	0.38	99	2.46	0.37	.25	-
Leisure activity range index	1096	2.13	0.33	99	2.12	0.31	.29	-
Organization affiliation index	1089	1.35	0.32	99	1.39	0.34	1.18	-

*-Significant at .05 level of confidence

GENERAL SUMMARY AND CONCLUSIONS

Comparative Data on T&I Vocational Graduates In and Out of Field of Study

Table 41 provides a summary of the occupational outcomes for vocational graduates whose first full-time job was in their field of training versus those whose job was out of their field of study. The former did consistently better in:

- Time required to get their first job.
- Satisfaction reported for first job held.
- Satisfaction reported with present job.
- Satisfaction reported for all jobs held.
- Present job hourly rate of earnings.
- Percentage hourly rate increase.
- Percentage of employable time spent fully employed.
- Attitude toward former school.

There was no significant difference between the two groups in terms of number of full-time jobs held or first job starting hourly rates, except for the 1953 graduates. From the above, it can be inferred that those who entered their field of study had a substantially greater total earnings accumulation since graduation than those who entered occupations unrelated to their study. Thus, in every important occupational outcome respect, those who followed their line of study in their first job did better than those who entered occupations out of the field.

Table 42 provides another view on the same issue. It summarizes the occupational outcomes of those whose present full-time job, now two, six and eleven years after graduation, is in their field of study versus those out of their field of study. The former did consistently better in:

- Time required to get their first job.
- Satisfaction reported for first job held.
- Satisfaction reported with present job.
- Satisfaction reported for all jobs held.
- Present job hourly rate of earnings.
- Percentage hourly rate increase.
- Percentage of employable time spent fully employed.
- Attitude toward former school.

Those presently in their field of study did less well on first job starting hourly earnings for two of the three graduating classes. However, those differences were usually overcome within the first year by more rapid earnings progression. As before, it can be inferred from the data that those presently in their field of study accumulated greater total earnings since graduation than those found out of their field of study.

TABLE 41. SUMMARY OF OCCUPATIONAL OUTCOMES FOR THOSE WHOSE FIRST JOB WAS IN THEIR FIELD OF STUDY VERSUS THOSE WHOSE FIRST JOB WAS NOT IN THEIR FIELD OF STUDY

OCCUPATIONAL OUTCOMES	CLASS YEAR	RELATEDNESS OF FIRST JOB TO TRAINING					
		IN FIELD OF STUDY			NOT IN FIELD OF STUDY		
		N	M	S.D.	N	M	S.D.
Time in months required to get first full-time job	1953	449	0.7	1.76	440	1.8	2.31
	1958	495	1.9	3.98	606	2.4	3.84
	1962	766	1.1	2.14	817	2.0	2.97
Job satisfaction reported for first full-time job	1953	447	3.3	0.72	438	2.7	0.90
	1958	493	3.3	0.73	605	2.6	0.93
	1962	759	3.3	0.76	814	2.6	0.92
Job satisfaction reported for present full-time job	1953	421	3.6	0.60	418	3.4	0.73
	1958	482	3.6	0.63	578	3.3	0.77
	1962	750	3.4	0.69	805	3.1	0.87
Job satisfaction reported for all jobs held	1953	448	3.3	0.53	440	3.0	0.64
	1958	494	3.3	0.56	605	2.9	0.64
	1962	763	3.3	0.62	815	2.8	0.74
First job starting hourly rate	1953	426	1.26	0.47	425	1.37	0.55
	1958	485	1.41	0.44	591	1.42	0.54
	1962	752	1.45	0.41	804	1.48	0.65
Present job hourly rate	1953	426	3.18	1.09	430	2.86	0.89
	1958	482	2.61	0.84	591	2.38	0.80
	1962	750	2.05	0.62	807	1.94	0.74
Percentage hourly rate increase	1953	359	146.1	78.7	388	121.9	76.5
	1958	459	93.7	65.3	537	79.5	62.4
	1962	719	47.6	44.0	751	40.7	44.6
Percentage of employable time (since first job) fully employed	1953	422	94.2	13.6	429	93.2	15.0
	1958	480	94.7	11.7	590	91.2	16.5
	1962	738	94.2	13.1	779	90.9	17.0
Percentage of employable time (since graduation) fully employed	1953	423	93.3	14.0	422	91.4	15.5
	1958	454	91.7	13.5	564	87.0	18.5
	1962	720	89.8	15.3	767	83.6	19.7
Attitude toward former school	1953	448	2.9	0.55	437	2.8	0.59
	1958	491	3.0	0.52	603	2.8	0.56
	1962	763	3.1	0.50	815	2.9	0.55
Number full-time jobs held	1953	449	3.4	1.87	440	3.0	1.84
	1958	495	2.7	1.62	606	2.6	1.49
	1962	766	1.9	1.13	817	2.0	1.19

TABLE 42. SUMMARY OF OCCUPATIONAL OUTCOMES FOR THOSE WHOSE PRESENT JOB (JUNE, 1964) IS IN THEIR FIELD OF STUDY VERSUS THOSE WHOSE PRESENT JOB IS NOT IN THEIR FIELD OF STUDY

OCCUPATIONAL OUTCOMES	CLASS YEAR	RELATEDNESS OF PRESENT JOB TO TRAINING					
		IN FIELD OF STUDY			NOT IN FIELD OF STUDY		
		N	M	S.D.	N	M	S.D.
Time in months required to get first full-time job	1953	322	0.9	2.26	533	1.4	2.88
	1958	448	1.9	4.04	617	2.3	3.82
	1962	694	1.2	2.22	879	1.9	2.88
Job satisfaction reported for first full-time job	1953	320	3.2	0.80	527	2.9	0.86
	1958	445	3.1	0.90	615	2.8	0.90
	1962	685	3.2	0.84	873	2.7	0.91
Job satisfaction reported for present full-time job	1953	317	3.7	0.54	524	3.4	0.73
	1958	445	3.7	0.56	611	3.3	0.78
	1962	688	3.5	0.62	872	3.0	0.87
Job satisfaction reported for all jobs held	1953	321	3.3	0.56	533	3.1	0.59
	1958	447	3.3	0.58	616	3.C	0.64
	1962	691	3.3	0.61	877	2.8	0.72
First job starting hourly rate	1953	308	1.26	0.50	507	1.34	0.53
	1958	439	1.40	0.45	601	1.44	0.53
	1962	680	1.48	0.43	862	1.46	0.63
Present job hourly rate	1953	310	3.22	0.97	515	2.89	1.01
	1958	438	2.60	0.84	601	2.39	0.80
	1962	680	2.05	0.60	866	1.95	0.75
Percentage hourly rate increase	1953	263	148.9	78.1	454	125.3	78.2
	1958	418	91.6	65.7	545	80.8	62.5
	1962	650	44.5	40.9	806	43.1	46.7
Percentage of employable time (since first job) fully employed	1953	316	95.8	10.9	524	93.3	14.2
	1958	438	94.5	12.5	597	92.2	15.0
	1962	669	94.8	12.5	840	90.7	17.0
Percentage of employable time (since graduation) fully employed	1953	304	94.8	11.3	510	91.7	14.8
	1958	415	91.4	14.5	569	88.0	17.1
	1962	652	90.2	15.0	827	83.8	19.5
Attitude toward former school	1953	322	2.9	0.58	530	2.8	0.57
	1958	445	3.0	0.52	613	2.8	0.56
	1962	693	3.1	0.50	875	2.9	0.55
Number full-time jobs held	1953	322	3.1	1.92	533	3.2	1.80
	1958	448	2.5	1.57	617	2.7	1.50
	1962	694	1.9	1.11	879	2.1	1.18

Finally, Table 43 provides the comparative data for those who started and were still in their field of study after two, six and eleven years and those who started and were still out of their field of study. The former did substantially better in:

- Time required to get their first job.
- Satisfaction reported for first job held.
- Satisfaction reported for present job.*
- Satisfaction reported for all jobs held.
- Present job hourly rate of earnings.
- Percentage hourly rate increase.
- Percentage of employable time spent fully employed.
- Attitude toward former school.

They did less well on first job starting hourly earnings, but quickly caught up with and surpassed those not in their field of study. One can infer from the data that their total accumulated earnings since graduation were also substantially greater than the earnings of those not in the field of study.

The conclusion seems clear: Whichever way the data is analyzed, those who have followed their line of study do better (as a group) in every important occupational outcome respect than those who left their field of study.

Relatedness of First and Present Jobs to T&I Course Studied

For the combined vocational graduates of 1953, 1958 and 1962, only 48 percent of those who went directly to work held their first full-time job in the occupation studied or a highly related occupation. The percentages for the 1953, 1958 and 1962 class years were 50, 45 and 48 percent respectively. Eleven, six and two years after graduation, the study found 30, 33 and 38 percent respectively in the fields for which trained. The differences in the two sets of percentages indicate a gradual net loss to occupations out of the field of study of 20, 12 and 10 percent respectively for the 1953, 1958 and 1962 graduates. (Consult Volume I for a detailed analysis of why they do not enter the fields for which trained.)

These data, plus the data given earlier comparing those in and out of their fields of study, argue strongly for more organized and vigorous school efforts to place graduates in their field of study. Some schools are doing an excellent job in this respect, placing better than 80 percent of their graduates in the field of study. Others are doing quite poorly, largely because of low level effort. See Table 11 (page 2-15) for school differences.

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* Check table for exception. (1953)

TABLE 43. SUMMARY OF OCCUPATIONAL OUTCOMES FOR THOSE WHOSE FIRST AND PRESENT JOBS WERE IN THEIR FIELD OF STUDY VERSUS THOSE WHOSE FIRST AND PRESENT JOBS WERE NOT IN THEIR FIELD OF STUDY

OCCUPATIONAL OUTCOMES	CLASS YEAR	RELATEDNESS OF FIRST/PRESENT JOB TO TRAINING					
		IN FIELD OF STUDY			NOT IN FIELD OF STUDY		
		N	M	S.D.	N	M	S.D.
Time in months required to get first full-time job	1953	258	0.7	1.64	360	1.7	3.17
	1958	356	2.1	4.44	490	2.5	4.09
	1962	628	1.1	2.18	724	2.0	3.04
Job satisfaction reported for first full-time job	1953	257	3.4	0.67	358	2.8	0.90
	1958	353	3.4	0.71	489	2.7	0.92
	1962	622	3.4	0.70	722	2.7	0.92
Job satisfaction reported for present full-time job	1953	253	3.7	0.50	355	3.7	0.74
	1958	352	3.6	0.58	485	3.2	0.80
	1962	624	3.5	0.60	721	3.0	0.88
Job satisfaction reported for all jobs held	1953	257	3.4	0.52	360	3.0	0.64
	1958	354	3.4	0.56	489	2.9	0.67
	1962	625	3.4	0.59	722	2.8	0.77
First job starting hourly rate	1953	246	1.24	0.44	347	1.38	0.58
	1958	349	1.42	0.45	478	1.45	0.56
	1962	617	1.48	0.42	711	1.47	0.59
Present job hourly rate	1953	247	3.21	0.94	354	2.80	0.93
	1958	347	2.60	0.86	478	2.33	0.80
	1962	614	2.01	0.61	712	1.89	0.70
Percentage hourly rate increase	1953	205	147.6	80.2	314	116.2	76.8
	1958	332	90.3	66.0	431	74.9	61.6
	1962	552	42.4	39.5	648	38.2	43.6
Percentage of employable time (since first job) fully employed	1953	251	96.2	10.5	348	93.9	13.3
	1958	344	95.0	11.6	473	91.6	15.9
	1962	561	95.9	11.2	668	91.2	17.2
Percentage of employable time (since graduation) fully employed	1953	239	95.4	11.0	341	92.0	14.0
	1958	325	91.8	13.9	452	87.1	18.2
	1962	548	91.4	14.1	660	83.7	20.0
Attitude toward former school	1953	258	2.9	0.55	358	2.7	0.57
	1958	353	3.0	0.51	487	2.8	0.56
	1962	627	3.1	0.50	722	2.9	0.56
Number full-time jobs held	1953	258	2.9	1.90	360	2.8	1.79
	1958	356	2.4	1.63	490	2.5	1.48
	1962	628	1.6	1.03	724	1.9	1.18

Geographic Mobility of Vocational Graduates

There is relatively little geographic mobility among T&I vocational graduates, especially during the first few years out of school. Two years after graduation, 87 percent of the 1962 graduates still reside in the community in which they went to school. Six years after graduation, 80 percent of the 1958 graduates still reside in the community in which they went to school. Eleven years after graduation, 75 percent of the 1953 graduates were still in the community where they went to school.

About 32 percent of all new city moves are within 50 miles, with 73 percent under 300 miles. These data do not support a picture of a high degree of geographic mobility among T&I secondary school vocational graduates. They suggest that the labor market for which schools should be developing T&I skills is the local labor market unless there are mobility-inducing circumstances to the contrary.

Of the 1953, 1958 and 1962 graduates who made a new city move in connection with obtaining their first full-time job, 42.6 percent found jobs in their field of study. This contrasts with 49 percent of the non-movers who obtained their first job in their field of study. Mere movement to other cities does not appear to improve the likelihood of finding jobs in the occupations studied. This suggests that inducing geographic mobility in graduates who can not find jobs locally in their field of study will not help them find such jobs unless their movement is directed or guided toward specific labor markets in need of their occupation.

Occupational Outcome Differences Among Selected T&I Occupations

The occupational outcomes for the T&I courses differ significantly on some of the measures. Table 44 summarizes the outcome data for the most frequently offered T&I occupations.

Some of the differences between occupations contradict prevailing opinions. For example, the 1962 electronics graduates required a mean of 2.5 months to get their first full-time job, whereas machine shop graduates required a mean of 1.1 months. Moreover, fewer of the electronics graduates found jobs in their field than machine shop graduates. These results are contrary to expectation. They suggest that schools pay more attention to local labor market requirements than to national manpower requirements forecasts when planning course additions. The up-and-coming occupation in a national or even regional forecast may not be what is required in a local labor market.

Occupational Outcome Differences Among Schools Surveyed

There are wide ranging differences among the schools on all occupational outcome measures. Evidence presented in Volume 1, Chapter 3, suggests that school differences have a moderate to high stability from year to year. Some schools consistently do better than others in terms of time to place graduates, the relatedness of first jobs to courses studied and other outcome measures. It cannot, however, be concluded that

TABLE 44. OCCUPTIONAL OUTCOMES FOR SELECTED T&I 1962 VOCATIONAL COURSE GRADUATES

SELECTED T&I VOCATIONAL COURSES		OCCUPATIONAL OUTCOMES - 1962 GRADUATES														
		PLACEMENT TIME	FIRST JOB RELATEDNESS	ALL JOB RELATEDNESS	PRESENT JOB RELATEDNESS	EMPLOYMENT SECURITY	FIRST JOB SATISFACTION	ALL JOB SATISFACTION	PRESENT JOB SATISFACTION	NUMBER OF JOBS	STARTING HOURLY RATE (IN THE FIELD)	STARTING HOURLY RATE (NOT IN FIELD)	PRESENT HOURLY RATE (IN THE FIELD)	PRESENT HOURLY RATE (NOT IN FIELD)	EARNINGS INCREASE (IN THE FIELD)	EARNINGS INCREASE (NOT IN FIELD)
Auto mechanics	N	298	283	288	283	279	284	290	286	287	148	129	149	131	90	101
	M	1.5	2.5	2.4	2.3	94.1	3.0	3.1	3.3	2.0	1.37	1.64	1.97	2.00	36.8	34.2
Machine shop	N	264	246	252	247	243	247	252	244	253	142	103	140	103	113	63
	M	1.1	2.6	2.6	2.7	94.5	2.9	3.0	3.2	2.0	1.51	1.48	2.05	1.99	42.0	37.0
Electricity	N	162	151	153	150	151	150	153	151	154	52	97	52	98	32	71
	M	2.0	2.1	2.1	2.1	90.5	2.7	2.9	3.2	2.0	1.42	1.41	2.21	1.88	49.4	33.7
Printing	N	124	119	119	117	111	118	119	117	121	68	47	68	47	50	30
	M	1.2	2.7	2.6	2.5	93.9	3.0	3.2	3.3	1.8	1.34	1.41	1.97	1.87	39.2	27.3
Mill/cabinetry	N	99	93	94	93	88	93	94	92	93	36	55	36	56	23	41
	M	1.7	2.2	2.0	2.0	89.3	2.9	3.1	3.3	2.1	1.46	1.34	2.13	1.88	38.3	34.9
Electronics	N	58	52	55	52	51	52	55	52	52	24	27	24	28	21	29
	M	2.5	2.3	2.1	2.2	92.9	3.0	3.0	3.2	1.7	1.58	1.47	2.00	1.84	34.3	36.6
Welding	N	62	59	60	59	56	[illegible]	60	58	61	25	32	25	31	17	24
	M	1.7	2.3	2.3	2.4	92.6	2.	2.9	3.0	2.3	1.72	1.48	2.25	2.10	41.2	25.8
Radio/television	N	58	54	56	53	52	54	56	54	55	25	28	26	27	18	23
	M	2.0	2.3	2.2	2.2	93.4	2.9	3.0	3.3	2.1	1.36	1.28	2.00	1.79	48.3	28.7
Carpentry	N	56	53	53	52	54	54	54	52	55	22	30	22	30	16	22
	M	2.1	2.5	2.3	2.3	88.3	2.9	3.1	3.3	2.3	1.58	1.52	2.19	2.11	47.5	37.7
Sheet metal	N	54	50	52	50	52	50	52	51	51	29	21	28	21	19	17
	M	2.0	2.6	2.5	2.4	92.8	3.1	3.2	3.4	2.0	1.57	1.62	2.35	1.90	51.6	20.6
Other than above	N	454	423	430	417	424	430	433	421	437	166	221	147	224	110	163
	M	2.0	2.3	2.2	2.2	91.4	3.0	3.0	3.2	1.9	1.46	1.49	2.02	1.93	43.2	32.6
All graduates	N	1689	1583	1612	1573	1561	1591	1618	1578	1619	737	790	717	796	509	584
	M	1.7	2.4	2.3	2.3	92.5	2.9	3.0	3.2	2.0	1.45	1.48	2.10	1.93	42.9	31.7

such differences are attributable to factors under school control. Differences in local labor market conditions over which the schools have no control may be mainly responsible.

Later chapters will present data on what school characteristics are related to the occupational outcomes experienced by graduates.

Comparative Occupational Data on Vocational and Academic Graduates

How well the vocational graduate fares in comparison with his academic counterpart depends upon whether he is a graduate who went into his field of study or not. Table 45 provides occupational outcome data for (1) vocationals whose first and present jobs are in their field of study, (2) direct to work academic graduates and (3) vocationals whose first and present jobs are <u>out</u> of their field of training.

The comparative data can be summarized as follows:

1. The vocationals who entered and stayed in their field of study did consistently and often substantially better than the academic graduates in:

- Time required to find their first job.
- Job satisfaction reported for the first job.
- Job satisfaction reported for the present job.
- Job satisfaction reported for <u>all</u> jobs held.
- Present job hourly rate.
- Percentage hourly rate increase.
- Total accumulated earnings since graduation.
- Percentage of employable time spent fully employed.
- Employer stability defined as number of jobs held.

Only on first job starting hourly rates did the academic graduates do better. The difference was greatest for the 1953 graduates ($1.43 vs. $1.24), but it shrank considerably for the 1958 graduates ($1.46 vs. $1.42), and reversed in favor of the vocational's for the 1962 graduates ($1.46 vs. $1.48). The data suggests a trend in favor of the vocational graduates on starting hourly rates.

Thus, in every important occupational outcome respect, the vocationals who entered and stayed with the occupations in their field of study did better than their direct to work academic counterparts.

2. The vocationals who entered and stayed with occupations outside of their field of study did about the same as their academic counterparts. They did impressively better than the latter on only one measure:

- Time required to find their first job.

They performed about the same on:

- Job satisfaction reported for their first job.

TABLE 45. COMPARATIVE DATA ON OCCUPATIONAL OUTCOMES FOR VOCATIONAL GRADUATES IN THEIR FIELD OF STUDY, ACADEMIC GRADUATES AND VOCATIONAL GRADUATES NOT IN THEIR FIELD OF STUDY, BASED ON DIRECT TO WORK CASES ONLY

OCCUPATIONAL OUTCOMES	CLASS YEARS	DIRECT TO WORK GRADUATES								
		VOCATIONALS IN FIELD OF STUDY			ACADEMICS			VOCATIONALS NOT IN FIELD OF STUDY		
		N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
Time in months required to get first full-time job	1953	258	0.7	1.64	177	2.6	4.8	360	1.7	3.17
	1958	356	2.1	4.44	208	3.9	5.7	490	2.5	4.89
	1962	628	1.1	2.18	253	2.7	4.3	724	2.0	3.84
Job satisfaction reported for first full-time job	1953	257	3.4	0.67	176	2.7	0.9	358	2.8	0.90
	1958	353	3.4	0.71	190	2.8	0.9	489	2.7	0.92
	1962	622	3.4	0.70	227	2.8	0.9	722	2.7	0.92
Job satisfaction reported for present full-time job	1953	253	3.7	0.50	162	3.4	0.8	355	3.7	0.74
	1958	352	3.6	0.58	183	3.3	0.8	485	3.2	0.80
	1962	624	3.5	0.60	224	3.0	0.8	721	3.0	0.88
Job satisfaction reported for all jobs held	1953	257	3.4	0.52	174	3.0	0.6	360	3.0	0.64
	1958	354	3.4	0.56	196	2.9	0.7	489	2.9	0.67
	1962	625	3.4	0.59	236	2.9	0.8	722	2.8	0.77
First job starting hourly rate	1953	246	1.24	0.44	160	1.43	0.65	347	1.38	0.58
	1958	349	1.42	0.45	179	1.46	0.56	478	1.45	0.56
	1962	617	1.48	0.42	222	1.46	0.49	711	1.47	0.59
Present job hourly rate	1953	247	3.21	0.94	163	3.05	0.98	354	2.80	0.93
	1958	347	2.60	0.86	191	2.38	0.90	478	2.33	0.80
	1962	614	2.01	0.61	224	1.88	0.61	712	1.89	0.70
Percentage hourly rate increase	1953	205	147.6	80.2	142	117.2	78.7	314	116.2	76.8
	1958	332	90.3	66.0	174	74.3	61.0	431	74.9	61.6
	1962	552	42.4	39.5	209	38.0	42.6	648	38.2	43.6
Percentage of employable time (since first job) fully employed	1953	251	96.2	10.5	167	94.2	11.8	348	93.9	13.3
	1958	344	95.0	11.6	193	92.2	15.8	473	91.6	15.9
	1962	561	95.9	11.2	235	91.7	17.4	668	91.2	17.2
Percentage of employable time (since graduation) fully employed	1953	239	95.4	11.0	177	91.5	14.1	341	92.0	14.0
	1958	325	91.8	13.9	208	84.9	19.0	452	87.1	18.2
	1962	548	91.4	14.1	254	82.4	21.8	660	83.7	20.0
Attitude toward former school	1953	258	2.9	0.55	177	2.7	0.6	358	2.7	0.57
	1958	353	3.0	0.51	208	2.8	0.6	487	2.8	0.56
	1962	627	3.1	0.50	252	2.9	0.6	722	2.9	0.56
Number of full-time jobs held	1953	258	2.9	1.90	174	3.0	1.7	360	2.8	1.79
	1958	356	2.4	1.63	199	2.5	1.3	490	2.5	1.48
	1962	628	1.6	1.03	237	1.9	1.2	724	1.9	1.18

- Job satisfaction reported for their present job.
- Job satisfaction reported for all jobs held.
- Employer stability (number of full-time jobs held).
- First job starting hourly rate.*
- Present job hourly rate.*
- Percentage of hourly rate increase.*
- Percentage of employable time spent fully employed.
- Attitude toward their former school.

When compared with vocationals whose first and present jobs were not in their field of study, the academics catch up with and pull ahead in terms of hourly earnings with increased years out of school. The 1953 academic graduates were earning twenty-five cents an hour more. The reverse is the case when the academics are compared with vocationals whose first and present jobs were in their field of study. The latter earned more in every class year comparison.

- The general conclusion: Vocationals who work in their field of study do better than direct to work academic graduates on every occupational outcome measure. Those who do not work in their field of study do about the same as the academic graduates on all measures with this exception: They get their first job quicker, but have lower present earnings than the academics after six and eleven years out of school. The earnings difference is substantial at the eleven year point; a twenty-five cents an hour difference is equivalent to $1,040 per 52 week year.

The Primacy of Job Training Relatedness as a Criterion

The data presented in this chapter shows that the vocational graduates who entered occupations and stayed with occupations in their field of study did better as a group in every occupational aspect measured than those who never found or took employment in their field of study. It is this central fact that argues strongly for the recognition of placement of graduates into the fields for which trained as the primary objective of vocational education. Further evidence to support this view is provided by the correlational analysis results which show the degree of interrelationship among the occupational outcome measures. These results were interpreted in Volume I. The interested reader may wish to consult Appendix Section 2 for the correlation tables. Two sets of correlations are given. One is based upon graduates. The other is based upon school means derived from the occupational data of their graduates. In both cases, only data from direct to work graduates was used as the input.

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* See table data for exception (1953).

SOME TENTATIVE RECOMMENDATIONS

The jump from educational research findings to action recommendations is always treacherous, especially where complex educational systems are involved. The researcher rarely has all the relevant facts that require assessment to arrive at action decisions. His own set of data, understandably assumes importance out of proportion to all else that needs to be considered for action recommendations. It is not surprising, then, that researchers often make unrealistic, impractical and sometimes downright silly recommendations to those whose positions permit them to influence change. At best, the chief value of their recommendations may be to stimulate the kind of reaction, rebuttal and thinking that moves complex problems a step further toward solution. It is in the latter spirit that the following recommendations are made.

Adoption of the Management by Objective Principle by School System Heads

Modern industrial management has long and successfully practiced the principle of management by objective. The production plant manager is held responsible and accountable for meeting specified objectives in production output, product costs, product quality and other areas of management endeavor. For each such objective, he has one or more data-type yardsticks that tell him at appropriate intervals how he is doing with respect to the given objective. When such yardsticks give readings that indicate serious variance between performance and objective, problem-solving machinery sets to work until subsequent readings indicate objectives are being met.

Many of the objectives that confront the professional manager in industry are rolling objectives that require him to make specified percentage improvements in one year over the previous year. For example, his current objective with respect to disabling accidents may be to reduce the plant accident frequency rate by ten percent. Once objectives have been specified, the manager initiates the necessary sequence of planning, organizing, leading and controlling required to attain the objective. Always, he has within reach the hard data readings that tell him what progress is being made.

That, very much oversimplified, is the concept of management by objective. What does it have to do with vocational education? Just this. It does not exist in vocational education, not in terms of educational objectives. Educators, both vocational and general, rarely state their educational objectives in ways that one can measure progress or the lack of progress toward the objectives. Even where they do (in speeches), they are not held responsible and accountable for attaining such objectives, not as an industrial manager would be held accountable.

The data presented in this chapter show unmistakably that vocational graduates who enter the occupations studied or highly related occupations do better in every important respect than those who enter occupations unrelated to their field of study. This has been advanced as one argument--there are others--for the adoption of a basic T&I vocational education objective, namely, the placement of T&I vocational graduates into their occupational fields of study.

In line with this objective, it is recommended that school superintendents and school boards hold the heads of schools offering T&I programs responsible and accountable for continuing improvement in the placement of vocational graduates into occupations related to their field of study. It is further recommended that the above stated objective be adopted as the primary objective of all T&I vocational education and as a substitute for all currently espoused non-measurable vocational education objectives. Upon closer examination, non-measurable objectives, such as preparing youth for the world of work, are inherently a part of the primary objective recommended. Moreover, their lack of precise definition into an objective measure makes them of no value for a management by objective approach.

Adoption of the responsibility and accountability recommendation will create the mainspring that will set into motion the kinds of actions necessary to improve the effectiveness of T&I vocational education. Consider briefly what might occur if school heads were so held responsible and accountable. Immediately, they would have to establish an annual graduate follow-up procedure to measure the school's placement performance, otherwise no one including themselves would know what progress was being made toward meeting the objective. School heads would probably take a critical look at what, if anything, their schools are doing in an organized way to improve the placement of graduates. A school head might even look around to see what other schools are doing or he might look to other resources for ideas on what can be done to improve the school's placement performance. The point is, placement performance would now be his problem and it can be assumed that he would react in some problem-solving ways. The educator's resourcefulness and initiative is certain to be stimulated. Perhaps he might assume personal responsibility for setting up an improved placement program. He might study the reasons why so many were not being placed into their field of training. This could lead to all sorts of further actions,e.g. efforts to establish closer ties with community employers, more effective use of craft advisory committees, attempts to get data on local skilled manpower requirements, steps to improve the quality of instruction and course contents in problem courses, and more careful screening of course applicants to better match the student resource with course demands. One could also expect some interaction between school heads and their superiors. The interaction could range from pointed reminders that progress was not being made toward the objective to school head insistence that additional resources should be made available to accomplish the expected progress.

Impractical? Unrealistic? Perhaps! Certainly there is more to it than the simplified version given here to introduce the concept. Nevertheless, the writer is convinced that many of the principals with whom he visited during the data-gathering phase of the study would react with the same ingenuity and resourcefulness of the professional industrial manager charged with a

new objective to meet. They would tackle the problem, and both vocational education and vocational graduates would reap the benefits. The vocational educator is less in need of procedure solutions that tell him how to do this or that better. What he needs more is some induced form of objective-oriented motiviation plus the resources to reach his objectives. Application of the management by objective concept will provide such motivation.

Expansion of Vocational Education for the Non-college Resource

There are three kinds of non-college student resources that are potential candidates for expanded vocational and technical education. They include: (1) academic or general program students who drop out of school before completing their secondary education, (2) academic or general program graduates who do not go on to college and (3) similar graduates who go on to college but drop out before completing sufficient college education to influence their careers. These three groups have two things in common: (1) they represent a human resource without occupational skills and (2) they do less well in the world of work than T&I vocational graduates who enter and stay with the occupation in their field of study. Let's consider each group.

1. The academic/general program dropouts. Schreiber* recently reported a national high school dropout rate of thirty-five percent. (No doubt, the rate varies considerably for individual communities and schools.) Thus, a very sizable percentage of secondary school students enter the labor market without a completed high school education and without any occupational skills. How do they fare in the labor markets? The concensus of studies presents a dismal picture. Compared with those who have completed high school, their earnings are generally lower and their unemployment rates are higher. It can be inferred from the data presented in this chapter that they would do much more poorly than vocational graduates in terms of time to get a full-time job, overall employment security and level of earnings. Direct comparative data is lacking.

2. The academic/general program graduates who do not attend college. Of the 1953, 1958 and 1962 academic graduates surveyed, 42, 49 and 36 percent respectively reported zero college attendance. About 64 percent of these graduates also reported they had not attended a non-college source of education or occupational training. Moreover, the 36 percent that did report some type of non-college, post-secondary school occupational training did not necessarily complete such training. Thus, a very sizable percentage of academic program graduates enter the world of work without specific or generalized occupational skills and without the entre that goes with a college education.

Relative to vocational graduates how do these academic graduates fare in the world of work? (Table 45, page 2-60 presented the comparative data.) On all measures reported, they did significantly poorer than vocationals who entered and stayed with their field of study. They required longer to find

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* Schreiber, Daniel. Guidance and the School Dropout. Washington: National Education Association, 1964.

their first job. They report less employment security. Their present hourly earnings were lower. Their percentage of hourly earnings increase was less. It can also be inferred that their total accumulated earnings were substantially less. Finally, they report less satisfaction with their work than do the vocationals working in their field of study.

3. The academic graduates who go directly to full-time college, but drop out. Of the 1953, 1958 and 1962 academic graduates surveyed, about 47, 42 and 51 percent reported going directly to full-time college attendance. Ignoring trends and averaging the data across class years, the study found that 16 percent drop out before or at the end of the first year, another 12 percent drop out before or at the end of the second year and about 5 percent drop out before or at the end of the third year. Thus, about a third of the academics who went directly to college dropped out before or at the end of two years.

• How well did this group do in comparison with the vocationals who entered and stayed with occupations in their field of study? Table 46 presents the data.*

TABLE 46. COMPARATIVE OCCUPATIONAL DATA ON VOCATIONAL GRADUATES IN THEIR FIELD OF STUDY AND ACADEMIC GRADUATES WHO HAD TWO YEARS OR LESS OF COLLEGE

OCCUPATIONAL OUTCOMES	CLASS YEARS	VOCATIONALS IN THE FIELD OF STUDY			COLLEGE DROPOUT ACADEMICS		
		N	MEAN	S.D.	N	MEAN	S.D.
First job starting hourly rate	1953	246	1.24	0.44	38	1.55	0.53
	1958	349	1.42	0.45	48	1.61	0.53
Present job hourly rate	1953	247	3.21	0.94	39	2.95	0.99
	1958	347	2.60	0.86	50	2.50	0.82
Percentage hourly rate increase	1953	205	147.6	80.2	37	112.4	85.6
	1958	332	90.3	66.0	47	60.9	84.6
Job satisfaction reported for present full-time job	1953	253	3.7	0.50	36	3.5	0.36
	1958	352	3.6	0.58	50	3.1	0.32

The college dropouts started at higher hourly rates than did the vocationals who entered occupations in their field of study. However, the present job hourly rates clearly favor the vocationals. Thus, the vocationals demonstrate a greater percentage of increase in hourly earnings over the years at work. The vocationals also reported greater satisfaction with their present job.

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* The reader is reminded that data for the college dropouts is based upon an uncomfortably small number of cases.

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Conclusion: The T&I vocational graduates who entered and were found working in the occupation of their field of study experienced more favorable occupational outcomes than:

- Academic program high school dropouts (35%)
- Academic program direct to work graduates (38%)
- Academic program college dropouts (33%)

These findings advance the argument that the majority of academic program students might be better off in terms of occupational outcomes if they entered and completed a vocational program. There are many factors that presently influence such students to reject vocational education, e.g. parental and peer pressures, counter-influence by academic teachers and college-oriented guidance counselors, inadequate range of occuaptional choice in vocational programs, the low esteem in which vocational education is held and the general lack of awareness of the career benefits associated with vocational education. None of these factors are carved in granite. All are subject to change if vocational education accepts the challenge.

The key to influencing a greater percentage of probable academic program school dropouts, non-college bound academic program graduates and college dropouts into vocational and technical education is a sensible range of occupational choice. The choice of being an automobile mechanic or carpenter is no choice for most students. The vocational course offerings must be of sufficient number and variety so as to accommodate the range of talents found among the non-college bound academic students. Once this is achieved, the low status of vocational education will change.

What is recommended is the principle of a wide variety and range of occupational choices, not the form. The form for the expansion is a problem for local solution. A great capital investment in additional shops or laboratories for individual schools is not the only method for increasing the range of choice. There are other alternatives, and for each there is an experience basis. The concept of diversified occupations, found primarily in the Southeast, needs reconsideration. The concept of groups of schools cooperating to jointly present a greater occupational choice is another alternative. The concept of a theory-practice division of responsibility between school and employers for specific occupations is another possibility. It may be that the practicum end of occupational training can be handled as well by qualified employers in the form of on-the-job training with the theory handled mainly in the schools. None of these approaches are new. All have their special problems. They all need re-examination as practical alternatives to increase the range of occupational training opportunities at high school and post-high school levels. The important thing is to get more choice into vocational education, choice consistent with all levels of aptitudes and abilities. That choice is not now present in the great majority of school systems offering vocational programs.

Concentration of Curriculum Planning to Meet Local Manpower Requirements

If placement of graduates into the field for which trained is to be a major objective, then curriculum planning should be geared to meet local manpower requirements. The data clearly indicates that the great majority of vocational graduates do not leave the community in which they went to school. Even the "address unknown" graduates, when located by intensive search, were found mainly at different addresses in the same communities in which they went to school. Only extremely depressed conditions, where there are virtually no jobs to be had, seem to force movement in the first few years after school. Moreover, those that do move are less likely to find jobs in their field of study than those who stay.

These facts suggest that, until the mobility of vocational graduates changes, vocational educators will do better to concentrate their course offerings to meet the manpower requirements of the functional community served by the school. Common sense may have suggested to same conclusion. It is a relatively rare high school graduate who has the maturity and the resources to move away from family, friends and a supportive environment in search of a job many non-communting miles from home. Educators should not be seduced into adding course offerings on the basis of Department of Labor national manpower requirement forecasts. What are the local requirements? That is the question.

3 THE VOCATIONAL STUDENT RESOURCE

INTRODUCTION

The Human Resource Variables

Earlier, it was hypothesized that the post-school occupational, educational and other experiences of vocational course graduates were an interaction product of school characteristics, graduate characteristics and regional employment opportunity characteristics. Evidence was cited in Volume I, and also in the preceding chapter, that the economy level at the time of graduation influences such measures as the time required to get a full-time job, the relatedness of jobs held to course of study, the initial earnings of the vocational graduate and also entry into further forms of education and training after high school.

The wide range of individual differences on virtually all occupational and educational measures among the graduates from the same schools and the same courses strongly suggests that human resource variables also influence the vocational outcomes. And, it is not inconceivable that the yet-to-be identified human resource variables have a greater degree of measurable relationship with the post-graduation occupational and educational measures than any characteristics of school vocational programs. In effect, the kind of a person the vocational graduate is may have more to do with his occupational or educational experiences in the short-term after graduation than the kind of school he has attended.

The present study's exploration of human resource variables is limited to what data was available on the school records of the graduates. Initially, on the basis of analyzing blank school records, it was anticipated that the following variables would be subjected to analysis:

- Occupational level of male parent.
- Educational level of male parent.*
- Marital status of parents.*
- Academic subject grade averages.
- Vocational subject grade averages.
- Overall major subject grade average.
- Percentile rank in graduating class.*
- General intelligence test performance.
- Standardized achievement test performance.
- Scholastic aptitude test performance.
- Personal characteristic ratings.*
- Days absent and tardy performance.
- School social adjustment performance.*

The asterisked variables were dropped because of insufficient school record data. The above list makes clear that the present chapter will only scratch the surface of human resource variables. There is no data on the attitudes of graduates that might have a bearing on their occupational experiences, no data on personal characteristics relevant to occupational success and no data on their motivation to enter and succeed in

their field of study. Thus, it may well be that the study has missed the most important aspects of the human resource related to occupational and educational outcomes.*

Some Basic Questions

The chapter provides data on the following basic questions concerning the school record variables identified earlier:

1. What are the frequency distribution characteristics of T&I vocational graduates on school record variables, such as subject grades, standardized test performance and measures reflecting school adjustment?

2. How do vocational graduates who have entered occupations in their field of study compare on such school record variables with those who entered occupations outside their course of study?

3. How do specified categories of vocational graduates compare on such variables with both academic graduates who go directly to work and those who go directly to college?

4. To what degree are school record variables correlated with the post-school occupational and non-occupational measures described in Chapter 2?

5. How do vocational and comprehensive schools compare on the cumulative school record data of their graduates?

6. How do vocational teachers perceive their students in terms of basic abilities (i.e. reading, writing and arithmetic) and motivation to learn? What are the problems they report having with their students and how frequently do such problems occur?

About the Data and Sample

There are two major problems with the school record data presented in this chapter that have a bearing on what generalizations can be drawn:

1. The incomplete data problem. With the exception of subject grades, all school record data is incomplete in the sense that substantially less than 100 percent of the schools and graduates are represented. Table 1 shows the magnitude of the missing data problem.

Some of the data loss was attributable to poor record keeping by the schools. For example, even where standardized test data was on a school's student records, it was not necessarily usable. Frequently the exact test was not identified, or the form of the test was not identified, or the score recorded was not identified as a raw score or a derived score.

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* No oversight is involved. Every study has budgetary restrictions that limit its design and data collection. The present study was no exception.

TABLE 1. SAMPLE REPRESENTATION OF SCHOOLS AND VOCATIONAL GRADUATES ON SCHOOL RECORD DATA

GRADUATE'S SCHOOL CUMULATIVE RECORD VARIABLES	SAMPLE REPRESENTATION			
	SCHOOLS		GRADUATES	
	N	%	N	%
Male parent occupation level	48	48.5	795	32.4
Academic subject grades	97	98.0	2303	94.0
Vocational subject grades	99	100.0	2354	96.0
Overall grade point average	97	98.0	2354	96.0
Honors, awards, offices held	49	49.5	1212	49.4
General intelligence (I.Q.)	82	82.8	1769	72.2
Scholastic aptitude: verbal	33	33.3	329	13.4
Scholastic aptitude: math	33	33.3	330	13.5
Scholastic aptitude: total	34	34.3	367	15.0
Reading achievement	40	40.4	587	23.9
Language achievement	28	28.3	392	16.0
Arithmetic achievement	32	32.3	494	20.2
Overall achievement	33	33.3	365	14.9
Days absent	76	76.8	1790	73.0
Days tardy	63	63.6	1394	56.9
Disciplinary action	10	10.1	299	12.2
Extracurricular activities	49	49.5	1153	47.0

The large quantities of missing and uninterpretable data raises a serious question about the accuracy of the parameter estimates derived from the samples. That is the basic methodological problem of this chapter. Unfortunately, nothing could be done to substantially alter the missing data problems. First, the schools differ considerably in terms of kinds of data called for by their cumulative record forms. Second, many do not record all information called for by their own record forms. And third, much data is recorded incompletely so it can not be used. In short, student cumulative records are a mess for anyone interested in developing estimates of parameter values by means of a national survey sample. Such records are very poorly kept in many school systems.

2. The truncated data problem. The data presented in this chapter describes graduates, not students of vocational and academic programs. A large percentage of students in vocational and academic programs do not graduate. They drop out of school. This type of former student is not included in the chapter data. If he were, the parameter estimates for some variables would undoubtedly be different from those presented. Moreover, it is a dubious exercise to attempt to estimate the direction and magnitude of such probable differences. Hence, the reader is warned against generalizing the data to the vocational and academic program student population.

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To summarize, limitations in the sample and data: (1) raise a question about the accuracy of the parameter estimates and (2) preclude generalizing these estimates to the population of the United States vocational and academic program students.

SOCIO-ECONOMIC ORIGINS

The socio-economic origins of vocational graduates have been well established before the present study. In the main, they come from families in which the male parent is employed in skilled, semi-skilled or unskilled occupations and has had less than a complete high school education. Table 2 shows how the male parent of the vocational graduates were distributed by occupational categories. See Appendix Section 3 for the details of the occupational classifications shown.

TABLE 2. OCCUPATIONAL CLASSIFICATION OF MALE PARENT OF 1953, 1958 AND 1962 T&I VOCATIONAL GRADUATES

OCCUPATION CATEGORY	YEAR OF GRADUATION							
	1953		1958		1962		COMBINED	
	N	%	N	%	N	%	N	%
Major professionals, etc.[1]	3	0.8	8	1.6	10	1.3	21	1.3
Middle professionals,etc.[2]	9	2.5	11	2.2	34	4.3	54	3.2
Minor professionals, etc.[3]	17	4.8	25	4.9	54	6.8	96	5.8
Clerical,sales & technical	29	8.2	49	9.6	91	11.4	169	10.2
Skilled occupations	159	44.8	249	48.7	272	34.2	680	40.9
Semi-skilled occupations	66	18.6	78	15.3	168	21.1	312	18.8
Unskilled occupations	61	17.2	80	15.6	135	17.0	276	16.6
Miscellaneous	11	3.1	11	2.2	31	3.9	53	3.2

1 - Includes large company owners and officers, professional occupations
2 - Includes medium company owners, also managers
3 - Includes small proprietors, also administrators

The results agree generally with what other studies have reported. Of the 1953, 1958 and 1962 graduates, respectively 80, 79 and 72 percent of the male parents held jobs in manual occupations ranging from unskilled to skilled. The largest percentage of graduates had male parents who were also in skilled occupations. About 45, 49 and 41 percent of the 1953, 1958 and 1962 graduates followed their male parent footsteps in the study of a skilled occupation. Equally interesting is the much smaller percentage of graduates whose male parents were in semi-skilled and unskilled occupations. These occupations represent a much larger percentage of the total work force than represented in the Table 2 data.

The data also hint at what may be a trend, that is, more vocational graduates are coming from families in which the male parent is employed in clerical, sales, technical or semi-professional occupations. Future studies

are advised to follow up this possibility because it may be an indication of the beginnings of broader public acceptance of vocational education.

•How do vocational and academic program graduates compare in terms of the occupational levels of their male parents? Table 3 provides the comparative data for the three years of graduation classes combined. Whereas, the vocational, 76 percent of the male parents of the vocationals worked in manual occupations, ranging from unskilled to skilled, about 57 percent of the academic's male parents came from such occupations.

TABLE 3. COMPARATIVE DATA ON MALE PARENT OCCUPATIONAL CLASSIFICATIONS FOR VOCATIONAL AND ACADEMIC GRADUATES

OCCUPATION CATEGORY	TYPE OF GRADUATE			
	VOCATIONAL		ACADEMIC	
	N	%	N	%
Major professionals, etc.[1]	21	1.3	32	6.4
Middle professionals, etc.[2]	54	3.2	36	7.2
Minor professionals, etc.[3]	96	5.8	77	15.5
Clerical, sales & technical	169	10.2	59	11.9
Skilled occupations	680	40.9	158	31.8
Semi-skilled occupations	312	18.8	70	14.1
Unskilled occupations	276	16.6	59	11.9
Miscellaneous	53	3.2	6	1.2

1 - Large company owners and officers, professional occupations
2 - Medium company owners, also managers
3 - Small proprietors, also administrators

As we might expect, at the upper end of the occupational catagories, the picture is reversed. About 30 percent of the academics had male parents who were in professional, semi-professional and near-professional occupations, whereas only 10 percent of the vocationals had male parents in such occupations. Thus, there are distinct socio-economic differences and these would have been brought out more forcefully had the study had adequate educational data on the male parents. However, there are impressive similarities too. We are not dealing with young people that come from two different socio-economic worlds exclusively. The majority of the academics, just as the majority of vocationals, come from families where the male parent is engaged in a manual occupation. This is hardly surprising, but it warrants some emphasis. Too often, the public image of these two types of graduates is that they are poles apart in socio-economic origins. The implications of the socio-economic origins of these two types of graduates will be discussed later.

•How do academics who go directly to full-time college studies compare with those who go directly to work and how do the latter compare with the direct to work vocationals in terms of male parent occupations? Table 4 presents the data.

The male parents of the three groups had a representation in the three professional occupation categories as follows:

- Direct to college academics 41.8%
- Direct to work academics 18.6
- Direct to work vocationals 9.9

Also, the male parents of the three groups had a representation in the combined skilled, semi-skilled and unskilled occupations as follows:

- Direct to college academics 44.2%
- Direct to work academics 68.4
- Direct to work vocationals 77.1

TABLE 4. MALE PARENT OCCUPATIONAL CLASSIFICATIONS FOR THREE CATEGORIES OF GRADUATES

OCCUPATION CATEGORY	ACADEMIC: DIRECT TO COLLEGE		ACADEMIC: DIRECT TO WORK		VOCATIONAL: DIRECT TO WORK	
	N	%	N	%	N	%
Major professionals, etc.[1]	19	8.7	9	4.5	14	1.1
Middle professionals, etc.[2]	23	10.6	7	3.5	39	3.2
Minor professionals, etc.[3]	49	22.5	21	10.6	68	5.6
Clerical, sales & technical	28	12.9	23	11.6	122	10.0
Skilled occupations	62	28.4	65	32.7	508	41.7
Semi-skilled occupations	21	9.6	39	19.6	228	18.7
Unskilled occupations	14	6.4	32	16.1	204	16.7
Miscellaneous	2	0.9	3	1.5	35	2.9

1 - Includes large company owners and officers, professional occupations
2 - Includes medium company owners, also managers
3 - Includes small proprietors, also administrators

It is reasonable to assume that those who went to college experienced greater parental influence in that direction, and that such influences are related to the occupational levels achieved by the male parents.

- How do the vocationals compare with their vocational and academic subject teachers in terms of male parent occupations? The comparative data may provide some clues about the rapport between the two types of teachers and their vocational students. Table 5 provides the data.

TABLE 5. COMPARATIVE DATA ON MALE PARENT OCCUPATIONAL CLASSIFICATIONS FOR GRADUATES AND THEIR VOCATIONAL AND ACADEMIC SUBJECT TEACHERS

OCCUPATION CATEGORY	VOCATIONAL SUBJECT TEACHERS		VOCATIONAL GRADUATES		ACADEMIC SUBJECT TEACHERS	
	N	%	N	%	N	%
Major professionals, etc.[1]	31	3.9	10	1.3	28	10.3
Middle professionals, etc.[2]	51	6.4	34	4.3	26	9.6
Minor professionals, etc.[3]	100	12.6	54	6.8	44	16.2
Clerical, sales & technical	163	20.6	91	11.4	56	20.7
Skilled occupations	235	29.7	272	34.2	51	18.8
Semi-skilled occupations	86	10.9	168	21.2	26	9.6
Unskilled occupations	116	14.6	135	17.0	39	14.4
Miscellaneous	10	1.3	31	3.9	1	0.4

1 - Large company owners and officers, professional occupations
2 - Medium company owners, also managers
3 - Small proprietors, also administrators

About 36 percent of the academic subject teachers had male parents in the professional, managerial and administrative occupations, whereas only 22 percent of the vocational teachers had male parents in these occupations (30 vs. 19 percent). The data for the vocational graduates suggests that the latter are, in terms of male parent occupations, a closer match to the vocational teachers than to the academic teachers. Whereas 33 percent of the academic teachers had male parents in occupations ranging from unskilled to skilled, about 72 percent of the vocational graduates had male parents in these occupations.

The data raises an interesting question. How much of the vocational student's relatively poorer performance in academic subjects versus vocational subjects is attributable to rapport problems caused by socio-economic origin differences between teachers and their students? The study has no data to provide an answer. It is an area, however, where further research is needed.

•How do the vocationals who entered occupations in their field of study compare with those who entered unrelated occupations in terms of their male parent occupations? A significant difference may provide a clue as to why so many vocational graduates do not enter the fields for which trained. Table 6 provides the data.

A greater percentage of the graduates whose first job was in their field of study had male parents in skilled occupations than those whose first job was out of their field of study (44.6 vs. 38.9 percent). Beyond that, the differences are not impressive. The occupational level of male parents seems to be a relatively minor factor in determining

TABLE 6. COMPARATIVE DATA ON MALE PARENT OCCUPATIONAL CLASSIFICATIONS FOR VOCATIONAL GRADUATES WHOSE FIRST JOB WAS IN VERSUS OUT OF THEIR FIELDS OF STUDY

OCCUPATION CATEGORY	FIRST JOB RELATEDNESS			
	IN THE FIELD OF STUDY		OUT OF FIELD OF STUDY	
	N	%	N	%
Major professionals, etc.[1]	6	1.0	8	1.4
Middle professionals, etc.[2]	17	2.9	21	3.7
Minor professionals, etc.[3]	32	5.5	33	5.7
Clerical, sales & technical	59	10.1	57	9.9
Skilled occupations	260	44.6	224	38.9
Semi-skilled occupations	112	19.2	109	18.9
Unskilled occupations	84	14.5	105	18.2
Miscellaneous	13	2.2	19	3.3

1 - Large company owners and officers, professional occupations
2 - Medium company owners, also managers
3 - Small proprietors, also administrators

whether vocational graduates will enter occupations in their field of study. Tables 1 and 2 in Appendix Section 3 provide similar data for graduates whose present job (1964) is in versus out of their field of study. The data shown is consistant with the above interpretation.

•How do vocational graduates from comprehensive and vocational schools compare in terms of male parent occupations? Table 7 provides the data.

The comprehensive schools have more graduates with male parents in skilled occupations (45 vs. 38 percent) and less graduates with male parents in unskilled and semi-skilled occupations (29 vs. 39 percent). No plausible explanations are offered for these differences. Because of the incomplete nature of the data, it is best to regard it as tentative rather than conclusive.

TABLE 7. COMPARATIVE DATA ON MALE PARENT OCCUPATIONAL CLASSIFICATIONS FOR VOCATIONAL GRADUATES FROM VOCATIONAL VERSUS COMPREHENSIVE SCHOOLS

OCCUPATION CATEGORY	TYPE OF SCHOOL			
	VOCATIONAL		COMPREHENSIVE	
	N	%	N	%
Major professionals, etc.[1]	14	1.4	7	1.1
Middle professionals, etc.[2]	25	2.5	29	4.5
Minor professionals, etc.[3]	52	5.1	44	6.8
Clerical, sales & technical	110	10.9	59	9.1
Skilled occupations	389	38.4	291	44.9
Semi-skilled occupations	205	20.2	107	16.5
Unskilled occupations	194	19.2	82	12.7
Miscellaneous	24	2.4	29	4.5

1 - Large company owners and officers, professional occupations
2 - Medium company owners, also managers
3 - Small proprietors, also administrators

SUBJECT GRADE PERFORMANCE

Introduction

Subject grades are not without their limitations as indicators of scholastic achievement. The standards for giving grades vary between schools and between instructors within individual schools. Consequently, like grades do not necessarily mean like achievement. However, subject grades are still the most widely available indicators of subject performance, and despite their limitations, do give a reasonably good description of subject achievement. Their correlations with standard achievement test scores are generally high, a further indication that they reflect subject-matter learning.

The vocational student has acquired the image of being able to get through school only because tools have been put into his hands. He is viewed as a low achiever in academic subjects such as English, social studies and mathematics, and a relatively high achiever in shop subjects because the latter requires mainly "working with his hands". General educators often share this view with the general public. Using subject grades as indicators of subject learning, the objective of this section is to examine the merits of this widely held view of the vocational student.

Academic and Vocational Subject Grade Performance of Vocational Graduates

Based on cumulative school record data, a subject grade average was calculated for each graduate in English, mathematics, science and social studies. Letter grades of A, B, C and D were weighted 4, 3, 2 and 1 respectively. Numerical grades of 90-100, 80-89, 70-79 and 60-69 percent were similarly weighted. The above weighting procedure was followed unless school information indicated that a somewhat different interpretation was in order.

- How did the 1953, 1958 and 1962 vocational graduates perform in terms of grade averages in English, mathematics, science and social studies?

Table 8 shows the English grade average distributions for the three class years. The distributions cover virtually the entire grade range and are skewed to the lower end. The distribution means are 2.1, 2.0 and 1.9 respectivel; for the classes of 1953, 1958 and 1962. The median values are slightly less. Several generalizations can be drawn: (1) The mean English grade average for vocational graduates is at or a shade below what is regarded as average performance. (2) There is a suggestion of a slight trend toward lower English grades in recent years. (3) While the distributions are skewed toward the low end, it is clear that vocational graduates cover the entire range in terms of English grades. (4) In all class years, a substantial percentage of vocational graduates scored 1.6 or lower in English subjects. Notice the trend; 31.2 percent of the 1953 graduates

scored 1.6 or lower, 34.6 percent of the 1958 graduates scored 1.6 or lower and for the 1962 graduates, the percentage jumped to 41 percent. If 2.0, or C, is accepted as a satisfactory grade, then about half of the vocationals are doing less than satisfactory work in English subjects.

TABLE 8. ENGLISH GRADE AVERAGE DISTRIBUTION FOR T&I VOCATIONAL GRADUATES BY YEAR OF GRADUATION

ENGLISH GRADE AVERAGE *	YEAR OF GRADUATION					
	1953		1958		1962	
	N	%	N	%	N	%
3.7 - 4.0	12	1.2	16	1.0	29	1.3
3.3 - 3.6	45	4.5	55	3.6	49	2.2
2.9 - 3.2	95	9.4	129	8.5	126	5.5
2.5 - 2.8	169	16.8	237	15.5	295	12.9
2.1 - 2.4	151	15.0	227	14.8	309	13.6
1.7 - 2.0	219	21.8	333	21.8	531	23.3
1.3 - 1.6	171	17.0	285	18.7	457	20.0
0.9 - 1.2	135	13.4	220	14.4	437	19.2
0.5 - 0.8	9	0.9	19	1.2	46	2.0
0.0 - 0.4	0	0.0	4	0.3	0	0.0
NUMBER	1006		1525		2279	
MEAN	2.06		2.01		1.88	
MEDIAN	2.0		1.7		1.8	
S.D.	0.70		0.70		0.67	

* 0-F(<60%), 1-D(60-69%), 2-C(70-79%), 3-B(80-89%), 4-A(90-100%)

Table 9 shows the mathematics grade average distributions for the three class years. Specific subjects included general mathematics, geometry, algebra and trigonometry; although not every graduate had all of these subjects. The distribution means are 2.2, 2.1 and 2.0 respectively for the classes of 1953, 1958 and 1962. The distributions generated somewhat lower median values, i.e. 2.1, 2.0 and 1.9 respectively for the three class years.

Again, the same generalizations can be drawn: (1) The mean mathematics grade average for vocational graduates is at or slightly above what is usually regarded as average performance. (2) There is a suggestion of a slight trend toward lower mathematics grades in recent years. (3) The vocational graduates covered virtually the entire grade range from the lowest to the highest. (4) A substantial percentage of vocationals achieved substandard grades in each class year. That percentage is on the increase. The percentage who received a mathematics grade average of 1.6 or lower is 26.3, 31.9 and 39.1 percent for the class years of 1953, 1958 and 1962 respectively. One can not say whether this is a lower achievement trend or a more rigorous grading trend.

TABLE 9. MATHEMATICS GRADE AVERAGE DISTRIBUTIONS FOR T&I VOCATIONAL GRADUATES BY YEAR OF GRADUATION

MATHEMATICS GRADE AVERAGE *	YEAR OF GRADUATION					
	1953		1958		1962	
	N	%	N	%	N	%
3.7 - 4.0	42	4.3	41	2.8	41	1.8
3.3 - 3.6	55	5.5	74	4.9	84	3.7
2.9 - 3.2	109	10.9	153	10.2	202	8.8
2.5 - 2.8	168	16.8	223	14.9	312	13.6
2.1 - 2.4	145	14.5	186	12.4	223	9.7
1.7 - 2.0	220	22.0	343	22.9	536	23.3
1.3 - 1.6	128	12.8	234	15.6	424	18.5
0.9 - 1.2	107	10.7	200	13.4	400	17.4
0.5 - 0.8	25	2.5	36	2.4	62	2.7
0.0 - 0.4	3	0.3	8	0.5	12	0.5
NUMBER	1002		1498		2296	
MEAN	2.18		2.08		1.95	
MEDIAN	2.1		2.0		1.7	
S.D.	0.79		0.78		0.76	

* 0-F(<60%), 1-D(60-69%), 2-C(70-79%), 3-B(80-89%), 4-A(90-100%)

Table 10 shows the science grade average distributions for the three class years. Specific subjects included general science, biology, physics and chemistry; although not all graduates, of course, had all of these subjects. (See Table 12 for specific science subject performance). The distribution means are 2.2, 2.1 and 2.0 respectively for the classes of 1953, 1958 and 1962. These values are the same as the equivalent values for mathematics. Again, the skewed distributions generated somewhat lower median values of 2.0, 2.0 and 1.7 respectively.

The same generalizations can be drawn again: (1) The mean science grade average for vocational graduates is at or a shade above average performance. (2) There is a suggestion of a slight trend toward lower science grades in recent years. (3) They cover virtually the entire subject grade range from the lowest to the highest. (4) A substantial percentage of the 1953, 1958 and 1962 graduates scored 1.6 or below in science subjects; the respective percentages were 26.2, 30.6 and 36.4 percent. The same trend toward lower science grades is apparent.

Table 11 shows the social studies grade average distributions. The specific subjects are a conglomerate of history, civics, economics, world culture and others of a social study nature. The distribution means are 2.2, 2.1 and 2.0 respectively for the classes of 1953, 1958 and 1962. The distributions generated median values of 2.1, 2.0 and 1.7 respectively.

TABLE 10. SCIENCE GRADE AVERAGE DISTRIBUTIONS FOR T&I VOCATIONAL GRADUATES BY YEAR OF GRADUATION

SCIENCE GRADE AVERAGE *	YEAR OF GRADUATION					
	1953		1958		1962	
	N	%	N	%	N	%
3.7 - 4.0	28	2.9	38	2.6	32	1.4
3.3 - 3.6	40	4.1	65	4.5	57	2.6
2.9 - 3.2	127	13.1	148	10.2	233	10.4
2.5 - 2.8	172	17.7	208	14.3	306	13.7
2.1 - 2.4	96	9.9	146	10.0	196	8.8
1.7 - 2.0	253	26.1	404	27.8	597	26.7
1.3 - 1.6	132	13.6	215	14.8	377	16.9
0.9 - 1.2	113	11.6	210	14.4	372	16.6
0.5 - 0.8	7	0.7	18	1.3	59	2.6
0.0 - 0.4	3	0.3	2	0.1	6	0.3
NUMBER	971		1454		2235	
MEAN	2.16		2.08		1.97	
MEDIAN	2.0		2.0		1.7	
S.D.	0.74		0.75		0.73	

* 0-F(≤60%), 1-D(60-69%), 2-C(70-79%), 3-B(80-89%), 4-A(90-100%)

The same basic generalizations can be drawn for social studies grades as for English, mathematics and science grades. A further word about these generalizations is now in order.

First, the data does not support the popularly held view that vocationals can barely keep their heads above the water in academic subjects and that they are below average grade performers in these subjects. About 42 percent of the vocational graduates represented in the distributions came from comprehensive schools in which they had to compete against academic program graduates in many of their academic subjects.

Second, all four subject areas show the same trend toward lower grades in recent years. It is not possible to say why this is so. One interpretation is that the data reflects the claimed post-sputnik tightening up of public education. An alternative interpretation is that the grade-achieving performance of vocational graduates is slipping in academic subjects. More will be said about this later.

Third, it is clear that vocational graduates reflect the widest range of grade achievement in academic subjects. Such ranges of individual differences argue strongly against spurious generalizations made by some general educators and the general public that lump vocationals together at

TABLE 11. SOCIAL STUDIES GRADE AVERAGE DISTRIBUTIONS FOR T&I VOCATIONAL GRADUATES BY YEAR OF GRADUATION

SOCIAL STUDIES GRADE AVERAGE *	YEAR OF GRADUATION					
	1953		1958		1962	
	N	%	N	%	N	%
3.7 - 4.0	17	1.7	36	2.4	28	1.2
3.3 - 3.6	51	5.1	83	5.5	70	3.1
2.9 - 3.2	118	11.8	135	8.9	161	7.1
2.5 - 2.8	163	16.3	265	17.4	334	14.6
2.1 - 2.4	164	16.4	192	12.6	252	11.0
1.7 - 2.0	214	21.4	315	20.7	548	24.0
1.3 - 1.6	157	15.7	264	17.3	496	21.8
0.9 - 1.2	112	11.2	205	13.5	348	15.3
0.5 - 0.8	4	0.4	25	1.6	34	1.5
0.0 - 0.4	2	0.2	1	0.1	8	0.4
NUMBER	1002		1521		2279	
MEAN	2.15		2.09		1.95	
MEDIAN	2.1		2.0		1.7	
S.D.	0.71		0.75		0.70	

* 0-F(<60%), 1-D(60-69%), 2-C(70-79%), 3-B(80-89%), 4-A(90-100%)

the bottom of the grade heap. The data clearly refutes such thinking.

Fourth, if grade performance reflects differences of achievement above and below a satisfactory standard, then it is clear that substantial percentages of vocationals are performing substandard in academic subjects. However, we shall see that the situation is no different for academic program graduates.

Fifth, the vocationals have more difficulty with English and social studies subjects than they do with mathematics and science. One wonders whether this is a subject-matter difference in interests and abilities or a sex difference in subject teachers. More about this later.

Now, let's consider their performance in vocational subjects. Table 12 shows the vocational shop grade distribution for the class years. The distribution means are 2.7, 2.6 and 2.5 respectively for the classes of 1953, 1958 and 1962. The respective median values are 2.8, 2.6 and 2.5. The overall academic subject grade averages for the classes of 1953, 1958 and 1962 were 2.1, 2.0 and 1.9 respectively.

TABLE 12. SHOP GRADE AVERAGE DISTRIBUTIONS FOR T&I VOCATIONAL GRADUATES BY YEAR OF GRADUATION

VOCATIONAL SHOP GRADE AVERAGE *	YEAR OF GRADUATION					
	1953		1958		1962	
	N	%	N	%	N	%
3.7 - 4.0	107	10.1	127	8.0	143	6.1
3.3 - 3.6	141	13.3	199	12.5	293	12.4
2.9 - 3.2	248	23.4	332	20.9	429	18.2
2.5 - 2.8	217	20.5	373	23.5	522	22.2
2.1 - 2.4	128	12.1	194	12.2	280	11.9
1.7 - 2.0	141	13.3	223	14.1	409	17.4
1.3 - 1.6	52	4.9	103	6.5	188	8.0
0.9 - 1.2	25	2.3	34	2.2	79	3.4
0.5 - 0.8	1	0.1	0	0.0	8	0.3
0.0 - 0.4	0	0.0	1	0.1	3	0.1
NUMBER	1060		1586		2354	
MEAN	2.73		2.66		2.56	
MEDIAN	2.8		2.6		2.5	
S.D.	0.70		0.70		0.72	

* 0-F(≤60%), 1-D(60-69%), 2-C(70-79%), 3-B(80-89%), 4-A(90-100%)

The vocational subject grade performance of the graduates is significantly and substantially better than their academic subject grade performance. (See Tables 8, 9, 10 and 11). This is not surprising. Unquestionably, their grade performance reflects their greater interest in their vocational work. A similar analysis of shop theory grades for those who received both a shop and a theory grade resulted in mean values of 2.5, 2.6 and 2.4 respectively for the classes of 1953, 1958 and 1962. Thus, they do better in both the skill and theory areas of their occupational training than they do in academic subjects.

Subject Grade Performance of Vocationals in Versus Out of Their Field of Training

In Chapter 2, it was shown that those who entered occupations related to their field of study had greater earnings and earnings increase, greater employment security, greater accumulated earnings and greater reported job satisfaction than those vocationals who worked outside of their field of study. This now raises the question of whether there are differences in subject grade performances between such vocational graduates. Significant differences would be the first indication of a human resource variable influencing the relatedness of jobs held to course of study.

TABLE 13. COMPARATIVE DATA ON SUBJECT GRADE AVERAGES FOR T&I VOCATIONAL GRADUATES WHOSE FIRST FULL-TIME JOB WAS IN VERSUS OUT OF THEIR FIELD OF STUDY

MAJOR SUBJECT AREAS	CLASS YEARS	FIRST JOB TO TRAINING RELATEDNESS					
		IN THE FIELD OF STUDY			OUT OF THE FIELD OF STUDY		
		N	MEAN	S.D.	N	MEAN	S.D.
English	1953	408	2.16	0.70	385	1.93	0.67 **
	1958	469	2.07	0.70	558	1.90	0.65 **
	1962	713	1.90	0.67	756	1.78	0.62 **
Mathematics	1953	406	2.29	0.79	382	2.04	0.77 **
	1958	464	2.17	0.78	545	1.97	0.76 **
	1962	723	2.04	0.78	756	1.85	0.72 **
Science	1953	394	2.25	0.73	367	2.05	0.69 **
	1958	488	2.12	0.77	528	1.98	0.70 **
	1962	700	1.99	0.72	739	1.88	0.70 **
Social Studies	1953	406	2.23	0.69	385	2.00	0.67 **
	1958	468	2.17	0.76	557	1.97	0.72 **
	1962	712	1.96	0.68	755	1.84	0.67 **
Academic Overall	1953	410	2.19	0.62	388	1.96	0.60 **
	1958	471	2.10	0.65	558	1.91	0.59 **
	1962	727	1.93	0.61	759	1.79	0.55 **
Vocational Shop	1953	427	2.88	0.66	404	2.58	0.69 **
	1958	483	2.85	0.67	589	2.54	0.65 **
	1962	747	2.63	0.68	766	2.42	0.71 **
Vocational Theory	1953	213	2.55	0.68	124	2.34	0.79 *
	1958	202	2.69	0.70	175	2.46	0.72 **
	1962	347	2.42	0.80	271	2.35	0.77
Vocational Overall	1953	427	2.78	0.64	404	2.53	0.69 **
	1958	483	2.80	0.67	589	2.50	0.64 **
	1962	747	2.57	0.67	776	2.39	0.68 **
All Major Subjects	1953	427	2.47	0.55	408	2.23	0.55 **
	1958	484	2.43	0.57	590	2.20	0.54 **
	1962	747	2.23	0.55	777	2.08	0.53 **

* Significant at .05 level of confidence
** Significant at .01 level of confidence

• How do the vocationals whose first full-time job was in their field of study compare with those whose first job was out of their field in terms of subject grade performance during high school? Table 13 provides the comparative data.

Of the 27 mean comparisons in Table 13 every comparison favored those whose first full-time job was in their field of study. Thus, based on group means of subject grade averages, it is clear that the better students are more likely to enter occupations in their field of study. Table 14 shows how the two groups distributed in terms of shop grade averages.

The percentage differences are impressive. Only 14 percent of those whose first job was in their field of study had a shop grade average of 2 or less, whereas 28 percent of those whose first job was out of their field of study had a 2 or less shop grade average. (The numerical value of 2 was equivalent to a C grade). This sheds new light on why some vocational graduates do not enter the occupations for which trained. For reasons unknown, their shop grade performance was substandard. It may well be that the low-level skill and knowledge that is implied precluded entry into the occupations for which trained.

TABLE 14. COMPARATIVE SHOP GRADE DISTRIBUTION DATA FOR T&I VOCATIONAL GRADUATES WHOSE FIRST FULL-TIME JOB WAS IN VERSUS OUT OF THEIR FIELD OF STUDY

VOCATIONAL SHOP GRADE AVERAGE *	FIRST JOB TO TRAINING RELATEDNESS					
	IN THE FIELD OF STUDY			OUT OF THE FIELD OF STUDY		
	N	%	C%	N	%	C%
3.7 - 4.0	54	12.7	100.0	24	5.9	100.0
3.3 - 3.6	69	16.2	87.3	47	11.6	94.1
2.9 - 3.2	115	26.9	71.1	83	20.6	82.5
2.5 - 2.8	83	19.4	44.2	89	22.0	61.9
2.1 - 2.4	47	11.0	24.8	50	12.4	39.9
1.7 - 2.0	39	9.1	13.8	75	18.6	27.5
1.3 - 1.6	15	3.5	4.7	21	5.2	8.9
0.9 - 1.2	5	1.2	1.2	14	3.5	3.7
0.5 - 0.8	0	0.0	0.0	1	0.2	0.2
0.0 - 0.4	0	0.0	0.0	0	0.0	0.0
NUMBER	427			404		
MEAN	2.88			2.58		
MEDIAN	3.0			2.6		
S.D.	0.66			0.69		

* 0-F(<60%), 1-D(60-69%), 2-C(70-79%), 3-B(80-89%), 4-A(90-100%)

There is yet another aspect of the data that is significant. Almost 40 percent of those whose first full-time job was not in their field of study had a shop grade average of 2.5 or better. It is reasonable to assume these graduates had the skill and knowledge prerequisites for entry into the occupations for which trained. Eighteen percent had a 2.9 or better grade average. Such grades are not demonstrated in the absence of motivation to learn. It is clear that one can not claim that those who entered occupations out of their field of study lacked competence in the form of occupational knowledge, skills and probably motivation as well. Why are these graduates not finding or taking jobs in their field of study? That is a major research question in need of an answer.

•How do the vocationals whose present job is in their field of study compare with those presently not in their field of study in terms of subject grade performance during high school? Table 15 provides the data.

The graduates of 1953, 1958 and 1962 who were employed in their high school field of study in 1964 show consistently higher mean subject grade averages than those not in their field. Thus, in terms of high school grade performance, the better students are likely to persist and be in their occupational field of study two, six and eleven years after graduation. As a group, those presently in their field of study did significantly better in all subject areas than those not presently in their high school field of study.

Table 16 provides additional evidence of what has been siad. The percentage differences between those presently in and out of the field of study impressively favor the former. About 78 percent of those presently in their field of study (eleven years after graduation) had a shop grade average of 2.5 or better. Only 62 percent of those not presently in their field of study had a shop grade average of 2.5 or better.

The third and last comparison of the series is between graduates whose first and present jobs (June, 1964) were in their field of study versus those whose equivalent jobs were not in their field of study. The comparison is particularly of interest because of the extreme nature of the groups. The graduates of one group started out in their field of study and presumably persisted in their occupational field for two, six and eleven years after graduation. The other group, for the most part, never worked in the occupational field for which trained. Table 17 provides the data.

In every major subject area, and for every class year comparison, those who entered and stayed with the occupational field studied had a higher grade average than those who entered and stayed with an unrelated occupational field. The differences are particularly pronounced in vocational subjects. Thus, in terms of grade average performance, it is the better student on the whole who enters and stays with his occupational field of study. Table 18 shows the shop grade distribution for the two groups.

TABLE 15. COMPARATIVE DATA ON SUBJECT GRADE AVERAGES FOR T&I VOCATIONAL GRADUATES WHOSE PRESENT (1964) JOB IS IN VERSUS OUT OF THEIR FIELD OF STUDY

MAJOR SUBJECT AREAS	CLASS YEARS	PRESENT JOB TO TRAINING RELATEDNESS					
		IN THE FIELD OF STUDY			OUT OF THE FIELD OF STUDY		
		N	MEAN	S.D.	N	MEAN	S.D.
English	1953	287	2.18	0.70	476	1.97	0.68 **
	1958	425	2.09	0.71	569	1.90	0.65 **
	1962	645	1.92	0.67	815	1.77	0.62 **
Mathematics	1953	284	2.33	0.80	473	2.08	0.78 **
	1958	419	2.20	0.78	557	2.00	0.76 **
	1962	654	2.05	0.78	816	1.86	0.72 **
Science	1953	280	2.27	0.71	451	2.08	0.71 **
	1958	403	2.15	0.75	540	1.98	0.73 **
	1962	633	1.99	0.72	798	1.89	0.70 **
Social Studies	1953	286	2.25	0.70	474	2.06	0.68 **
	1958	424	2.20	0.77	568	1.96	0.72 **
	1962	644	1.96	0.69	814	1.84	0.66 **
Academic Overall	1953	288	2.21	0.62	478	2.09	0.61 **
	1958	425	2.12	0.64	571	1.91	0.61 **
	1962	657	1.94	0.62	820	1.80	0.55 **
Vocational Shop	1953	303	2.90	0.64	496	2.63	0.69 **
	1958	440	2.86	0.64	598	2.55	0.67 **
	1962	677	2.65	0.66	837	2.42	0.71 **
Vocational Theory	1953	146	2.57	0.70	183	2.41	0.74 *
	1958	177	2.69	0.67	185	2.47	0.74 **
	1962	318	2.48	0.80	298	2.31	0.77 **
Vocational Overall	1953	303	2.79	0.63	496	2.58	0.68 **
	1958	440	2.82	0.64	598	2.50	0.66 **
	196	677	2.59	0.66	837	2.40	0.69 **
All Major Subjects	1953	303	2.49	0.54	499	2.28	0.55 **
	1958	441	2.45	0.55	599	2.19	0.55 **
	1962	677	2.25	0.54	838	2.08	0.53 **

* Significant at .05 level of confidence
** Significant at .01 level of confidence

TABLE 16. COMPARATIVE SHOP GRADE DISTRIBUTION DATA FOR T&I VOCATIONAL GRADUATES WHOSE PRESENT FULL-TIME JOB (1964) IS IN VERSUS OUT OF THEIR FIELD OF STUDY

VOCATIONAL SHOP GRADE AVERAGE *	PRESENT JOB TO TRAINING RELATEDNESS					
	IN THE FIELD OF STUDY			OUT OF THE FIELD OF STUDY		
	N	%	C%	N	%	C%
3.7 - 4.0	35	11.5	100.0	37	7.5	100.0
3.3 - 3.6	51	16.8	88.5	62	12.5	92.5
2.9 - 3.2	85	28.1	71.7	106	21.4	80.0
2.5 - 2.8	64	21.1	43.6	104	21.0	58.6
2.1 - 2.4	30	9.9	22.5	63	12.7	37.6
1.7 - 2.0	29	9.6	12.6	81	16.3	24.9
1.3 - 1.6	6	2.0	3.0	29	5.8	8.6
0.9 - 1.2	3	1.0	1.0	13	2.6	2.8
0.5 - 0.8	0	0.0	0.0	1	0.2	0.2
0.0 - 0.4	0	0.0	0.0	0	0.0	0.0
NUMBER	303			496		
MEAN	2.90			2.63		
MEDIAN	3.0			2.6		
S.D.	0.64			0.69		

* 0-F(<60%), 1-D(60-69%), 2-C(70-79%), 3-B(80-89%), 4-A(90-100%)

TABLE 17. COMPARATIVE DATA ON SUBJECT GRADE AVERAGES FOR T&I VOCATIONAL GRADUATES WHOSE FIRST AND PRESENT JOBS (1964) WERE IN VERSUS OUT OF THEIR FIELD OF STUDY

MAJOR SUBJECT AREAS	CLASS YEARS	FIRST AND PRESENT JOB RELATEDNESS					
		IN THE FIELD OF STUDY			OUT OF THE FIELD OF STUDY		
		N	MEAN	S.D.	N	MEAN	S.D.
English	1953	233	2.24	0.71	317	1.93	0.69 **
	1958	341	2.10	0.72	450	1.88	0.65 **
	1962	583	1.94	0.69	668	1.77	0.62 **
Mathematics	1953	231	2.36	0.79	315	2.02	0.77 **
	1958	335	2.20	0.77	437	1.94	0.76 **
	1962	592	2.08	0.78	668	1.84	0.71 **
Science	1953	227	2.32	0.72	229	2.04	0.71 **
	1958	323	2.15	0.77	424	1.96	0.72 **
	1962	572	2.01	0.73	653	1.87	0.70 **
Social Studies	1953	232	2.28	0.70	316	1.99	0.68 **
	1958	340	2.21	0.76	449	1.94	0.71 **
	1962	582	1.97	0.69	667	1.83	0.66 **
Academic Overall	1953	233	2.26	0.62	318	1.96	0.61 **
	1958	341	2.13	0.65	450	1.89	0.59 **
	1962	595	1.96	0.62	671	1.79	0.55 **
Vocational Shop	1953	242	2.96	0.63	327	2.58	0.70 **
	1958	349	2.89	0.65	474	2.51	0.66 **
	1962	614	2.66	0.67	685	2.40	0.71 **
Vocational Theory	1953	128	2.60	0.69	102	2.36	0.80 *
	1958	141	2.73	0.68	130	2.44	0.74 **
	1962	301	2.48	0.81	240	2.32	0.77 *
Vocational Overall	1953	242	2.83	0.62	327	2.53	0.70 **
	1958	349	2.85	0.65	474	2.48	0.64 **
	1962	614	2.60	0.67	685	2.37	0.68 **
All Major Subjects	1953	242	2.54	0.54	327	2.23	0.56 **
	1958	350	2.47	0.56	475	2.17	0.54 **
	1962	614	2.26	0.55	686	2.06	0.53 **

* Significant at .05 level of confidence
** Significant at .01 level of confidence

TABLE 18. COMPARATIVE SHOP GRADE DISTRIBUTION DATA FOR T&I VOCATIONAL GRADUATES WHOSE FIRST AND PRESENT JOBS (1964) WERE IN VERSUS OUT OF THEIR FIELD OF STUDY

VOCATIONAL SHOP GRADE AVERAGE *	FIRST AND PRESENT JOB RELATEDNESS					
	IN THE FIELD OF STUDY			OUT OF THE FIELD OF STUDY		
	N	%	C%	N	%	C%
3.7 - 4.0	33	13.6	100.0	22	6.7	100.0
3.3 - 3.6	44	18.2	86.4	38	11.6	93.3
2.9 - 3.2	68	28.1	68.2	63	19.3	81.7
2.5 - 2.8	48	19.8	40.1	73	22.3	62.4
2.1 - 2.4	24	9.9	20.3	41	12.5	40.1
1.7 - 2.0	18	7.5	10.4	60	18.4	27.6
1.3 - 1.6	6	2.5	2.9	19	5.8	9.2
0.9 - 1.2	1	0.4	0.4	10	3.1	3.4
0.5 - 0.8	0	0.0	0.0	1	0.3	0.3
0.0 - 0.4	0	0.0	0.0	0	0.0	0.0
NUMBER	242			327		
MEAN	2.96			2.58		
MEDIAN	3.0			2.6		
S.D.	0.63			0.70		

* 0-F(<60%), 1-D(60-69%), 2-C(70-79%), 3-B(80-89%), 4-A(90-100%)

Two points can be made: (1) The shop grades of those who started and stayed with occupations in their field of study are markedly better than the grades of those who did not work in their field of study for the groups as a whole. (2) The two distributions overlap along the entire range. An impressive percentage of those who never worked in their field of study had a B average or better in their shop work. This indicates that a large percentage of superior shop grade performers are lost from the field for which trained. It represents a wastage of reasonably skilled manpower resources.

Vocational Versus Academic Graduates

• How do vocational graduates compare with academic graduates in terms of grade performance? The question has a bearing on the negative image of vocational students that is held by so much of the general public, including some of the general educators. A blanket comparison would be misleading. Some of the academic graduates go directly to work; others go directly to full-time college studies. The same is true for vocational graduates. It is appropriate to compare like groups.

•How do the direct to work vocational graduates compare with the direct to work academic graduates in high school grade performance? Table 19 provides the comparative data.

The direct to work vocationals for each class year did better as a group in English, in mathematics, in science, in social studies and in academic subjects overall than did the direct to work academic program graduates. All mean differences, without exception, favored the vocational graduates. This is particularly impressive when one realizes that 42 percent of the vocationals come from comprehensive schools in which most had to compete with academic program students for their grades in academic subjects. It is doubly impressive because the direct to work academic graduates represent about half of all academic graduates in the United States. The data contradict the "dumping ground" image of vocationals.

TABLE 19. COMPARATIVE DATA ON MAJOR SUBJECT GRADE AVERAGES FOR ACADEMIC VERSUS T&I VOCATIONAL GRADUATES WHO WENT DIRECTLY TO WORK AFTER GRADUATION

MAJOR SUBJECT AREAS	CLASS YEARS	TYPE OF GRADUATE					
		VOCATIONAL: DIRECT TO WORK			ACADEMIC: DIRECT TO WORK		
		N	MEAN	S.D.	N	MEAN	S.D.
English	1953	820	2.04	0.70	174	1.83	0.59 **
	1958	1080	1.97	0.68	203	1.80	0.61 **
	1962	1567	1.84	0.64	250	1.72	0.58 **
Mathematics	1953	815	2.17	0.79	165	1.91	0.78 **
	1958	1059	2.05	0.78	199	1.88	0.77 **
	1962	1577	1.93	0.75	248	1.73	0.66 **
Science	1953	788	2.15	0.72	170	1.88	0.74 **
	1958	1025	2.04	0.73	200	1.87	0.65 **
	1962	1534	1.93	0.71	246	1.72	0.71 **
Social Studies	1953	818	2.12	0.70	173	1.99	0.66 *
	1958	1076	2.06	0.74	203	1.97	0.65
	1962	1565	1.89	0.68	250	1.84	0.65
Academic Overall	1953	825	2.08	0.62	174	1.86	0.57 **
	1958	1083	1.99	0.63	203	1.85	0.56 **
	1962	1584	1.86	0.58	250	1.71	0.54 **
All Major Subjects	1953	862	2.35	0.56	174	1.86	0.57 **
	1958	1131	2.29	0.57	203	1.85	0.56 **
	1962	1625	2.15	0.54	250	1.71	0.54 **

* Significant at .05 level of confidence
** Significant at .01 level of confidence

•How do the direct to college vocational graduates compare with the direct to college academic graduates in high school grade performance? Table 20 provides the data.

Present study data indicated that 9 percent of the vocational graduates from the three class years went directly to college, whereas 47 percent of the academic graduates went directly to college after graduation. It is the data from those two groups that is compared in Table 20.

The slight differences that favor the academic direct to college graduates are not impressive. In most cases, the differences are not significant. Vocational graduates who go directly to college achieve academic subject grades that are comparable to grades achieved by the direct to college academics. This, too, flatly contradicts the "dumping ground" image of the vocational student. When the comparison is made on overall major subject grade average, the direct to college vocational graduate actually does better than the direct to college academic graduate.

TABLE 20. COMPARATIVE DATA ON MAJOR SUBJECT GRADE AVERAGES FOR ACADEMIC AND T&I VOCATIONAL GRADUATES WHO WENT DIRECTLY TO FULL-TIME COLLEGE STUDIES

MAJOR SUBJECT AREAS	CLASS YEARS	TYPE OF GRADUATE: VOCATIONAL: DIRECT TO COLLEGE			ACADEMIC: DIRECT TO COLLEGE			
		N	MEAN	S.D.	N	MEAN	S.D.	
English	1953	85	2.41	0.73	196	2.43	0.73	
	1958	129	2.44	0.79	232	2.53	0.75	
	1962	234	2.31	0.79	383	2.46	0.77	*
Mathematics	1953	85	2.44	0.81	195	2.38	0.83	
	1958	125	2.47	0.88	231	2.48	0.83	
	1962	235	2.21	0.82	383	2.33	0.87	
Science	1953	82	2.52	0.83	195	2.45	0.82	
	1958	124	2.58	0.79	227	2.63	0.80	
	1962	231	2.30	0.82	381	2.43	0.82	
Social Studies	1953	85	2.61	0.74	196	2.71	0.81	
	1958	129	2.51	0.84	232	2.80	0.78	**
	1962	234	2.45	0.75	383	2.67	0.82	**
Academic Overall	1953	85	2.46	0.65	196	2.46	0.72	
	1958	129	2.46	0.73	232	2.57	0.71	
	1962	235	2.27	0.70	383	2.43	0.75	**

* Significant at .05 level of confidence
** Significant at .01 level of confidence

This is attributable to the inclusion of shop subject grades. Thus, although a relatively small number of the vocational graduates go directly to college (9 percent), those that do demonstrate grade achievement in academic subjects are on par with the academic graduates who go directly to college (49 percent).

• How do the direct to work vocationals whose first and present jobs (1964) were in their field of study compare with direct to work academics in terms of subject grade averages? Table 21 provides the data.

TABLE 21. COMPARATIVE DATA ON MAJOR SUBJECT GRADE AVERAGES FOR ACADEMIC GRADUATES VERSUS VOCATIONAL GRADUATES WHOSE FIRST AND PRESENT JOBS (1964) WERE IN THEIR FIELD OF STUDY, BASED ON DIRECT TO WORK CASES ONLY

MAJOR SUBJECT AREAS	CLASS YEARS	TYPE OF GRADUATE					
		VOCATIONALS IN FIELD OF STUDY			ACADEMICS: DIRECT TO WORK		
		N	MEAN	S.D.	N	MEAN	S.D.
English	1953	233	2.24	0.71	174	1.83	0.59 **
	1958	341	2.10	0.72	203	1.80	0.61 **
	1962	583	1.94	0.69	250	1.72	0.58 **
Mathematics	1953	231	2.36	0.79	165	1.91	0.78 **
	1958	335	2.20	0.77	199	1.88	0.77 **
	1962	592	2.08	0.78	248	1.73	0.66 **
Science	1953	227	2.32	0.72	170	1.88	0.74 **
	1958	323	2.15	0.77	200	1.87	0.65 **
	1962	572	2.01	0.73	246	1.72	0.71 **
Social Studies	1953	232	2.28	0.70	173	1.99	0.66 **
	1958	340	2.21	0.76	203	1.97	0.65 **
	1962	582	1.97	0.69	250	1.84	0.65 **
Academic Overall	1953	233	2.26	0.62	174	1.86	0.57 **
	1958	341	2.1[illegible]	0.65	203	1.85	0.56 **
	1962	595	1.96	0.62	250	1.71	0.54 **
All Major Subjects	1953	242	2.54	0.54	174	1.86	0.57 **
	1958	350	2.47	0.56	203	1.85	0.56 **
	1962	614	2.26	0.55	250	1.71	0.54 **

* Significant at .05 level of confidence
** Significant at .01 level of confidence

In every major subject area for each of the three graduating classes, the vocationals had impressively higher grade averages than the academics. This may partially explain why this group of vocational graduates did so much better than the direct to work academic graduates in terms of employment security, job earnings and percentage of earnings increase. They were also better students in school.

•How do vocational and academic program graduates compare in terms of the percentages whose school records indicate completion of mathematics and science courses? Table 22 provides the data.

Several points can be made: (1) A substantially greater percentage of academic than vocational graduates have compelted various mathematics and science course. (2) In recent years, a greater percentage of both groups are taking mathematics and science. (3) The increase in mathematics course completion is greater among the vocational graduates. (Whereas 38 percent of the 1953 vocationals had algebra, the equivalent figure for the 1962 vocationals was 54 percent, a gain of 16 percent. The comparable gain for academic graduates was only 7 percent.) (4) Related mathematics and science appears to be on the decline. (Whereas 33 percent of the 1953 vocationals had related science, only 22 percent of the 1962 vocationals had the subject. The decline in related mathematics is less impressive. What is impressive is that there is no growth reflected by the data). (5) Why have so many vocational graduates had biology and so few had physics and chemistry? Does this reflect rational curriculum planning?

•Subject for subject, how do vocational and academic graduates compare in terms of mathematics and science grades? Table 23 provides the data.

Where there are significant differences, they favor the academic graduates in both mathematics and science subjects. However, the magnitude of the differences are not impressive. Most of the differences are less than 0.2 grade points. Biology seems to be a notable exception. The vocationals do significantly poorer in biology. Perhaps, lacking the imagination of the curriculum developer, they have trouble relating the subject to their future.

The above data should dispel any suspicion that the previous comparison data, which showed the direct to work vocationals doing better in all subject areas than the direct to work academics, was the result of the former taking "easier" subjects. While it is true that fewer vocationals take, for example, algebra, those that do perform about as well as the academics who take algebra. This is particularly impressive because Table 23 data includes the 47 percent of the academic graduates who went directly to college.

Vocational Versus Comprehensive Schools

A persistant question concerns the relative quality of the student resource input into vocational programs in comprehensive versus vocational schools. Properly, the question should be the subject of a special study. However, some of the present study data is relevant, providing one is willing to draw inferences about students from data about graduates.

TABLE 22. PERCENTAGE OF VOCATIONAL AND ACADEMIC GRADUATES FOR WHOM SCHOOL RECORDS SHOWED COMPLETION OF THE SUBJECTS LISTED

SUBJECT AREAS	CLASS YEARS	TYPE OF GRADUATE			
		VOCATIONAL		ACADEMIC	
		N	%	N	%
Mathematics, some	1953	1002	88.2	406	96.4
	1958	1498	92.1	522	92.6
	1962	2296	93.7	765	97.2
General Mathematics	1953	558	49.1	153	36.3
	1958	815	50.1	224	39.7
	1962	1117	45.6	339	50.7
Algebra	1953	437	38.5	307	72.9
	1958	813	50.0	470	83.3
	1962	1337	54.5	633	80.4
Trig/Geometry	1953	229	26.3	248	58.9
	1958	449	30.7	381	67.6
	1962	843	34.4	491	62.4
Related Math	1953	443	39.0	—	—
	1958	591	36.3	—	—
	1962	929	37.9	—	—
Science, some	1953	971	85.5	410	97.4
	1958	1454	89.4	546	96.8
	1962	2235	91.2	758	96.3
General Science	1953	520	45.8	239	56.8
	1958	937	57.6	376	66.7
	1962	1348	55.0	540	68.6
Biology	1953	232	20.4	316	75.1
	1958	353	21.7	398	70.6
	1962	829	33.8	643	81.7
Chemistry	1953	155	13.6	188	44.7
	1958	277	17.0	299	53.0
	1962	328	13.4	392	49.8
Physics	1953	255	22.4	140	33.3
	1958	529	32.5	244	43.3
	1962	738	30.1	465	59.1
Related Science	1953	376	33.1	—	—
	1958	447	27.5	—	—
	1962	541	22.1	—	—

TABLE 23. COMPARATIVE SUBJECT GRADE PERFORMANCE FOR VOCATIONAL AND ACADEMIC GRADUATES

SUBJECT AREAS	CLASS YEARS	TYPE OF GRADUATE						
		VOCATIONAL			ACADEMIC			
		N	MEAN	S.D.	N	MEAN	S.D.	
Mathematics, all	1953	1002	2.18	0.79	406	2.14	0.83	
	1958	1498	2.08	0.78	552	2.12	0.85	
	1962	2296	1.95	0.76	765	2.05	0.84	**
Arithmetic	1953	558	2.23	0.89	153	2.33	0.89	
	1958	815	2.18	0.86	224	2.34	0.93	*
	1962	1117	2.02	0.85	399	2.16	0.93	**
Algebra	1953	437	2.07	0.97	307	2.18	0.95	
	1958	813	2.01	0.94	470	2.13	0.94	*
	1962	1337	1.84	0.91	633	2.09	0.99	**
Trig/Geometry	1953	229	2.05	0.92	248	2.14	1.06	*
	1958	499	2.15	0.97	381	2.09	1.00	
	1962	843	1.96	0.97	491	2.13	1.04	**
Science, all	1953	971	2.16	0.74	410	2.16	0.81	
	1958	1454	2.08	0.75	546	2.20	0.82	*
	1962	2235	1.97	0.73	758	2.09	0.84	**
General Science	1953	520	2.20	0.85	239	2.34	0.95	**
	1958	937	2.20	0.85	376	2.44	0.92	**
	1962	1348	2.01	0.82	540	2.29	0.95	**
Biology	1953	232	1.89	0.82	316	2.20	0.97	**
	1958	353	1.78	0.84	398	2.20	1.02	**
	1962	829	1.73	0.87	643	2.18	1.00	**
Chemistry	1953	155	2.13	0.90	188	2.19	0.99	
	1958	277	2.11	0.93	299	2.12	1.09	
	1962	328	1.99	0.98	392	2.12	1.05	*
Physics	1953	255	2.11	0.83	140	2.42	0.85	**
	1958	529	2.09	0.86	244	2.19	0.99	*
	1962	738	1.98	0.85	465	2.33	[illegible]	**

* Significant at .05 level of confidence
** Significant at .01 level of confidence

On the assumption that subject grade performance is a reflection, albeit an imperfect one, of the underlying quality of the student resource, we can ask the question:

•How do the vocational graduates from vocational and comprehensive schools compare in terms of subject area grade performance? Table 24 provides the data.

For each class year, the vocational school graduates did better than the comprehensive school graduates on all academic subjects. They did about the same on vocational subjects.

The higher grade averages of graduates from vocational schools raises a question. Are the vocationals in comprehensive schools less capable than those in vocational schools? Their grade averages in English, social studies, mathematics and science are significantly lower. Tables 25, 26, 27 and 28 provide the comparative data in the form of grade distributions for the vocationals from both types of schools and for the academics from the comprehensive schools. The distribution data emphasises the magnitude of the differences.

TABLE 25. ENGLISH GRADE AVERAGE DISTRIBUTIONS FOR VOCATIONAL GRADUATES FROM VOCATIONAL AND COMPREHENSIVE SCHOOLS AND FOR ACADEMIC PROGRAM GRADUATES (1962 GRADUATES)

ENGLISH GRADE AVERAGE *	VOCATIONAL/ VOCATIONALS			COMPREHENSIVE/ VOCATIONALS			COMPREHENSIVE/ ACADEMICS		
	N	%	C%	N	%	C%	N	%	C%
3.7 - 4.0	26	2.0	100.0	3	0.3	100.0	32	4.2	100.0
3.3 - 3.6	40	3.1	98.0	9	0.9	99.7	34	4.4	95.8
2.9 - 3.2	101	7.7	94.9	25	2.6	98.8	63	8.3	91.4
2.5 - 2.8	212	16.2	87.2	83	8.5	96.2	120	15.6	83.1
2.1 - 2.4	202	15.5	71.0	107	11.0	87.7	122	15.9	67.5
1.7 - 2.0	325	24.9	55.5	206	21.2	76.7	156	20.3	51.6
1.3 - 1.6	215	16.5	30.6	242	24.8	55.5	117	15.3	31.3
0.9 - 1.2	159	12.2	14.1	278	28.5	30.7	109	14.2	16.0
0.5 - 0.8	24	1.8	1.9	21	2.2	2.2	13	1.7	1.8
0.0 - 0.4	1	0.1	0.1	0	0.0	0.0	1	0.1	0.1
NUMBER	1305			974			767		
MEAN	2.04			1.67			2.10		
MEDIAN	2.0			1.6			2.0		
S.D.	0.69			0.58			0.77		

* 0-F(<60%), 1-D(60-69%), 2-C(70-79%), 3-B(80-89%), 4-A(90-100%)

TABLE 24. COMPARATIVE DATA ON MAJOR SUBJECT GRADES FOR T&I VOCATIONAL GRADUATES FROM COMPREHENSIVE VERSUS VOCATIONAL SCHOOLS

MAJOR SUBJECT AREAS	CLASS YEARS	TYPE OF SCHOOL						
		VOCATIONAL			COMPREHENSIVE			
		N	MEAN	S.D.	N	MEAN	S.D.	
English	1953	571	2.21	0.69	435	1.87	0.67	**
	1958	837	2.19	0.71	688	1.79	0.62	**
	1962	1305	2.04	0.69	974	1.67	0.58	**
Mathematics	1953	574	2.30	0.77	428	2.02	0.79	**
	1958	830	2.21	0.77	668	1.91	0.76	**
	1962	1323	2.06	0.78	973	1.80	0.70	**
Science	1953	560	2.27	0.73	411	2.01	0.73	**
	1958	812	2.19	0.74	642	1.93	0.73	**
	1962	1282	2.06	0.73	953	1.84	0.71	**
Social Studies	1953	567	2.28	0.67	435	1.98	0.73	**
	1958	834	2.25	0.70	687	1.89	0.76	**
	1962	1304	2.09	0.69	975	1.76	0.66	**
Academic Overall	1953	577	2.23	0.61	435	1.93	0.62	**
	1958	840	2.17	0.64	688	1.84	0.60	**
	1962	1327	2.02	0.62	976	1.73	0.54	**
Vocational Shop	1953	627	2.72	0.69	433	2.75	0.72	
	1958	898	2.67	0.70	688	2.65	0.69	
	1962	1374	2.56	0.70	980	2.55	0.75	
Vocational Theory	1953	290	2.40	0.70	119	2.68	0.78	**
	1958	383	2.61	0.69	157	2.48	0.77	
	1962	624	2.46	0.77	263	2.33	0.85	*
Vocational Overall	1953	627	2.63	0.68	433	2.71	0.71	
	1958	898	2.63	0.68	688	2.61	0.69	
	1962	1374	2.52	0.68	981	2.52	0.74	
All Major Subjects	1953	629	2.42	0.58	436	2.29	0.57	**
	1958	900	2.39	0.59	690	2.20	0.55	**
	1962	1376	2.25	0.57	983	2.10	0.55	**

* Significant at .05 level of confidence
** Significant at .01 level of confidence

The distribution for the English grade averages will be used to make the points applicable to the other tables: (1) There is a substantial performance difference between the comprehensive school vocationals and academics. For example, whereas 52 percent of the academic graduates had an English grade average of 2.0 (C) or less, the equivalent figure for the vocationals was 77 percent. (2) There is also an impressive performance difference between the vocational school graduates and the comprehensive school vocational graduates. About 55 percent of the former had an English grade average of 2.0 (C) or less in contrast with the 77 percent for the latter. The same generalizations can be made for grade performance in social studies (Table 26), mathematics (Table 27), science (Table 28) and academic overall (Table 29).

One plausible explanation is that the vocationals in comprehensive schools are competing for academic subject grades with a higher aptitude and achievement level academic student, and consequently do less well. This is not unreasonable in view of the larger percentage of college-bound academics in the comparison group. This hypothesis accounts for the differences between comprehensive and vocational school vocational graduates in terms of the greater competition for grades that confronts the vocationals in

TABLE 26. SOCIAL STUDIES GRADE AVERAGE DISTRIBUTIONS FOR VOCATIONAL GRADUATES FROM VOCATIONAL AND COMPREHENSIVE SCHOOLS AND FOR ACADEMIC PROGRAM GRADUATES (1962 GRADUATES)

SOCIAL STUDIES GRADE AVERAGE *	VOCATIONAL/ VOCATIONALS			COMPREHENSIVE/ VOCATIONALS			COMPREHENSIVE/ ACADEMICS		
	N	%	C%	N	%	C%	N	%	C%
3.7 - 4.0	21	1.6	100.0	7	0.7	100.0	46	6.0	100.0
3.3 - 3.6	52	4.0	98.4	18	1.8	99.3	74	9.6	94.0
2.9 - 3.2	124	9.5	94.4	37	3.8	97.5	80	10.4	84.4
2.5 - 2.8	213	16.3	84.9	121	12.4	93.7	124	16.2	74.0
2.1 - 2.4	177	13.6	68.6	75	7.7	81.3	96	12.5	57.8
1.7 - 2.0	342	26.2	55.0	206	21.1	73.6	122	15.9	45.3
1.3 - 1.6	230	17.6	28.8	266	27.3	52.5	132	17.3	29.4
0.9 - 1.2	126	9.7	11.2	222	22.8	25.2	80	10.4	12.1
0.5 - 0.8	14	1.1	1.5	20	2.1	2.4	11	1.4	1.7
0.0 - 0.4	5	0.4	0.4	3	0.3	0.3	2	0.3	0.3
NUMBER	1304			975			767		
MEAN	2.09			1.76			2.27		
MEDIAN	2.0			1.6			2.1		
S.D.	0.69			0.6[illegible]			0.85		

* 0-F(<60%), 1-D(60-69%), 2-C(70-79%), 3-B(80-89%), 4-A(90-100%)

TABLE 27. MATHEMATICS GRADE AVERAGE DISTRIBUTIONS FOR VOCATIONAL GRADUATES FROM VOCATIONAL AND COMPREHENSIVE SCHOOLS AND FOR ACADEMIC PROGRAM GRADUATES (1962 GRADUATES)

MATHEMATICS GRADE AVERAGE *	VOCATIONAL/ VOCATIONALS			COMPREHENSIVE/ VOCATIONALS			COMPREHENSIVE/ ACADEMICS		
	N	%	C%	N	%	C%	N	%	C%
3.7 - 4.0	32	2.4	100.0	9	0.9	100.0	44	5.8	100.0
3.3 - 3.6	61	4.6	97.6	23	2.4	99.1	23	3.0	94.2
2.9 - 3.2	147	11.1	93.0	55	5.7	96.7	62	8.1	91.2
2.5 - 2.8	202	15.3	81.9	110	11.3	91.0	113	14.8	83.1
2.1 - 2.4	135	10.2	66.6	88	9.0	79.7	98	12.8	68.3
1.7 - 2.0	313	23.7	56.4	223	22.9	70.7	153	20.0	55.5
1.3 - 1.6	203	15.3	32.7	221	22.7	47.8	134	17.5	35.5
0.9 - 1.2	198	15.0	17.4	202	20.8	25.1	96	12.5	18.0
0.5 - 0.8	25	1.9	2.4	37	3.8	4.3	40	5.2	5.5
0.0 - 0.4	7	0.5	0.5	5	0.5	0.5	2	0.3	0.3
NUMBER	1323			973			765		
MEAN	2.06			1.80			2.05		
MEDIAN	2.0			1.7			2.0		
S.D.	0.78			0.70			0.84		

* 0-F(≤60%), 1-D(60-69%), 2-C(70-79%), 3-B(80-89%), 4-A(90-100%)

comprehensive schools. It implies that the basic quality of the vocational resource is the same in both kinds of schools, and is consistant with the finding that there is no significant difference in grade performance in vocational subjects between the two kinds of graduates.

Another explanation is that the vocationals in comprehensive schools are at a lower capability level than those in vocational schools. According to this hypothesis, a difference in intelligence and aptitudes accounts for the difference in grade performance between the vocational graduates from the two types of schools rather than a difference in competitive situation. Data will be presented later that will help to resolve the alternative explanations. Whatever the explanation, the salient conclusion is that vocational graduates from comprehensive schools have impressively lower grade performance in academic subjects than their counterparts from vocational schools.

TABLE 28. SCIENCE GRADE AVERAGE DISTRIBUTIONS FOR VOCATIONAL GRADUATES FROM VOCATIONAL AND COMPREHENSIVE SCHOOLS, AND FOR ACADEMIC PROGRAM GRADUATES

SCIENCE GRADE AVERAGE *	VOCATIONAL/ VOCATIONALS			COMPREHENSIVE/ VOCATIONALS			COMPREHENSIVE/ ACADEMICS		
	N	%	C%	N	%	C%	N	%	C%
3.7 - 4.0	23	1.8	100.0	9	0.9	100.0	34	4.5	100.0
3.3 - 3.6	41	3.2	98.2	16	1.7	99.1	45	5.9	95.5
2.9 - 3.2	143	11.1	95.0	90	9.4	97.4	66	8.7	89.6
2.5 - 2.8	206	16.1	83.9	100	10.5	88.0	123	16.2	80.9
2.1 - 2.4	136	10.6	67.8	60	6.3	77.5	81	10.8	64.7
1.7 - 2.0	336	26.2	57.2	261	27.4	71.2	149	19.7	53.9
1.3 - 1.6	210	16.4	31.0	167	17.6	43.8	127	16.7	34.2
0.9 - 1.2	149	11.6	14.6	223	23.4	26.2	107	14.1	17.5
0.5 - 0.8	33	2.6	3.0	26	2.7	2.8	20	2.6	3.4
0.0 - 0.4	5	0.4	0.4	1	0.1	0.1	6	0.8	0.8
NUMBER	1282			953			758		
MEAN	2.06			1.84			2.09		
MEDIAN	2.0			2.0			2.0		
S.D.	0.73			0.71			0.84		

* 0-F(<60%), 1-D(60-69%), 2-C(70-79%), 3-B(80-89%), 4-A(90-100%)

Individual School Differences

•When schools are scored on the basis of the mean subject grade performance of graduates, what is the extent of individual school differences? Table 30 shows how the schools distributed among the grade average class intervals for English, mathematics, science, social studies, vocational shop, and vocational theory.

The data very clearly establish individual differences among the schools in terms of subject grade performance of graduates. The range of school means for English grades is between 0.9 and 3.2. What is one to conclude? The differences may reflect differences in grading standards. That is not likely the whole explanation because the differences are apparent in all subject areas. The differences may reflect differences in the quality of the student resource. That is a more likely explanation in view of the wide variation in student acceptance standards. The data points up the complexity of attempting to compare schools in terms of the post-graduation experiences of their graduates. Substantial differences in the quality of the student resource among the schools rule out simple school comparisons on the occupational performance of their graduates.

TABLE 29. OVERALL ACADEMIC SUBJECT GRADE AVERAGE DISTRIBUTIONS FOR VOCATIONAL GRADUATES FROM VOCATIONAL AND COMPREHENSIVE SCHOOLS, AND FOR ACADEMIC PROGRAM GRADUATES

ACADEMIC SUBJECT GRADE AVERAGE *	VOCATIONAL/ VOCATIONALS			COMPREHENSIVE/ VOCATIONALS			COMPREHENSIVE/ ACADEMICS		
	N	%	C%	N	%	C%	N	%	C%
3.7 - 4.0	8	0.6	100.0	2	0.2	100.0	26	3.4	100.0
3.3 - 3.6	37	2.8	99.4	7	0.7	99.8	41	5.3	96.6
2.9 - 3.2	100	7.5	96.6	19	1.9	99.1	56	7.3	91.3
2.5 - 2.8	168	12.7	89.1	81	8.3	97.2	111	14.5	84.0
2.1 - 2.4	282	21.3	76.4	143	14.7	88.9	114	14.9	69.5
1.7 - 2.0	335	25.2	55.1	239	24.5	74.2	182	23.7	54.6
1.3 - 1.6	271	20.4	29.9	287	29.4	49.7	144	18.8	30.9
0.9 - 1.2	113	8.5	9.5	189	19.4	20.3	83	10.8	12.1
0.5 - 0.8	12	0.9	1.0	9	0.9	0.9	10	1.3	1.3
0.0 - 0.4	1	0.1	0.1	0	0.0	0.0	0	0.0	0.0
NUMBER	1327			976			767		
MEAN	2.02			1.73			2.09		
MEDIAN	2.0			1.7			2.0		
S.D.	0.62			0.54			0.75		

* 0-F(<60%), 1-D(60-69%), 2-C(70-79%), 3-B(80-89%), 4-A(90-100%)

TABLE 30. DISTRIBUTIONS OF SCHOOL MEANS BASED UPON SUBJECT GRADE AVERAGES OF 1962 T&I VOCATIONAL PROGRAM GRADUATES

GRADE AVERAGE * CLASS INTERVALS	ENGLISH			MATHEMATICS			SCIENCE			SOCIAL STUDIES			SHOP			SHOP THEORY		
	N	%	C%	N	%	C%	N	%	C%	N	%	C%	N	%	C%	N	%	C%
3.7 - 4.0	0	0.0	-	0	0.0	-	0	0.0	-	0	0.0	-	0	0.0	-	1	1.9	100.0
3.3 - 3.6	0	0.0	-	0	0.0	-	0	0.0	-	0	0.0	-	1	1.0	100.0	0	0.0	98.1
2.9 - 3.2	2	2.1	100.0	0	0.0	-	0	0.0	-	0	0.0	-	14	14.1	99.0	8	15.4	98.1
2.5 - 2.8	2	2.1	97.9	8	8.3	100.0	5	5.3	100.0	5	5.3	100.0	40	40.4	84.9	14	26.9	82.7
2.1 - 2.4	20	21.1	95.8	14	14.6	91.7	26	27.4	94.7	21	22.3	94.7	37	37.4	44.5	17	32.7	55.8
1.7 - 2.0	31	32.6	74.7	46	47.9	77.1	38	39.9	67.3	34	36.2	72.4	7	7.1	7.1	7	13.5	23.1
1.3 - 1.6	36	37.9	42.1	26	27.1	29.2	23	24.2	27.4	30	31.9	36.2	0	0.0	0.0	2	3.8	9.6
0.9 - 1.2	4	4.2	4.2	2	2.1	2.1	3	3.2	3.2	4	4.3	4.3	0	0.0	0.0	3	5.8	5.8
0.5 - 0.8	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
0.0 - 0.4	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
NUMBER	95			96			95			94			99			52		
MEAN	1.81			1.91			1.94			1.88			2.56			2.39		
MEDIAN	1.7			1.7			1.8			1.7			2.5			2.4		
S.D.	0.40			0.34			0.36			0.37			0.33			0.56		

* 0-F(≤60%), 1-D(60-69%), 2-C(70-79%), 3-B(80-89%), 4-A(90-100%)

The school differences are revealing. About 65 percent of the schools are distributed in a narrow range from 2.8 to 3.3, indicating a concensus of teacher perceptions that most of the student problems listed occur seldomly or infrequently. There is no evidence to support a "blackboard jungle" interpretation of vocational program students, although some schools clearly have greater problems with their students than others if one accepts teacher perception at face value.

STANDARDIZED TEST PERFORMANCE

Introduction

No description of the vocational student resource would be complete without an assessment of the graduates' performance on intelligence, achievement and scholastic aptitude tests. However, in a survey study, such an assessment is complicated because no randomly selected sample of schools is likely to have all schools in the sample using the same tests under the same conditions at the same grade levels. Thus, there is a problem of how to convert the scores from different intelligence, achievement and aptitude tests to a common denominator. Table 31 indicates the specific tests for which scores were found on the records of the vocational and academic graduates. The diversity of test usage is readily apparent.

The solution adopted was to convert test scores to stanine equivalents. The intelligence test scores were converted to stanine equivalents by the use of a conversion table developed by Flanagan and Schwarz,* and shown in Appendix Section 3.

A brief explanation may be helpful to the reader unfamiliar with stanine scores. Such scores are obtained by dividing the range of test standard scores into nine levels of test performance as follows:

Stanine 9 shows performance in the highest 4% of the norm group.
Stanine 8 shows performance in the next highest 7% of the norm group.
Stanine 7 shows performance in the next highest 12% of the norm group.
Stanine 6 shows performance in the next highest 17% of the norm group.
Stanine 5 shows performance in the middle 20% of the norm group.
Stanine 4 shows performance in the next highest 17% of the norm group.
Stanine 3 shows performance in the next highest 12% of the norm group.
Stanine 2 shows performance in the next highest 7% of the norm group.
Stanine 1 shows performance in the lowest 4% of the norm group.

Stanine scores, then, range from a low of 1 to a high of 9, with stanine 5 representing average performance based upon the normative data for the test in question. Stanine scores above and below 5 represent respectively above and below average performance. For the reader familiar with percentile values, the percentile ranges for the stanine scores are presented below:

Stanine	1	2	3	4	5	6	7	8	9
Percentile Range	0-3	4-10	11-12	23-39	40-59	60-67	77-88	89-95	96-100
Percent in Category	4	7	12	17	20	17	12	7	4

* Flanagan, John C. and Paul A. Schwarz. Development of Procedures for Converting Intelligence Test Scores to a Common Scale. Pittsburgh: American Institutes for Research, 1958.

TABLE 31. NUMBER AND PERCENT OF VOCATIONAL AND ACADEMIC PROGRAM GRADUATES FOR WHOM TEST DATA WAS AVAILABLE BY TYPE OF TEST

TESTS		TYPE OF GRADUATE			
		VOCATIONAL		ACADEMIC	
		N	%	N	%
GENERAL INTELLIGENCE	Otis	1279	37.6	529	45.1
	California M. M.	1050	30.9	383	32.6
	Henmon-Nelson	386	11.3	91	7.8
	Lorge-Thorndike	153	4.5	79	6.7
	Kuhlman-Anderson	11	0.3	9	0.8
	Kuhlman-Finch	4	0.1	15	1.3
	Terman-McNemar	100	2.9	22	1.9
	Pinter	100	2.9	1	0.1
	Other than above	319	9.4	43	3.7
READING ACHIEVEMENT	Stanford	254	29.1	61	20.8
	California	516	59.2	164	56.0
	Metropolitan	14	1.6	0	0.0
	Iowa Every Pupil	5	0.6	0	0.0
	Iowa Educ. Development	83	9.5	68	23.2
	Other (SRA, STEP)	0	0.0	0	0.0
ARITHMETIC ACHIEVEMENT	Stanford	253	30.9	54	19.0
	California	357	43.6	140	49.3
	Metropolitan	43	5.3	21	7.4
	Iowa Every Pupil	52	6.3	8	2.8
	Iowa Educ. Development	112	13.7	61	21.5
	Other (SRA, STEP)	2	0.2	0	0.0
LANGUAGE ACHIEVEMENT	Stanford	126	19.7	31	13.0
	California	300	46.9	123	51.7
	Metropolitan	0	0.0	0	0.0
	Iowa Every Pupil	71	11.1	12	5.0
	Iowa Educ. Development	142	22.2	72	30.3
	Other (SRA, STEP)	0	0.0	0	0.0
TOTAL ACHIEVEMENT	Stanford	218	33.8	70	24.8
	California	321	49.8	135	47.9
	Metropolitan	4	0.6	1	0.4
	Iowa Every Pupil	6	0.9	0	0.0
	Iowa Educ. Development	96	14.9	75	26.9
	Other (SRA, STEP)	0	0.0	0	0.0
VERBAL APTITUDE	Scholastic Aptitude	22	6.0	32	11.6
	American Council on Education	137	37.3	106	38.4
	American College Testing	42	11.4	69	25.0
	School and College Ability	166	45.3	69	25.0
MATH APTITUDE	Scholastic Aptitude	22	6.0	32	11.6
	American Council on Education	137	37.2	106	38.4
	American College Testing	42	11.4	69	25.0
	School and College Ability	167	45.4	69	25.0
COMBINED APTITUDE	Scholastic Aptitude	22	4.8	32	11.3
	American Council on Education	225	48.9	112	39.7
	American College Testing	42	9.1	69	24.5
	School and College Ability	171	37.2	69	24.5

A second problem was encountered. The study was unable to obtain test data for a large number of graduates. Some schools did not record test data on student cumulative records. Where that was the case, efforts made to obtain the test data were only partially successful. Also, much of the test data that was recorded was so incomplete as to be unusable. The large amount of missing data raised the possibility that the test data available was not representative of the population of schools to which the study seeks to generalize its findings. For example, if the bulk of the test data came from vocational schools, it would be risky business to generalize to all vocational graduates in the United States, when the majority came from comprehensive schools.

Tables 32, 33 and 34 clarify the status of the data with respect to this problem. Table 32 shows that the 82 schools from which intelligence test data was obtained match the original samples of 100 schools very closely in terms of the percentage mix of type of schools, geographic regions and enrollment categories. Loss of data, in other words, did not change the structure of the sample.

TABLE 32. DISTRIBUTION OF SCHOOLS FROM WHICH INTELLIGENCE TEST DATA WAS AVAILABLE AND USED, BY REGION, TYPE OF SCHOOL AND SCHOOL ENROLLMENT

SAMPLE STRATIFICATIONS	SCHOOLS IN TOTAL SAMPLE		SCHOOLS IN TEST SAMPLE	
	N	%	N	%
TYPE OF SCHOOL				
Vocational	50	50.0	40	49.0
Comprehensive	50	50.0	42	51.0
GEOGRAPHIC REGION				
East of Mississippi	79	79.0	66	80.0
West of Mississippi	21	21.0	16	20.0
VOCATIONAL ENROLLMENT				
<300 Students	49	49.0	37	45.0
>300 Students	51	51.0	45	55.0

Table 33 shows the same type of comparison for the achievement test data. Again, the match is reasonably close. Loss of data did not greatly change the structure of the sample.

Table 34 shows the comparison for the scholastic aptitude test data. Here there is a problem. There is an overrepresentation of data from large enrollment schools. If the aptitude test performance of graduates from such schools is significantly different from that of graduates from smaller enrollment schools, then this aptitude test data can not be generalized to the population of schools represented by the study sample without some error. This proved to be the case. Graduates from schools

TABLE 33. DISTRIBUTION OF SCHOOLS FROM WHICH ACHIEVEMENT TEST DATA WAS AVAILABLE AND USED BY REGION, TYPE OF SCHOOL AND ENROLLEMNT CATEGORY

SAMPLE STRATIFICATIONS	SCHOOLS IN TOTAL SAMPLE		SCHOOLS IN TEST SAMPLE	
	N	%	N	%
TYPE OF SCHOOL				
Vocational	50	50.0	17	52.0
Comprehensive	50	50.0	16	48.0
GEOGRAPHIC REGION				
East of Mississippi	79	79.0	26	79.0
West of Mississippi	21	21.0	7	21.0
VOCATIONAL ENROLLMENT				
<300 Students	49	49.0	19	58.0
>300 Students	51	51.0	14	42.0

TABLE 34. DISTRIBUTION OF SCHOOLS FROM WHICH SCHOLASTIC APTITUDE TEST DATA WAS AVAILABLE AND USED, BY REGION, TYPE OF SCHOOL AND SCHOOL ENROLLMENT CATEGORY

SAMPLE STRATIFICATIONS	SCHOOLS IN TOTAL SAMPLE		SCHOOLS IN TEST SAMPLE	
	N	%	N	%
TYPE OF SCHOOL				
Vocational	50	50.0	18	53.0
Comprehensive	50	50.0	16	47.0
GEOGRAPHIC REGION				
East of Mississippi	79	79.0	27	79.0
West of Mississippi	21	21.0	7	21.0
VOCATIONAL ENROLLMENT				
<300 Students	49	49.0	11	32.0
>300 Students	51	51.0	23	68.0

with a vocational enrollment above 300 did better than those from schools with an enrollment less than 300 on verbal aptitude (4.6 vs. 4.1) and mathematics aptitude (5.5 vs. 4.8). The differences are significant at the five percent level of confidence. However, the relatively small stanine value differences mean, in effect, that the error in the sample that results from overrepresentation of large enrollment schools in the aptitude test data is small and for practical purposes, can be ignored. (See Table 3 in Appendix Section 3 for comparative test data for schools with T&I vocational enrollments above and below three hundred.)

General Intelligence Performance

In some circles, the popular image of the vocational student is that of someone lacking in what it takes to get through an academic program. The implication is one of a lack of general intelligence and scholastic aptitudes for academic programs. This section takes a look at how over 3,000 vocational program graduates fared on general intelligence tests given during their high school or junior high school period.

•How does the distribution of intelligence test scores for the vocationals compare with the distribution normally to be expected for stanine scores? What is the extent of individual differences among the schools where school means, based upon the performance of each school's graduates, are compared? Table 35 provides the data.

The values in parenthesis to the right of the stanine values represent the percentage of cases that would be expected if the graduates matched the populations on which the intelligence tests were standardized. If the percentage of vocational graduates falling in each stanine category are not significantly different from the expected percentages, one can conclude that the vocationals are no different from the populations in which the tests were standardized.

The data does reveal slight differences. For example, one would expect about 4 percent to achieve stanine 9; only 1.7 percent did. These slight differences, however, do not negate the basic similarity of the two distributions. There is no impressive difference between the performance of the vocational graduates and the student populations on which the tests were standardized. The data does not support--indeed, it refutes--the misconception that vocational students are primarily a below-average intelligence group.

The right-hand side of Table 35 shows the distribution of school means. It is clear that there are substantial differences between schools. If we assume the graduates are a reflection of what the students are like, it is apparent that some schools have a vocational student body that performs relatively poorly on general intelligence tests. About 17 percent of the schools had a mean stanine score of 4 or less. This is clear evidence of selective factors operating in those schools which place the less intelligent, as defined by standardized group intelligence tests, into vocational programs. Such data tends to support the commonly held opinion that vocational programs are used as "dumping grounds" for substandard performers. The schools at the top end of the distribution, however, can be cited as evidence that not all schools practice a "dumping ground" policy. About 28 percent of

the schools had a mean stanine score above 5 which is equivalent to average performance on the tests.

TABLE 35. GENERAL INTELLIGENCE TEST STANINE SCORE DISTRIBUTIONS FOR VOCATIONAL GRADUATES AND THEIR SCHOOLS

STANINE CATEGORY	GENERAL INTELLIGENCE						MEAN CLASS INTERVALS
	GRADUATES			SCHOOLS			
	N	%	C%	N	%	C%	
9 (4)	57	1.7	100.0	2	2.4	100.0	6.6 - 7.0
8 (7)	144	4.2	98.3	1	1.2	97.6	6.1 - 6.5
7 (12)	320	9.4	94.1	7	8.5	96.4	5.6 - 6.0
6 (17)	536	15.8	84.7	13	15.9	87.9	5.1 - 5.5
5 (20)	792	23.3	68.9	19	23.3	72.0	4.6 - 5.0
4 (17)	701	20.6	45.6	26	31.7	48.7	4.1 - 4.5
3 (12)	462	13.6	25.0	7	8.5	17.0	3.6 - 4.0
2 (7)	249	7.3	11.4	2	2.4	8.5	3.1 - 3.5
1 (4)	139	4.1	4.1	4	4.9	6.1	2.6 - 3.0
				1	1.2	1.2	2.0 - 2.5
NUMBER	3400			82			NUMBER
MEAN	4.68			4.63			MEAN
MEDIAN	5			4.7			MEDIAN
S.D.	1.77			1.55			S.D.

There is no evidence of an increasing or decreasing trend in the measured intelligence of vocational graduates. The mean stanine score for 1953, 1958 and 1962 vocational graduates was 4.8, 4.6 and 4.7 respectively with median values of 5 for all class years. Thus, if one cares to assume that intelligence test performance reflects the fundamental quality of the human resource directed into T&I vocational programs, the data suggests that the quality input is essentially constant over the years. Other test data, however, needs to be looked at before this conclusion is acceptable.

• How do the vocational graduates whose first full-time job was in versus out of their field of study compare in terms of general intelligence test performance? Table 36 provides the data.

The difference between the mean stanine values derived for the two groups is not statistically significant (t =.03). A look at the two distributions confirms how closely the two groups are matched. Intelligence test scores have no value in predicting whether a vocational graduate will or will not enter his field of training. Stated another way, group intelligence test performance is not a variable influencing the relatedness

TABLE 36. COMPARATIVE INTELLIGENCE TEST STANINE DISTRUBTION FOR VOCATIONAL GRADUATES WHOSE FIRST FULL-TIME JOB WAS IN VERSUS OUT OF THEIR FIELD OF STUDY

STANINE CATEGORY	RELATEDNESS OF FIRST JOB TO TRAINING					
	IN THE FIELD OF STUDY			OUT OF THE FIELD OF STUDY		
	N	%	C%	N	%	C%
9	18	1.6	100.0	11	0.9	100.0
8	42	3.7	98.4	35	2.9	99.1
7	95	8.3	94.7	107	8.8	96.2
6	185	16.2	86.4	186	15.3	87.4
5	295	25.8	70.2	265	21.8	72.1
4	222	19.4	44.4	277	22.8	50.3
3	162	14.2	25.0	183	15.0	27.5
2	77	6.7	10.8	105	8.6	12.5
1	47	4.1	4.1	47	3.9	3.9
NUMBER	1143			1216		
MEAN	4.66			4.51		
MEDIAN	5			4		
S.D.	1.73			1.70		

of the first job held to the field of study. The correlation between intelligence test stanine scores and the relatedness of the first job, rated on a four point scale by the graduates, yielded a non-significant .02 coefficient.

•How do vocational graduates whose present full-time job (1964) is in versus out of their field of study compare in terms of general intelligence test performance? Table 37 provides the data.

The two group means are not significantly different. Moreover, the two distributions of stanine scores are very similar. Thus, intelligence test performance is unrelated to the relatedness of jobs held two, six and eleven years after graduation, to the high school course studied. A similiar comparison between graduates whose first and present jobs (1964) were in their field of study and those whose first and present jobs were out of their field of study revealed no difference in intelligence test performance.

TABLE 37. COMPARATIVE INTELLIGENCE TEST STANINE DISTRIBUTIONS FOR VOCATIONAL GRADUATES WHOSE PRESENT FULL-TIME JOB WAS IN VERSUS OUT OF THEIR FIELD OF STUDY

STANINE CATEGORY	RELATEDNESS OF PRESENT JOB					
	IN THE FIELD OF STUDY			OUT OF THE FIELD OF STUDY		
	N	%	C%	N	%	C%
9	15	1.5	100.0	13	1.0	100.0
8	30	3.0	98.6	48	3.7	99.0
7	91	9.1	95.6	108	8.2	95.3
6	148	14.8	86.5	218	16.6	87.1
5	248	24.8	71.7	295	22.5	70.5
4	204	20.4	46.9	285	21.7	48.0
3	153	15.3	26.5	191	14.5	26.3
2	73	7.3	11.2	104	7.9	11.8
1	39	3.9	3.9	51	3.9	3.9
NUMBER	1001			1313		
MEAN	4.60			4.58		
MEDIAN	5			5		
S.D.	1.72			1.72		

• How do the vocational and academic graduates compare in terms of intelligence test performance? Table 38 provides the first of three comparisons, the data for all graduates of both types.

The mean stanine values for the two groups are significantly different at the .01 level of confidence. A look at the distribution percentage values will confirm the difference. The academic graduates, as a group, score significantly higher on intelligence tests than do the vocationals. However, the overlap covers the entire range of scores. There is no black and white difference between the groups. The vocationals are slightly below the mid-stanine value of 5, whereas the academics are slightly above. About half of the academics are college-bound. A more equitable comparison would be to compare the direct to work vocational and academic graduates. Table 39 provides the data.

The mean stanine values are 4.6 and 4.9 respectively for the direct to work vocational and academic graduates. While the difference is statistically significant at the .01 level of confidence, it is substantially less than the difference revealed in Table 38. Moreover, it is not an impressive difference in any practical sense. A look at the distributions in Table 39 confirms this conclusion. What is impressive is the similarity between the two groups, not the differences.

TABLE 38. COMPARATIVE INTELLIGENCE STANINE DISTRIBUTION FOR ALL VOCATIONAL AND ACADEMIC GRADUATES

STANINE CATEGORY	TYPE OF GRADUATE					
	VOCATIONAL			ACADEMIC		
	N	%	C%	N	%	C%
9	57	1.7	100.0	74	6.3	100.0
8	144	4.2	98.3	110	9.4	93.7
7	320	9.4	94.1	185	15.8	84.3
6	536	15.8	84.7	225	19.2	68.5
5	792	23.3	68.9	245	20.9	49.3
4	701	20.6	45.6	149	12.7	28.4
3	462	13.6	25.0	109	9.3	15.7
2	249	7.3	11.4	52	4.4	6.4
1	139	4.1	4.1	23	2.0	2.0
NUMBER	3400			1172		
MEAN	4.68			5.52		
MEDIAN	5			6		
S.D.	1.77			1.90		

TABLE 39. COMPARATIVE INTELLIGENCE STANINE DISTRIBUTIONS FOR VOCATIONAL AND ACADEMIC GRADUATES WHO WENT DIRECTLY TO WORK

STANINE CATEGORY	DIRECT TO WORK					
	VOCATIONAL			ACADEMIC		
	N	%	C%	N	%	C%
9	30	1.2	100.0	7	1.6	100.0
8	82	3.3	98.8	23	5.1	98.4
7	210	8.5	95.5	53	11.7	93.3
6	385	15.6	87.0	81	17.9	81.6
5	578	23.4	71.4	117	25.8	63.7
4	528	21.3	48.0	78	17.2	37.9
3	360	14.5	26.7	54	11.9	20.7
2	195	7.9	12.2	30	6.6	8.8
1	106	4.3	4.3	10	2.2	2.2
NUMBER	2474			453		
MEAN	4.56			4.93 **		
MEDIAN	5			5		
S.D.	1.73			1.72		

** Significant at .01 level of confidence

•How do the vocational graduates from comprehensive schools compare with those from vocational schools in terms of intelligence test performance? The question is raised because one often hears the claim that the vocational student in comprehensive schools is of a lower quality. Table 40 provides the data.

The mean stanine values for the two types of schools are not significantly different. The distributions further confirm the similarity between the two types of schools in terms of intelligence test performance of graduates. The data lends no support to the claim that the vocational student resource in comprehensive schools is less capable than the equivalent resourse in vocational schools.

TABLE 40. COMPARATIVE INTELLIGENCE TEST STANINE DISTRIBUTIONS FOR VOCATIONAL GRADUATES FROM COMPREHENSIVE VERSUS VOCATIONAL SCHOOLS

STANINE CATEGORY	TYPE OF SCHOOL					
	VOCATIONAL			COMPREHENSIVE		
	N	%	C%	N	%	C%
9	28	1.5	100.0	29	1.9	100.0
8	80	4.3	98.5	64	4.1	98.1
7	186	10.1	94.2	134	8.6	94.0
6	279	15.1	84.1	257	16.6	85.4
5	446	24.1	68.0	346	22.3	68.8
4	371	20.1	44.9	330	21.3	46.5
3	264	14.3	24.8	198	12.8	25.2
2	124	6.7	10.5	125	8.0	12.4
1	70	3.8	3.8	69	4.4	4.4
NUMBER	1848			1552		
MEAN	4.70			4.65		
MEDIAN	5			5		
S.D.	1.76			1.80		

Achievement and Aptitude Test Performance

Stanine score conversions were obtained for the reading, arithmetic and language achievement test indicated in Table 31 when the school record provided such test data. The purpose was to see how vocational graduates had performed on such basic achievement dimensions. Table 41 provides the distribution data for the stanine scores.

The mean stanine value obtained for reading, arithmetic and language achievement was 4, 4 and 3.7 respectively. It is clear that the vocational graduates performed substantially below the normative performance. Stated differently, they have not done as well as the students

on which the achievement tests were standardized. The last column in Table 41 shows the percentage of cases that would normally be expected in each stanine category. A comparison with the actual percentages obtained confirms the conclusion regarding the very substantial substandard performance of the vocational graduates on the three achievement tests. Whereas one could expect 40 percent to achieve stanine 6 or better, only 23.2 percent of the vocationals achieved this level of performance. Similarly, only 21.9 percent achieved stanine 6 or better in arithmetic achievement and only 16.1 percent achieved stanine 6 or better in the language achievement tests. Language skills are very decidedly substandard. The reader is reminded that the data was obtained from vocational program graduates. A varying percentage of vocational students drop out of school before they graduate. Had a sample of these been included in the data, it is reasonable to assume that the achievement performance would have been lower than indicated in Table 41.

TABLE 41. ACHIEVEMENT TEST STANINE DISTRIBUTION FOR T&I VOCATIONAL GRADUATES

STANINE CATEGORY	READING		ARITHMETIC		LANGUAGE		TOTAL		EXPECTED PERCENT
	N	%	N	%	N	%	N	%	
9	15	1.7	12	1.5	3	0.5	1	0.2	4
8	26	3.0	36	4.4	6	0.9	13	2.0	7
7	54	6.2	40	4.9	29	4.5	25	3.8	12
6	107	12.3	91	11.1	65	10.2	69	10.7	17
5	130	14.9	165	20.1	95	14.9	115	17.8	20
4	172	19.7	153	18.7	135	21.2	143	22.2	17
3	153	17.5	118	14.4	123	19.3	127	19.7	12
2	134	15.4	128	15.6	117	18.3	107	16.6	7
1	81	9.3	76	9.3	65	10.2	45	7.0	4
NUMBER	872		819		638		645		-
MEAN	4.02		4.08		3.68		3.86		5
MEDIAN	4		4		4		4		5
S.D.	1.83		1.94		1.73		1.67		-

Let us look now at their scholastic aptitude performance. Such data was available for only 15 percent of the graduates. Because of the non-college preparatory nature of vocational programs, many schools do not encourage vocational students to take such tests. Normally, they are taken by students with college aspirations. Table 42 provides the data.

TABLE 42. SCHOLASTIC APTITUDE TEST STANINE DISTRIBUTION FOR T&I VOCATIONAL GRADUATES

STANINE CATEGORY	VERBAL APTITUDE		MATH APTITUDE		COMBINED APTITUDE		EXPECTED PERCENT
	N	%	N	%	N	%	
9	9	2.1	16	3.8	14	2.7	4
8	15	3.5	33	7.8	21	4.1	7
7	33	7.8	57	13.4	50	9.7	12
6	60	14.2	87	20.5	72	14.0	17
5	93	22.0	96	22.6	112	21.7	20
4	68	16.1	56	13.2	113	21.9	17
3	83	19.6	53	12.5	81	15.7	12
2	45	10.7	24	5.7	40	7.7	7
1	17	4.0	2	0.5	13	2.5	4
NUMBER	423		424		516		-
MEAN	4.46		5.29		4.70		5
MEDIAN	4		5		5		5
S.D.	1.84		1.79		1.79		-

The mean stanine values for the verbal and mathematics aptitude tests are 4.5 and 5.3 respectively. This reflects a slightly below average performance for the verbal aptitude and slightly above average performance for the mathematics aptitude. If one can assume that the aptitude test data came from an unbiased sample of vocational program graduates, one can say that about a third of the graduates have a capacity for a college-level education. However, the sample's freedom from bias is open to question. An unknown percentage of the graduates requested the aptitude tests in their junior and senior years. This voluntary process may have introduced a bias into the data. Further evidence of aptitude for college-level education is needed.

•How do the graduates whose first full-time job was in versus out of their field of study compare in terms of achievement and aptitude test performance? Table 43 provides the data.

All of the mean stanine value differences favor those whose first job was in their field of study. However, the differences are very slight. Statistical significance of difference at the 5 percent level of confidence was obtained fo. arithmetic and language achievement only. The data tends to support the conclusion, based upon subject grade performance, that the better performing graduates are more likely to enter their field of study.

TABLE 43. COMPARATIVE ACHIEVEMENT AND APTITUDE TEST PERFORMANCE OF VOCATIONAL GRADUATES WHOSE FIRST FULL-TIME JOB WAS IN VERSUS OUT OF THEIR FIELD OF TRAINING

TESTS	RELATEDNESS OF FIRST JOB TO TRAINING					
	IN THE FIELD OF STUDY			OUT OF THE FIELD OF STUDY		
	N	MEAN	S.D.	N	MEAN	S.D.
Reading Achievement	301	3.84	1.90	296	3.77	1.75
Arithmetic Achievement	286	4.12	1.95	276	3.78	1.83 *
Language Achievement	211	3.65	1.64	210	3.32	1.64 *
Total Achievement	212	3.77	1.68	213	3.51	1.51
Verbal Aptitude	104	4.48	1.80	144	4.10	1.68
Math Aptitude	105	5.06	1.79	144	4.92	1.64
Total Aptitude	125	4.53	1.74	187	4.30	1.56

* Significant at .05 level of confidence

•How do the vocational graduates whose present full-time job (1964) is in versus out of their field of study compare in terms of achievement and aptitude test performance? Table 44 provides the data.

Again, all of the differences in mean stanine values favc · those whose present job two, six or eleven years after graduation was in their field of study. The differences for arithmetic, language and total achievement test performance are significant at the .01 level of confidence. Although statistically significant, the differences are not substantial. Achievement and aptitude test performance would be of little or no practical value in predicting which students would, after graduation, go into the fields for which trained and stay in those fields for as long as eleven years after graduation. None of the correlations obtained between achievement and aptitude test scores and relatedness of jobs held to the field of study proved to be significant. (See Table 65, page 75.)

•How do vocational and academic program graduates compare in terms of achievement and aptitude test performance? Table 45 provides the first of several comparisons. It is based upon all graduates, both college and non-college bound, in both groups.

The academic graduate stanine mean values are significant at the .01 level of confidence for all mean comparisons. The differences are greatest for the achievement tests. No doubt, the very large percentage of college-bound among the academic graduates accounts for much of the difference between the two types of graduates. Table 46 presents a more equitable comparison of direct to work vocational and academic program graduates.

TABLE 44. COMPARATIVE ACHIEVEMENT AND APTITUDE TEST PERFORMANCE OF VOCATIONAL GRADUATES WHOSE PRESENT JOB (1964) WAS IN VERSUS OUT OF THEIR FIELD OF STUDY

TESTS	RELATEDNESS OF PRESENT JOB						
	IN THE FIELD OF STUDY			OUT OF THE FIELD OF STUDY			
	N	MEAN	S.D.	N	MEAN	S.D.	
Reading Achievement	257	3.92	1.88	337	3.71	1.79	
Arithmetic Achievement	236	4.24	1.92	318	3.73	1.86	**
Language Achievement	180	3.76	1.62	236	3.28	1.62	**
Total Achievement	181	3.88	1.64	239	3.45	1.54	**
Verbal Aptitude	91	4.54	1.73	154	4.10	1.73	
Math Aptitude	92	5.24	1.77	154	4.86	1.64	
Total Aptitude	105	4.63	1.71	203	4.29	1.61	

** Significant at .01 level of confidence

TABLE 45. COMPARATIVE DATA ON ACHIEVEMENT AND APTITUDE TEST PERFORMANCE FOR VOCATIONAL AND ACADEMIC PROGRAM GRADUATES

TEST	TYPE OF GRADUATE						
	VOCATIONAL			ACADEMIC			
	N	MEAN	S.D.	N	MEAN	S.D.	
Reading Achievement	872	4.02	1.93	293	4.77	2.09	**
Arithmetic Achievement	819	4.08	1.94	281	5.07	2.25	**
Language Achievement	638	3.68	1.73	238	4.60	1.94	**
Total Achievement	644	3.86	1.67	282	4.95	1.88	**
Verbal Antitude	423	4.46	1.84	308	5.39	1.88	**
Math Aptitude	424	5.29	1.79	308	5.86	1.96	**
Total Aptitude	516	4.70	1.79	314	5.60	1.87	**

** Significant at .01 level of confidence

TABLE 46. COMPARATIVE DATA ON ACHIEVEMENT AND APTITUDE TEST PERFORMANCE OF VOCATIONAL AND ACADEMIC GRADUATES BASED ON DIRECT TO WORK GRADUATES ONLY

TESTS	TYPE OF GRADUATE						
	VOCATIONALS: DIRECT TO WORK			ACADEMICS: DIRECT TO WORK			
	N	MEAN	S.D.	N	MEAN	S.D.	
Reading Achievement	630	3.79	1.83	116	3.90	1.88	
Arithmetic Achievement	593	3.90	1.91	115	4.31	1.98	**
Language Achievement	446	3.44	1.65	97	3.80	1.72	**
Total Achievement	450	3.60	1.60	108	4.20	1.63	**
Verbal Aptitude	261	4.22	1.74	99	4.77	1.72	**
Math Aptitude	262	4.97	1.74	99	5.21	1.79	
Total Aptitude	327	4.37	1.66	99	4.93	1.71	**

** Significant at .01 level of confidence

All stanine mean comparisons again favor the academic graduates, although the differences are smaller than when the college-bound graduates were included. The differences in reading achievement and mathematics aptitude are not statistically significant. All other mean differences are significant at the .01 level of confidence or better. Thus, the direct to work academics perform significantly better in achievement and aptitude tests than do the direct to work vocational graduates. The differences, however, are not very substantial. All are less than a stanine unit apart.

•How do the vocational and academic graduates who go directly to college compare in terms of achievement and aptitude test performance? The question is of interest because it provides a comparative basis for saying something about the vocational's aptitude for college education. Table 47 provides the data.

The performance of the direct to college academics is significantly better than that of the direct to college vocationals in arithmetic, language and total achievement, excluding reading achievement. Even more impressive are the aptitude test differences, which are significant at the .01 level of confidence. Very clearly, the vocational program graduate who goes to college is not as well equipped from the standpoint of achievement and aptitudes as his academic program counterpart.

TABLE 47. COMPARATIVE DATA ON ACHIEVEMENT AND APTITUDE PERFORMANCE FOR VOCATIONAL AND ACADEMIC PROGRAM GRADUATES WHO WENT DIRECTLY TO FULL-TIME COLLEGE ATTENDANCE

TESTS	TYPE OF GRADUATE						
	VOCATIONALS: DIRECT TO COLLEGE			ACADEMICS: DIRECT TO COLLEGE			
	N	MEAN	S.D.	N	MEAN	S.D.	
Reading Achievement	90	5.56	2.00	129	5.68	2.08	
Arithmetic Achievement	80	5.16	2.05	119	6.24	2.28	**
Language Achievement	74	4.59	1.98	104	5.28	1.89	*
Total Achievement	76	5.02	1.58	131	5.63	1.79	*
Verbal Aptitude	85	5.38	1.32	174	5.86	2.06	**
Math Aptitude	85	5.64	1.46	174	6.30	1.94	**
Total Aptitude	97	5.87	1.12	179	6.07	1.86	*

* Significant at .05 level of confidence

** Significant at .01 level of confidence

•How do the vocational graduates from vocational and comprehensive schools compare in terms of achievement and aptitude test performance? The question has a bearing on the relative capability of the vocational student resource in the two types of schools. Table 48 provides the data.

All mean differences favor the vocational school graduates. However, not all differences are statistically significant. The vocational school graduates did significantly better at the .01 level of confidence on reading achievement, verbal aptitude and mathematics aptitude. The reader may recall that the two groups were not significantly different in terms of general intelligence (Table 40).

In terms of subject grade performance, the vocational school graduates did significantly better than the comprehensive school graduates in English, mathematics, science and social studies, but not in shop where they performed about the same. The combined data, i.e. standardized test and subject grade performance, suggest that the vocational schools have a significant edge over the comprehensive schools in terms of the calibre of students found in vocational programs. The basic difference is more likely to be a matter of motivation and attitude toward scholastic achievement than innate intellectual factors. One must be careful to avoid giving a black and white impression, however, because there is no very pronounced difference between the student resources of the two types of schools on any of the dimensions compared. Such differences as do exist are probably attributable to the greater case of influencing poor performers in comprehensive schools into vocational programs.

TABLE 48. COMPARATIVE DATA ON ACHIEVEMENT AND APTITUDE PERFORMANCE FOR VOCATIONAL GRADUATES FROM VOCATIONAL AND COMPREHENSIVE SCHOOLS

TEST	TYPE OF SCHOOL						
	VOCATIONAL			COMPREHENSIVE			
	N	MEAN	S.D.	N	MEAN	S.D.	
Reading Achievement	532	4.26	1.97	340	3.66	1.82	**
Arithmetic Achievement	499	4.18	1.90	320	3.93	1.98	
Language Achievement	387	3.79	1.71	251	3.52	1.75	
Total Achievement	329	3.88	1.64	315	3.83	1.71	
Verbal Aptitude	221	4.76	1.75	202	4.12	1.87	**
Math Aptitude	222	5.64	1.71	202	4.90	1.79	**
Total Aptitude	315	4.87	1.79	201	4.43	1.74	**

** Significant at .01 level of confidence

SCHOOL ADJUSTMENT PERFORMANCE

The school records of the graduates surveyed provided data in absenteeism, tardiness, extracurricular activity participation and special honors or awards. In addition, school administrators provided data on the number of referrals to outside authorities, suspensions from school, withdrawals from school, parental contacts for disciplinary reasons, students required to repeat subjects and also the school absentee rate. To a degree, such data reflects different aspects of how well vocational students adjust to their school environment.

School Record Data

•How do vocational and academic graduates compare in terms of the four adjustment measures developed from school records? Table 49 provides the data.

TABLE 49. COMPARATIVE DATA ON SCHOOL ADJUSTMENT INDICATORS FOR VOCATIONAL AND ACADEMIC GRADUATES

SCHOOL ADJUSTMENT INDICATORS	TYPE OF GRADUATE					
	VOCATIONAL			ACADEMIC		
	N	MEAN	S.D.	N	MEAN	S.D.
Honors and awards	2225	0.66	1.35	767	0.92	1.71 **
Extracurricular activities	2143	1.48	1.76	762	2.81	2.61 **
Tardy days per year	2844	2.86	4.42	661	2.58	4.50
Absent days per year	3615	8.69	7.12	990	7.59	7.27 **

** Significant at .01 level of confidence

The average vocational graduate has accumulated 0.7 recorded honors or awards, has participated in 1.5 extracurricular activities, has been late to school an average of 2.8 times per year and has been absent from school 8.7 times per year. The academic graduates had significantly more honors or awards, participated in significantly more extracurricular activities and were significantly fewer days absent from school. The magnitude of the differences, however, are not substantial except for the participation in extracurricular activities. The latter is easily explainable. Academic students have a greater opportunity for extracurricular activities than do vocational students. Vocational schools usually offer fewer such opportunities than comprehensive schools. And in the comprehensive schools, the vocational program scheduling further restricts such opportunities.

What is more impressive about the data in Table 49 is the similarity between the two types of graduates, again excluding the extracurricular activity item. There are no black and white differences, such as are implied by the popular misconception of the vocational student as an academic program reject. Even the slightly greater degree of absenteeism is mitigated by the awareness that many of the vocationals came from area schools which required traveling greater distances than the academics. In terms of extreme absenteeism and tardiness, there is no difference between the two groups. About 8.8 percent of the vocationals had more than 18 absences per year on an average, whereas the comparable figure for academics was 8.6 percent. Similarly, about 11 percent of the vocationals had more than 6 tardy days per year, whereas the comparable figure for the academics is 10 percent.

When the vocational graduates who went directly to work are compared with the academic graduates who went directly to work on these same measures, as in Table 50 there are no significant differences in tardiness and absenteeism, and the significant difference in recorded honors and awards now favors the vocational graduates. The difference in extracurricular activity participation continues to favor the academic graduate for reasons explained earlier.

TABLE 50. COMPARATIVE DATA ON SCHOOL ADJUSTMENT INDICATORS FOR DIRECT TO WORK VOCATIONAL AND ACADEMIC GRADUATES

SCHOOL ADJUSTMENT INDICATORS	TYPE OF GRADUATE					
	VOCATIONALS: DIRECT TO WORK			ACADEMICS: DIRECT TO WORK		
	N	MEAN	S.D.	N	MEAN	S.D.
Honors and awards	1581	0.56	1.21	287	0.40	0.97 *
Extracurricular activities	1526	1.30	1.66	286	1.96	2.13 **
Tardy days per year	2085	2.89	4.30	271	2.88	4.41
Absent days per year	2642	9.01	7.31	378	9.49	8.32

* Significant at .05 level of confidence

** Significant at .01 level of confidence

Thus, it appears that the vocational student resource is no less well adjusted to his school environment than the academic student, at least in terms of the measures described.

•How do graduates from comprehensive and vocational schools compare in terms of the four adjustment measures? Table 51 provides the data.

TABLE 51. COMPARATIVE DATA ON SCHOOL ADJUSTMENT INDICATORS FOR GRADUATES FROM VOCATIONAL AND COMPREHENSIVE SCHOOLS

SCHOOL ADJUSTMENT INDICATORS	TYPE OF SCHOOL						
	VOCATIONAL			COMPREHENSIVE			
	N	MEAN	S.D.	N	MEAN	S.D.	
Honors and awards	1420	0.83	1.55	805	0.36	0.80	**
Extracurricular activities	1293	1.41	1.78	850	1.59	1.74	*
Tardy days per year	1964	3.10	4.50	880	2.34	4.20	**
Absent days per year	2340	8.55	6.65	1275	8.92	7.90	

* Significant at .05 level of confidence

** Significant at .01 level of confidence

The data indicates that vocational school graduates have statistically significant more differences in recorded honors and awards, fewer extracurricular activities and more tardy days per year. There is no significant difference in absenteeism between the two types of schools.

The data does not warrant saying that one type of school has better school adjusted students than the other. What significant differences there are can be readily explained by special situations that give one school an advantage over the other.

• Do those graduates who enter occupations in their field of study evidence better performance on the four adjustment measures than those who enter occupations out of their field of study? Table 52 provides the data.

TABLE 52. COMPARATIVE DATA ON SCHOOL ADJUSTMENT INDICATORS FOR T&I VOCATIONAL GRADUATES WHOSE FIRST FULL-TIME JOB WAS IN VERSUS OUT OF THEIR FIELD OF STUDY

SCHOOL ADJUSTMENT INDICATORS	RELATEDNESS OF FIRST JOB TO TRAINING					
	IN THE FIELD OF STUDY			OUT OF THE FIELD OF STUDY		
	N	MEAN	S.D.	N	MEAN	S.D.
Honors and awards	749	0.62	1.35	758	0.50	1.06
Extracurricular activities	711	1.25	1.60	740	1.34	1.70
Tardy days per year	971	2.89	4.20	1012	2.90	4.44
Absent days per year	1230	8.82	7.02	1280	9.19	7.58

None of the mean differences between the two groups are statistically significant. If these measures are reflections of school adjustment, then one group is no more adjusted than the other. A similar comparison of those presently in and out of their field of study, two, six and eleven years after graduation, also revealed no impressive differences.

School Administrator Data

The principals of the 100 schools surveyed were asked to provide data related to vocational student school adjustment. They indicated the number of vocational and academic students that were involved in: (1) referrals to outside authorities, (2) suspensions from school, (3) terminating from school for any reasons, (4) contacts with parents for disciplinary matters and (5) repeating subjects because of failing grades.

The raw number of such cases was converted into the number per 100 pupils enrolled for vocational cases based upon vocational program enrollment, and for academic cases based upon academic program enrollment.

The reader is cautioned about the data. Most schools made a concientious record check to generate the data requested. There is reason to believe some schools did not. Instead, they provided estimates of some of the requested information and it is possible that their estimates were considerably off. Median values are probably more reliable indications of central tendency.

•How do vocational students compare with academic students in terms of the five school adjustment measures? Table 53 provides the data.

The comparison is between vocationals and academics in the same comprehensive schools. The data source in each school was the school principal.

There is no difference in the number of referrals to outside authorities per 100 pupils enrolled. The academics have a slightly higher rate of suspensions from school than do the vocationals. There is no difference in the reported mean dropout rate, although the median rate for academic students is higher. There is an impressive difference in the mean rate of parental contacts per 100 pupils. The rate for academics is almost twice that of the vocationals. There is also a substantial difference in the rate of subject repeats. The academics have a much higher rate of subject repeats than the vocationals.

The results once again are in conflict with the popular image of the vocational student as a school misfit in comprehensive schools. He has fewer suspensions from school, parental contacts for disciplinary problems and subject repeats because of failing grades.

•How do vocational and comprehensive schools compare in terms of the five school adjustment measures? Table 54 provides the data.

TABLE 53. COMPARATIVE SCHOOL-DERIVED STUDENT ADJUSTMENT DATA FOR VOCATIONAL AND ACADEMIC STUDENTS FROM THE SAME COMPREHENSIVE SCHOOLS*

SCHOOL ADJUSTMENT DATA	TYPE OF GRADUATE							
	VOCATIONAL				ACADEMIC			
	N	MEAN	MDN.	S.D.	N	MEAN	MDN.	S.D.
Referrals to authorities	45	1.4	0.0	2.2	43	1.5	0.1	5.0
Suspensions from school	41	3.7	1.7	4.6	40	4.6	1.8	8.2
Dropouts	40	7.0	4.4	12.2	37	7.3	6.4	9.1
Parental contacts	39	10.4	5.2	17.2	39	19.5	5.8	15.1
Repeated subjects	31	9.2	5.6	12.8	30	16.3	11.9	20.4

TABLE 54. COMPARATIVE SCHOOL-DERIVED STUDENT ADJUSTMENT DATA FOR VOCATIONAL AND COMPREHENSIVE SCHOOLS

SCHOOL ADJUSTMENT DATA	TYPE OF SCHOOL							
	VOCATIONAL				COMPREHENSIVE			
	N	MEAN	MDN.	S.D.	N	MEAN	MDN.	S.D.
Referrals to authorities	45	0.7	0.0	1.2	45	1.4	0.0	2.2
Suspensions from school	46	4.2	2.2	7.1	41	3.7	1.7	4.6
Dropouts	41	11.9	7.4	6.8	40	7.0	4.	12.2
Parental contacts	42	10.5	6.2	14.5	39	10.4	5.2	17.2
Repeated subjects	40	10.7	6.0	17.0	31	9.2	5.6	12.8

* per 100 pupils

With the exception of the dropout rate per 100 pupils enrolled, there is no significant difference between the two types of schools on the adjustment measures. The dropout rate of vocational students is about 3 to 5 per 100 pupils greater in vocational schools than in comprehensive schools, depending upon whether median or mean values are used for the comparison. However, this should be regarded as a tentative generalization because of the limitations of the data. Too many of the principals provided estimated numbers rather than counts of recorded data.

VOCATIONAL STUDENTS AS PERCEIVED BY TEACHERS

Introduction

Attempting to describe the vocational student through the eyes of his teacher may be a little like describing children through the eyes of their parents. Both have, one might say, a vested interest in reporting favorably. Nevertheless, such opinions are sometimes revealing, and on that possibility teachers were asked to:

1. Rate their vocational students as a group on reading, writing and arithmetic abilities, using a four point scale: excellent, good, fair or poor.

2. Rate their vocational students as a group on motivation to learn, using a gross three point scale: low, average or high.

3. Rate the frequency of common problems teachers have with students as applied to their situation, using a four point scale: daily, often, seldom or never. The problems rated included such items as absenteeism, tardiness, inattention, wastage of supplies, poor shop housekeeping, poor quality shop work and other factors related to shop situations.

The interest in such ratings is primarily in the possibility that they may illuminate further the nature of the vocational student resource. It is entirely possible, however, that the ratings may have more to say about the teachers than the students.

Basic Ability Ratings

The reading ability rating data is provided in Table 55. About 18 percent of the shop instructors rated their students poor on reading ability; another 55 percent rated their students fair. Thus, about 73 percent of the vocational shop classes were rated poor or fair on a very basic learning skill. (In some schools visited by the writer, instructors claimed that their students had considerable difficulty reading standard text assignments. Some instructors reported they made minimal use of reading assignments because so many of their students were poor readers. The writer refrained from pointing out that poor readers would not get better by not being given reading assignments.)

The low level reading ability problem suggested by these ratings is consistant with the below average reading achievement level demonstrated by the vocational graduates on standardized achievement tests. (In this respect, the non-college academic graduates performed no better.)

Are the vocational students generally poor readers in all schools or are there impressive school differences in reading ability? The question was answered, in part, by averaging the individual instructor ratings for each of the 100 schools. Table 55 shows the distribution of the school

means so obtained. About 30 percent of the schools had a mean rating of 1.9 or lower, indicating a concensus of instructor opinion in these schools that students are lacking in adequate reading ability. At the other extreme, 3 percent of the schools had mean ratings of 3.0 or higher, indicating a high opinion of student reading ability. The range of school means suggests that while some vocational students in all schools may be poor to fair readers, there are substantial school differences. In other words, some schools have a much more serious problem than others in terms of widespread poor reading ability.

TABLE 55. DISTRIBUTIONS OF READING ABILITY RATINGS THAT TEACHERS MADE OF THEIR STUDENTS AS A WHOLE FOR TEACHERS AND SCHOOLS BASED UPON MEAN TEACHER RATINGS

ABILITY RATING *	READING ABILITY						MEAN RATING CLASS INTERVAL
	TEACHERS			SCHOOLS			
	N	%	C%	N	%	C%	
4	7	1.4	100.0	0	0.0	-	4.0
				0	0.0	-	3.5 - 3.9
3	125	25.3	98.6	3	3.1	100.0	3.0 - 3.4
				15	15.3	96.9	2.5 - 2.9
2	271	55.0	73.3	51	52.0	81.6	2.0 - 2.4
				23	23.5	29.6	1.5 - 1.9
1	90	18.3	18.3	6	6.1	6.1	1.0 - 1.4
NUMBER	493			98			NUMBER
MEAN	2.1			2.06			MEAN
MEDIAN	2.0			2.0			MEDIAN
S.D.	0.7			0.4			S.D.

* 1-Poor, 2-Fair, 3-Good, 4-Excellent

The arithmetic ability rating data is presented in Table 56. About 21 percent of the shop instructors rated their students poor in arithmetic skills; another 52 percent rated their students fair. Thus, 73 percent of the instructors gave ratings of either poor or fair. Only 27 percent gave ratings of either good or excellent. These findings must be tempered by the recognition that some T&I vocational courses are more demanding in arithmetic skills than others and possibly reflect the dissatisfaction of instructors in courses demanding mathematical skills. The ratings suggest that a large percentage, perhaps even a majority percentage, have an unsatisfactory level of arithmetic skills. Data from other sources tends to confirm this conclusion. About 64 percent of the graduates reported the need for additional training in mathematics after having worked several years in their field of study. Performance on arithmetic achievement tests also was somewhat below average.

TABLE 56. DISTRIBUTIONS OF ARITHMETIC ABILITY RATINGS THAT TEACHERS MADE OF THEIR STUDENTS AS A WHOLE FOR TEACHERS AND SCHOOLS BASED UPON MEAN TEACHER RATINGS

ABILITY RATING *	ARITHMETIC ABILITY						MEAN RATING CLASS INTERVAL
	TEACHERS			SCHOOLS			
	N	%	C%	N	%	C%	
4	22	4.5	100.0	0	0.0	-	4.0
				0	0.0	-	3.5 - 3.9
3	110	22.5	95.5	5	5.1	100.0	3.0 - 3.4
				14	14.3	94.9	2.5 - 2.9
2	255	52.0	73.0	49	50.0	80.6	2.0 - 2.4
				21	21.4	30.6	1.5 - 1.9
1	103	21.0	21.0	9	9.2	9.2	1.0 - 1.4
NUMBER	490			98			NUMBER
MEAN	2.1			2.1			MEAN
MEDIAN	2.0			2.0			MEDIAN
S.D.	0.8			0.5			S.D.

* 1-Poor, 2-Fair, 3-Good, 4-Excellent

The distribution of school mean ratings of arithmetic ability again indicates considerable school differences. On the assumption that these mean ratings reflect reality, one must conclude that poor arithmetic ability is as much a school problem as a student problem. Some schools clearly do much better than others. This observation merely confirms what is already known from the distribution of school performance scores on arithmetic achievement tests. What is not clear is why. Why are some schools doing so much better than others in the development of arithmetic skills? This study does not provide the answers.

The last basic ability rated was writing ability. Table 57 provides the data. About 21 percent of the instructors rated their students poor in writing ability; another 58 percent rated them only fair. Thus, almost 80 percent of the shop instructors rated their students as either poor or fair in writing ability. Previous achievement test data suggested this would be the area of greatest weakness perceived by the teachers--and so it is. Clearly, language ability, particularly writing, is a problem among vocational students. Interestingly, 61 percent of the vocational graduates surveyed felt they needed more training in communication skills.

TABLE 57. DISTRIBUTIONS OF WRITING ABILITY RATINGS THAT TEACHERS MADE OF THEIR STUDENTS AS A WHOLE FOR TEACHERS AND SCHOOLS BASED UPON MEAN TEACHER RATINGS

ABILITY RATING *	WRITING ABILITY						MEAN RATING CLASS INTERVAL
	TEACHERS			SCHOOLS			
	N	%	C%	N	%	C%	
4	3	0.7	100.0	0	0.0	-	4.0
				0	0.0	-	3.5 - 3.9
3	99	20.1	99.3	4	4.1	100.0	3.0 - 3.4
				5	5.1	95.9	2.5 - 2.9
2	287	58.3	79.2	53	54.1	90.8	2.0 - 2.4
				31	31.6	36.7	1.5 - 1.9
1	103	20.9	20.9	5	5.1	5.1	1.0 - 1.4
NUMBER	492			98			NUMBER
MEAN	2.0			2.0			MEAN
MEDIAN	2.0			2.0			MEDIAN
S.D.	0.7			0.4			S.D.

* 1-Poor, 2-Fair, 3-Good, 4-Excellent

Lest the reader conclude this is a problem peculiar to vocational students, he is reminded of earlier data that shows the non-college academic graduates seem to suffer the same deficiency. (And, as any college professor who has graded essay examinations knows, the problem of inadequate writing skills is not confined to the non-college bound.) Even so, vocational educators will do well to recognize the existence of these basic skill deficiencies among vocational students. Our schools have yet to master the technique of imparting a satisfactory level of reading and writing skills to those that may be less than highly motivated to acquire such skills. Therein lies the rub.

* * * * * * * * * *

The vocational school teachers rated their students about the same on reading, writing and arithmetic skills as the comprehensive school teachers. (See Appendix Section 3 for the Tabled rating data.) Thus, there was no evidence of a difference in those skills between the students of the two types of schools in so far as teacher ratings might reflect such differences.

Rated Student Motivation

The "dumping ground" image of the vocational student that persists in the minds of some educators and much of the public at large suggests a poorly motivated student who must be given tools of some kind to be kept in school. The study probed this negative image from many different angles. One method was to ask shop instructors to rate the overall motivation to learn that characterized their students as a group. Table 58 provides the results of that rating.

TABLE 58. DISTRIBUTIONS OF STUDENT MOTIVATION RATINGS THAT TEACHERS MADE OF THEIR STUDENTS AS A WHOLE FOR TEACHERS AND SCHOOLS BASED UPON MEAN TEACHER RATINGS

ITEM RATING *	STUDENT MOTIVATION						MEAN RATING CLASS INTERVAL
	TEACHERS			SCHOOLS			
	N	%	C%	N	%	C%	
3	167	33.4	100.0	5	5.1	100.0	3.0
				1	1.0	94.9	2.8 - 2.9
				9	9.2	93.9	2.6 - 2.7
				10	10.2	84.7	2.4 - 2.5
				33	33.7	74.5	2.2 - 2.3
2	293	58.6	66.6	32	32.7	40.8	2.0 - 2.1
				0	0.0	8.1	1.8 - 1.9
				6	6.1	8.1	1.6 - 1.7
				1	1.0	2.0	1.4 - 1.5
				0	0.0	0.0	1.2 - 1.3
1	40	8.0	8.0	1	1.0	1.0	1.0 - 1.1
NUMBER	500			98			NUMBER
MEAN	2.25			2.24			MEAN
MEDIAN	2			2.3			MEDIAN
S.D.	0.59			0.34			S.D.

* 1-Low, 2-Average, 3-High

Only 8 percent of the shop instructors rated their classes low in motivation to learn. About 59 percent rated their students average in motivation to learn, meaning that all degrees of motivation were present in their classes which, as a group, could be described neither low or high in motivation to learn. An impressive 33 percent claimed their students were highly motivated to learn. These results contradict the image of the vocational student as a typically low motivated student. There is no question but that some are poorly motivated in general. But this can be said of any student group.

It is quite possible that academic teachers in comprehensive schools might have rated the vocationals somewhat lower on motivation to learn. One would expect such students to be more highly motivated in the subjects related to what might be their life's occupation and in a learning situation that stimulates a more active role in the learning process.

As before, school means were compiled based upon averaging the individual instructor ratings. Their distribution is shown in the right half of Table 58. There is considerable agreement among the instructors at the extreme class intervals. Six percent of the schools had a mean student motivation rating of 2.8 to 3.0; this indicates a concensus that students are highly motived in these schools. At the bottom end, about 8 percent of the schools had ratings of 1.8 or less. Here the concensus is that relatively low motivation prevails. On the assumption that the instructor ratings are reasonably correct assessments, it is clear that there are impressive school differences in student motivation to learn. That means there are school factors that differentially influence motivation to learn. Further research is needed to identify such variables.

* * * * * * * *

It may be of general interest that 12 percent of the comprehensive school shop teachers rated their students low on motivation to learn, whereas only 6 percent of the vocational school shop instructors so rated their students.

Teacher Reported Student Problems

About nine hundred shop instructors rated the frequency of the ten student problems listed in Table 59 into one of four categories: almost daily, often, seldom, almost never. By weighting the response categories respectively 1, 2, 3 and 4, a mean frequency rating was obtained for each problem. The lower the score, the more frequent the problem. The problems are listed in Table 59 in the order from most to least frequent.

The number one problem was poor quality academic work. About 9 percent of the teachers reported this as an almost daily problem, while 53 percent said it was often a problem. Notice that only 4.6 percent claimed it was almost never a problem. The interpretation here is that this is again a reflection of basic reading, writing and arithemetic skill inadequacies which create problems for the vocational course teacher. These are the skills which he expects to be brought to the class, excluding

where mathematics is taught as a related subject.

TABLE 59. COMMON PROBLEMS WITH STUDENTS REPORTED BY T&I VOCATIONAL TEACHERS

COMMON TEACHER PROBLEMS WITH STUDENTS	REPORTED FREQUENCY OF PROBLEMS								MEAN RATINGS *		
	DAILY		OFTEN		SELDOM		NEVER				
	N	%	N	%	N	%	N	%	N	MEAN	S.D.
Poor quality academic work	73	8.8	440	53.3	275	33.3	38	4.6	826	2.34	0.70
Abseenteeism	135	15.0	257	28.5	426	47.2	84	9.3	902	2.51	0.86
Inattention	54	6.0	235	26.0	504	55.8	111	12.3	904	2.74	0.75
Poor quality shop work	23	2.6	212	24.3	516	59.1	122	14.0	873	2.84	0.68
Tardiness	74	8.1	169	18.6	487	53.5	180	19.8	910	2.85	0.83
Poor housekeeping	31	3.4	238	26.4	407	45.1	227	25.1	903	2.92	0.80
Wastage of supplies	23	2.5	188	20.7	480	52.9	216	23.8	907	2.98	0.74
Classroom horseplay	45	5.0	141	15.6	501	55.4	218	24.1	905	2.99	0.77
Damage to equipment	10	1.1	91	10.0	489	53.8	319	35.1	909	3.23	0.67
Insubordination	8	0.9	29	3.2	338	37.3	530	58.6	905	3.54	0.61

* 1-Daily, 2-Often, 3-Seldom, 4-Never

The number two problem is absenteeism. About 15 percent of the instructors said this was an almost daily problem. Another 28 percent said it was often a problem. When 43 percent of the teachers report a problem as occurring daily or often, it should indeed be acknowledged as a problem. Ranked on the basis of the percentage reported "almost daily" and "often", the remaining problems are:

•Inattention	32.0%
•Poor housekeeping	29.8
•Poor quality shopwork	26.9
•Tardiness	26.7
•Wastage of supplies	23.2
•Classroom horseplay	20.6
•Damage to equipment	11.1
•Insubordination	4.1

The fact that the percentages vary as they do suggest that the instructors took their rating task seriously. At first glance, it would appear that the vocational student is a considerable source of problems for his teachers. This would seem to support the myth about his being a reject, so to say, from academic programs. However, when these ratings were compared with the ratings that academic teachers made of the frequency of problems with <u>their</u> students, a somewhat different picture emerged. Below are the percentages for the two types of teachers who reported having the listed problems "daily" or "very often" with their students:

	Vocational	Academic
•Poor quality academic work	62.1%	66.8%
•Absenteeism	43.5	53.0
•Inattention	32.0	37.0

•Tardiness	26.7%	30.2%
•Classroom horseplay	20.6	11.0
•Insubordination	4.1	3.6

Either vocational teachers are more tolerant of their students than academic teachers or vocational students are less of a problem than academic students. In either case, the vocational student comes off better in the comparison if we assume that the two types of teachers have made comparable assessments.

•How do teachers in vocational and comprehensive schools compare in terms of their perception of problems with students? Table 60 provides the mean ratings derived from teachers from the two types of schools.

The vocational school teachers have a slightly greater problem with tardiness while the comprehensive school teachers indicate a somewhat greater problem with absenteeism and poor quality academic work. None of the other differences shown are statistically significant. It seems reasonable to conclude that there is no impressive difference in the frequency of student problems reported by the vocational teachers from the two types of schools.

TABLE 60. COMPARATIVE DATA ON THE FREQUENCY OF COMMON STUDENT PROBLEMS REPORTED BY TEACHERS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

COMMON TEACHER PROBLEMS WITH STUDENTS	TYPE OF SCHOOL					
	VOCATIONAL			COMPREHENSIVE		
	N	MEAN	S.D.	N	MEAN	S.D.
Absenteeism	600	2.58	0.83	302	2.37	0.91 **
Tardiness	603	2.80	0.82	307	2.94	0.84 *
Classroom Horseplay	598	2.97	0.80	307	3.02	0.73
Inattention	599	2.73	0.75	305	2.77	0.75
Wastage of Supplies	599	2.97	0.76	308	3.00	0.71
Damage to Equipment	600	3.22	0.68	309	3.25	0.64
Poor Housekeeping	598	2.93	0.81	305	2.91	0.79
Insubordination	598	3.53	0.61	307	3.54	0.60
Poor Quality Shop Work	584	2.86	0.69	289	2.81	0.66
Poor Quality Academic Work	543	2.39	0.71	283	2.23	0.68 **

* Significant at .05 level of confidence

** Significant at .01 level of confidence

•What is the extent of individual teacher differences and individual school differences in terms of student problems as perceived by teachers?

To answer this question, each teacher was given a score that was the average of the problem frequency ratings given to his students, and each school was given the score that was the average of its teacher's scores. Table 61 gives the frequency distributions for the teacher and school ratings.

The lower the mean rating, the greater the frequency and range of student problems. The teacher distribution covers the entire range, from teachers who say every problem is a daily problem to teachers who report they are rarely bothered with any of the problems. The mean of 2.9 for the 917 teachers who responded indicates a healthy direction. The average teacher is seldom bothered by the kinds of student problems identified in Table 61. It is reasonable to believe that the extreme individual differences are as much a reflection of teacher problems as they are student problems. Teachers who are daily or very often bothered by all of the problems rated have problems other than merely student problems.

TABLE 61. DISTRIBUTION OF THE FREQUENCY OF STUDENT PROBLEMS INDEX FOR TEACHERS AND SCHOOLS BASED UPON MEAN TEACHER INDEX VALUES

MEAN PROBLEM RATING *	STUDENT PROBLEMS INDEX						MEAN RATING CLASS INTERVAL
	TEACHERS			SCHOOLS			
	N	%	C%	N	%	C%	
3.7 - 4.0	40	4.4	100.0	1	1.0	100.0	3.4 - 3.5
3.4 - 3.6	121	13.2	95.6	11	11.0	99.0	3.2 - 3.3
3.1 - 3.3	209	22.8	82.4	23	23.0	88.0	3.0 - 3.1
2.8 - 3.0	242	26.4	59.6	42	42.0	65.0	2.8 - 2.9
2.5 - 2.7	182	19.8	33.2	16	16.0	23.0	2.6 - 2.7
2.2 - 2.4	81	8.8	13.4	7	7.0	7.0	2.4 - 2.5
1.9 - 2.1	25	2.7	4.6				
1.6 - 1.8	7	0.8	1.9				
1.3 - 1.5	6	0.7	1.1				
1.0 - 1.2	4	0.4	0.4				
NUMBER	917			100			NUMBER
MEAN	2.93						MEAN
MEDIAN	2.9			2.8			MEDIAN
S.D.	0.46						S.D.

* 1-Daily, 2-Often, 3-Seldom, 4-Never

STUDENT RESOURCE CORRELATION ANALYSIS

Correlations were run between different types of student resource variables, such as subject grades, standardized test scores and some of the school adjustment measures. In addition, correlations were developed for such student resource variables and the post-school occupational and educational outcome variables. Not all of the analysis may be of interest to the general reader. Some are of primary interest to school test and measurement specialists.

Subject Grade Intercorrelations

•To what extent are subject grades intercorrelated? How well do vocational subjects correlate with academic subject grades? Table 62 provides the data.

As expected, academic grade averages are moderately to highly correlated. English grades, for example, correlated .74 with social studies grades. (This could be interpreted to mean that English skills are an essential prerequisite for superior performance in social studies subjects.)

The high intercorrelation values support the well established generalization that those who do well in one academic subject tend to do well in others. On the other hand, the magnitude of non-correlation implied by the correlation coefficients indicate that the exceptions to the generalization are more than plentiful.

What is interesting is the relatively lower correlations obtained between academic and vocational subject grades than between academic subject grades or vocational subject grades. This suggest that the qualities that are being graded in academic subjects are in a large measure different from the student qualities being graded in vocational subjects. It is much less true that the students who perform well in academic subjects will perform well in vocational subjects than it is that high performance in one academic subject means high performance in all academic subjects. Quite possibly, it is a relatively heavy non-verbal component in vocational subjects that is the basic differentiating factor. Manual skills would be one type of non-verbal factor.

Standardized Test Intercorrelations

•To what extent are the standardized tests given to vocational students intercorrelated? How well does performance on the earlier given tests predict performance on the tests normally given in the last two grades? Table 63 provides the data.

TABLE 62. INTERCORRELATIONS OF SUBJECT GRADE AVERAGES DERIVED FROM T&I VOCATIONAL GRADUATE'S SCHOOL RECORDS

1962 VOCATIONAL GRADUATES INTERCORRELATIONS		MAJOR SUBJECT AREAS							
		1	2	3	4	5	6	7	8
		ENGLISH	MATHEMATICS	SCIENCE	SOCIAL STUDIES	ACADEMIC OVERALL	VOCATIONAL SHOP	VOCATIONAL THEORY	ALL MAJOR SUBJECTS
1	English	-	.58**	.60**	.74**	.86**	.39**	.49**	.52**
2	Mathematics	2118	-	.55**	.56**	.82**	.39**	.47**	.48**
3	Science	2087	2080	-	.58**	.82**	.40**	.46**	.42**
4	Social Studies	2125	2116	2084	-	.85**	.38**	.46**	.51**
5	Academic Overall	2131	2142	2091	2127	-	.46**	.56**	.60**
6	Vocational Shop	2125	2135	2084	2121	2148	-	.54**	.24**
7	Vocational Theory	849	850	841	850	853	854	-	.79**
8	All Major Subjects	1878	1887	1839	1874	1900	1893	598	-

** Significant at .01 level of confidence

The correlation coefficients shown in Table 63 are based upon stanine scores. Quite possibly, the values might be somewhat lower had less gross scores been used. The writer is not that well experienced in the test and measurement field to say.

General intelligence test scores, usually derived from testing in the elementary grades, correlate moderately high with achievement and aptitude test scores. The coefficients range from .52 to .62 and all are significant at better than the one percent level of confidence.

TABLE 63. INTERCORRELATIONS OF STANDARDIZED TEST SCORES (STANINES) DERIVED FROM T&I VOCATIONAL GRADUATE'S SCHOOL RECORDS

	1962 VOCATIONAL GRADUATES INTERCORRELATIONS	TESTS							
		1	2	3	4	5	6	7	8
		GENERAL INTELLIGENCE	READING ACHIEVEMENT	ARITHMETIC ACHIEVEMENT	LANGUAGE ACHIEVEMENT	TOTAL ACHIEVEMENT	VERBAL APTITUDE	MATH APTITUDE	COMBINED APTITUDE
1	General Intelligence	-	.58**	.53**	.56**	.62**	.56**	.52**	.59**
2	Reading Achievement	472	-	.65**	.66**	.88**	.62**	.44**	.64**
3	Arithmetic Achievement	384	409	-	.57**	.86**	.36**	.53**	.60**
4	Language Achievement	291	319	344	-	.84**	.69**	.58**	.70**
5	Total Achievement	285	267	267	266	-	.81**	.76**	.84**
6	Verbal Aptitude	189	121	113	107	57	-	.64**	.87**
7	Math Aptitude	189	121	113	107	57	302	-	.85**
8	Combined Aptitude	215	146	138	132	82	301	301	-

** Significant at .01 level of confidence

The reading, arithmetic and language achievement tests show relatively high intercorrelations. The student who does well on one type of achievement test tends to do well on the others. This is further evidenced by the very high correlations obtained between individual achievement tests and combined achievement test scores. Such correlation coefficients range from .84 to .88.

The achievement tests, which are normally given in the elementary grades, correlate highly with the scholastic aptitude tests normally given in the eleventh and twelfth grades. Language achievement scores, for example correlated .69 and .58 respectively with verbal and mathematical scholastic aptitude scores. Much of the theoretical distinction made between achievement and aptitude tests is open to question on the basis of such relatively high correlation between the five types of tests.

One cannot help but conclude that performance on standardized tests is a reasonably good predictor of performance on other standardized tests. How well they predict subject grade performance and, more importantly, occupational outcomes is another matter.

Standardized Test and Subject Grade Performance Correlation

•How well do intelligence, achievement and scholastic aptitude test scores correlate with subject grade averages? Table 64 provides the data.

TABLE 64. CORRELATIONS BETWEEN STANDARDIZED TEST STANINE SCORES AND SUBJECT GRADE AVERAGES BASED ON T&I VOCATIONAL GRADUATE'S SCHOOL RECORD DATA

	1962 VOCATIONAL GRADUATES TEST-GRADE CORRELATIONS	MAJOR SUBJECT AREAS							
		1 ENGLISH	2 MATHEMATICS	3 SCIENCE	4 SOCIAL STUDIES	5 ACADEMIC OVERALL	6 VOCATIONAL SHOP	7 VOCATIONAL THEORY	8 ALL MAJOR SUBJECTS
1	General Intelligence	.28** 1640	.18** 1653	.24** 1616	.26** 1640	.27** 1662	.12** 1661	.14** 733	.09** 1443
2	Reading Achievement	.28** 557	.15** 552	.21** 545	.33** 557	.28** 557	.24** 557	.10 252	.13** 460
3	Arithmetic Achievement	.32** 460	.31** 456	.23** 448	.37** 460	.37** 460	.25** 461	.08 185	.28** 404
4	Language Achievement	.40** 386	.26** 364	.26** 356	.41** 368	.39** 368	.24** 367	.09 124	.27** 339
5	Total Achievement	.38** 337	.22** 334	.26** 325	.41** 336	.38** 337	.24** 336	.14 82	.42** 316
6	Verbal Aptitude	.51** 302	.33** 302	.46** 298	.47** 301	.51** 302	.31** 302	.34** 73	.38** 275
7	Math Aptitude	.43** 302	.43** 302	.43** 298	.39** 301	.49** 302	.33** 302	.53** 73	.46** 275
8	Combined Aptitude	.50** 331	.40** 331	.48** 326	.49** 330	.54** 331	.33** 331	.48** 73	.52** 304

** Significant at .01 level of confidence

While each of the three types of tests shows significant correlations with the different subjects, the least effective prediction is the so-called general intelligence test. Correlations between the later and subject grade averages ranged from .09 to .28. Intelligence test scores have little value for predicting vocational subject grades. They are only slightly better at predicting academic subject grades. Guidance counselors who place much reliance on such tests for "understanding" under-achievers and over-achievers may well question their use of such tests. Certainly, the data does not support the use of such tests as a basis for guiding students into academic or vocational programs.

Understandably, achievement tests have higher correlations with subject grades than do intelligence tests. Again, however, the correlations tend to be higher with academic subject grades than with vocational subject grades. To the writer, who admits he is no expert in the field of tests and measurement, the lack of correlation is more impressive than the degree of correlation implied by the coefficients. Counselors who wanted to predict success in vocational subjects would do better if they used past subject grade averages as predictors than if they used achievement test scores.

The scholastic aptitude tests have the highest correlations with vocational (and academic) subject grade averages. Such tests, however, are normally given in the eleventh and twelfth grades, long after the vocational choice has been made.

In general, the relatively low correlations obtained between standardized test scores and vocational subject grades should caution guidance counselors on using standardized tests with vocational or would-be vocational students unless such tests have been locally validated for the specific use intended.

Standardized Test and Vocational Outcomes Correlations

•How well do intelligence, achievement and scholastic aptitude tests correlate with vocational outcomes, such as placement time, relatedness of jobs held to occupational field studied, earnings, employment security and other outcome measures? The dismal results are shown in Table 65.

The whole array of correlations can be summed up by stating that intelligence, achievement and aptitude tests have no practical value in predicting occupational outcomes for vocational graduates. The few correlations that achieve statistical significance are of theoretical value only.

As expected, standardized test scores show low positive correlation with the amount of college education accumulated. They are, however, unrelated to non-college, post-high school forms of education or training.

TABLE 65. CORRELATIONS BETWEEN STANDARDIZED TEST STANINE SCORES AND VOCATIONAL OUTCOMES FOR 1962 DIRECT TO WORK T&I VOCATIONAL GRADUATES

TYPE OF TEST DATA		1962 VOCATIONAL GRADUATE OUTCOME MEASURES														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		PLACEMENT TIME	FIRST JOB RELATEDNESS	ALL JOB RELATEDNESS	PRESENT JOB RELATEDNESS	EMPLOYMENT SECURITY 2	ALL JOB SATISFACTION	STARTING HOURLY RATE	PRESENT HOURLY RATE	ATTITUDE TOWARD FORMER SCHOOL	CONVERSATIONAL RANGE INDEX	LEISURE/ ACTIVITY INDEX	ORGANIZATION AFFILIATION	AMOUNT OF COLLEGE EDUCATION	AMOUNT OF NON-COLLEGE EDUCATION	ORDINAL DAY OF RETURN
1	General Intelligence	.00 1170	.03 1104	-.01 1100	.02 1098	.05 1146	.02 1125	-.03 1168	-.01 1170	.07* 1165	.01 1123	-.01 1123	.02 1116	.20** 1152	.05 1153	.01 1140
2	Reading Achievement	-.03 389	-.05 366	-.06 372	-.02 369	.07 390	-.05 377	-.06 388	-.01 389	.14** 389	-.02 378	-.05 378	.10* 377	.24** 367	.03 368	.05 389
3	Arithmetic Achievement	-.09 318	.05 295	.02 301	.06 296	.06 315	.05 304	-.12* 317	-.05 318	.03 317	.02 309	-.01 309	.01 308	.29** 299	.01 297	-.03 318
4	Language Achievement	-.09 245	.06 228	-.03 233	.10 229	.09 242	.06 235	-.08 244	-.04 245	.06 244	.03 238	-.14* 238	.03 237	.20** 230	-.01 229	.06 245
5	Total Achievement	-.05 234	.06 217	-.04 219	.08 217	.08 235	.06 224	-.06 233	.02 234	.04 233	-.05 223	-.10 224	.08 222	.24** 216	.06 214	.05 234
6	Verbal Aptitude	-.11 169	.09 158	.10 159	.10 156	.15* 169	.09 161	.04 169	.06 169	.05 168	-.06 165	-.05 165	.10 164	.30** 153	.02 154	.03 169
7	Math Aptitude	-.10 169	.11 158	.05 159	.14 156	.08 170	.08 161	.04 169	-.02 169	.18* 168	-.10 165	-.09 165	.20** 164	.27** 153	-.02 154	.06 169
8	Combined Aptitude	-.10 185	.09 173	.11 176	.13 172	.14* 193	.08 177	.10 184	.12 185	.16* 184	-.02 182	-.01 182	.09 181	.32** 184	-.01 183	.09 185

* Significant at .05 level of confidence
** Significant at .01 level of confidence

Subject Grade and Vocational Outcome Correlations

•How well do the subject grade averages made by vocational graduates correlate with vocational outcomes, such as placement time, relatedness of jobs held to occupations studied, earnings, employment security and other vocational outcomes? Table 66 provides the data.

Low but significant positive correlations were obtained between most subject grade averages and:

- •Relatedness of first job to occupation studied.
- •Relatedness of present job to occupation studied.
- •Job satisfaction reported with jobs held.
- •Attitude toward the former school.
- •Amount of college education after high school.

The shop grade average is the best single predictor of how related the graduate's occupation will be to the occupation studied. The higher the grade, the more likely will he enter the occupations of the field he studied.

No significant correlations were demonstrated between academic or vocational subject grade performance and:

- •Initial earnings.
- •Present earnings.
- •Conversational interests.
- •Leisure activities.
- •Organization affiliation.
- •Amount of non-college education after high school.

Miscellaneous Correlation Analyses

The school adjustment measures, such as average days absent and tardy per year, showed no significant correlations with the vocational outcome measures. Such measures did show low but significant negative correlations with all of the subject grade averages. The correlations ranged from -.10 to -.20, all significant at better than the one percent level of confidence. Absenteeism and tardiness are minor, albeit significant factors related to grade performance. See Appendix Section 3 for Tables of miscellaneous correlation coefficients.

TABLE 66. CORRELATIONS BETWEEN SUBJECT GRADE AVERAGES AND VOCATIONAL OUTCOMES FOR 1962 DIRECT TO WORK T&I VOCATIONAL GRADUATES

	MAJOR SUBJECT AREAS	1962 VOCATIONAL GRADUATE OUTCOME MEASURES														
		1 PLACEMENT TIME	2 FIRST JOB RELATEDNESS	3 ALL JOB RELATEDNESS	4 PRESENT JOB RELATEDNESS	5 EMPLOYMENT SECURITY 2	6 ALL JOB SATISFACTION	7 STARTING HOURLY RATE	8 PRESENT HOURLY RATE	9 ATTITUDE TOWARD FORMER SCHOOL	10 CONVERSATIONAL RANGE INDEX	11 LEISURE ACTIVITY INDEX	12 ORGANIZATION AFFILIATION	13 AMOUNT OF COLLEGE EDUCATION	14 AMOUNT OF NON-COLLEGE EDUCATION	15 ORDINAL DAY OF RETURN
1	English	-.06* 1477	.12** 1385	.04 1380	.11** 1377	.06* 1449	.11** 1411	.02 1474	.02 1477	.03 1470	.03 1420	-.01 1420	.04 1410	.24** 1459	.01 1459	-.11** 1441
2	Mathematics	-.05 1484	.15** 1392	.05 1387	.14** 1384	.04 1458	.16** 1418	.04 1481	-.05 1484	.07* 1477	-.03 1427	-.03 1427	.01 1417	.14** 1460	-.00 1460	-.12** 1448
3	Science	-.06* 1448	.11** 1359	.02 1352	.08** 1352	.04 1422	.11** 1384	.00 1445	-.00 1448	.06* 1441	.02 1391	-.03 1391	-.04 1381	.18** 1438	.05 1438	-.12** 1412
4	Social Studies	-.04 1473	.12** 1383	.02 1378	.11** 1375	.05 1447	.11** 1409	.01 1470	-.01 1473	.05 1466	.03 1416	-.02 1416	.01 1406	.26** 1459	-.00 1459	-.12** 1437
5	Academic Overall	-.06* 1494	.15** 1402	.04 1397	.13** 1394	.05 1465	.15** 1428	.01 1491	-.02 1494	.06* 1487	.00 1437	-.03 1437	-.01 1427	.24** 1459	.02 1459	-.14** 1458
6	Vocational Shop	-.09** 1531	.20** 1437	.08** 1433	.18** 1429	.08** 1502	.21** 1464	.03 1528	-.03 1531	.08** 1524	.02 1473	-.02 1473	-.04 1461	.17** 1505	.05 1505	-.12** 1495
7	Vocational Theory	-.03 639	.10* 603	.06 599	.12** 601	.05 607	.11** 615	.01 639	-.02 639	-.02 635	-.07 620	-.10* 619	-.02 617	.17** 605	-.01 605	-.11** 631
8	All Major Subjects	-.08* 1312	.11* 1225	.09** 1221	.11** 1218	.08 1304	.12** 1249	.02 1309	-.01 1312	.07* 1306	-.02 1259	-.06* 1259	-.04 1249	.24** 1459	.04 1459	-.02 1278

* Significant at .05 level of confidence
** Significant at .01 level of confidence

GENERAL SUMMARY AND CONCLUSIONS

Socio-economic Origins

1. Male parent occupations. About 76 percent of the vocational graduates came from families in which male parents are employed in manual occupations ranging from unskilled to skilled. About 41 percent of the male parents are in a skilled occupation. Only 10 percent have male parents in professional occupations.

2. Trend in male parent occupations. There is a slight trend that suggests that an increasing percentage of vocational students have male parents in clerical, sales, technical and semi-professional occupations. The trend hints at a growing public acceptance of vocational education.

3. Vocational versus academic graduates. There are substantial male parent occupational differences between vocational and academic program graduates. About 10 and 30 percent respectively have male parents in professional, semi-professional and near-professional occupations. However, the majority of both types of graduates have parents in unskilled, semi-skilled and skilled occupation fields.

4. College versus non-college graduates. College and non-college bound graduates from both vocational and academic programs are differentiated by the percentage of male parents in professional and semi-professional occupations. About 42 percent of the college bound academics have male parents in such occupations versus 19 percent of the non-college bound academics.

5. Teachers versus students. There is a much greater gap between the socio-economic origin of vocational students and their academic subject teachers than between such students and their vocational subject teachers. The differences raise a question about the relative teacher rapport with students.

6. Graduates in versus out of their field of study. The occupational level of male parents is only slightly related to whether graduates enter the occupational fields studied. A slightly greater percentage of those who entered occupations related to their field of study had male parents in skilled occupations than did those who entered unrelated occupations.

7. Vocational versus comprehensive schools. The male parent occupational level of vocational graduates from comprehensive schools is slightly higher than that of graduates from vocational schools.

Standardized Test Performance

1. Intelligence test performance. The mean stanine value achieved by vocational students was 4.7, very slightly below average performance. The median stanine value achieved was 5, which is average performance. Individual students covered the entire range of stanine values.

2. Graduates in versus out of their field of study. Those who entered occupations in their field of study did little better in terms of aptitude and achievement test performance. There was no significant difference in terms of intelligence test performance. Conclusion: Standardized tests have little or no value in predicting vocational outcomes.

3. Vocational versus academic graduates. Direct to work academic graduates did slightly better than their counterpart vocational graduates in terms of intelligence, achievement and aptitude test performance. However, the average mean difference was less than a 0.5 stanine value.

4. Comprehensive versus vocational schools. Graduates from vocational schools did slightly better on achievement and aptitude tests than those from comprehensive schools. There was no significant difference in intelligence test performance.

School Adjustment Performance

1. T&I vocational graduates. The average vocational graduate has had 0.7 honors or awards, participated in 1.5 extracurricular activities, been tardy about 2.8 times per year and absent about 8.7 times per year.

2. Vocational versus academic graduates. The direct to work vocational graduates have had significantly more honors and awards and significantly fewer extracurricular activities than their academic graduate counterparts. There is no significant difference between the two types of graduates in terms of number of days tardy and absent per year. The direct to college academics do better than the vocational graduates on these measures, but the only impressive difference is in extracurricular activities. Conclusion: The school adjustment performance of the two types of graduates is not substantially different.

3. Vocational versus comprehensive schools. The picture is mixed. Vocational school graduates have a significantly greater number of honors and awards. Comprehensive school graduates have participated in significantly more extracurricular activities and have fewer tardy days per year. There is no significant difference in absentee rates.

Data provided by principals of the two types of schools indicated no significant differences in rates of referrals to authorities, suspensions of pupils, parental contacts for disciplinary reasons, subject repeats for reason of failure and overall school absenteeism.

Teacher Perception of Students

1. T&I vocational students. The average vocational teacher rated his students only "fair" in terms of reading, writing and arithmetic abilities. The most frequently acknowledged classroom problems were poor quality academic work, absenteeism, inattention in class, poor housekeeping in shops, poor quality shop work, tardiness to class and wastage of shop supplies. More than 20 percent of the vocational teachers cited these as daily or frequent problems. Conclusion: The basic problem, as seen by vocational teachers, is low academic subject achievement.

2. Vocational versus academic students. Academic teachers reported a greater frequency of the following problems with their students than did vocational teachers: poor quality academic work, absenteeism, inattention in class and tardiness. Conclusion: Academic teachers report having more classroom problems with their students than vocational teachers. Conclusion: Academic teachers see poor quality of academic subject achievement as the major problem with their students. The problem seems to be characteristic of both academic and vocational students.

Correlational Analyses

1. Subject grade averages. All academic subject grade averages show high intercorrelations. The correlations of such grades with vocational subject grades are substantially less, indicating that many students do well in their vocational subjects, but not in their academic subjects.

2. Standardized test performance. Intelligence, achievement and aptitude test scores show moderately high intercorrelations across type of tests, and high intercorrelations within type of tests. Achievement test intercorrelations, for example, ranged from .57 to .88. The correlations between these types of tests and the scholastic aptitude tests ranged from .36 to .84.

3. Test-subject grade correlations. Intelligence tests correlate very low with academic subject grades and not at all with vocational subject grades. Achievement tests performance correlation with subject grade averages ranged from .08 to .42. There is clearly more lack of correlation between grade averages and achievement test performance than there is correlation.

4. Standardized tests and vocational outcomes. Intelligence, achievement and scholastic aptitude test correlations with vocational outcomes experienced by graduates suggest that such tests are virtually useless for predicting vocational outcomes.

5. Subject grades and vocational outcomes. Low but significant correlations were obtained between subject grade averages and the relatedness of jobs held to vocational courses studied in high school. The best single predictor of whether a graduate will enter the occupation studied is his vocational subject grade average. The higher the grade average, the more likely he is to enter the field for which trained.

Subject Grade Performance

1. Academic grade averages of vocationals. The mean English, mathematics, science and social studies grade averages of vocational graduates are respectively 2.0, 2.1, 2.1 and 2.0 on the standard 4 point grade scale, indicating mean performance at about a C grade average. Individual grade averages for any academic subject cover the entire grade point range. The data does not support the popularly held opinion that most vocationals do poorly in academic subjects.

2. Academic subject performance differences. The vocationals have lower median grades in English and social studies than they do in science and mathematics. English in particular seems to be a problem.

3. Vocational subject grade averages. Grade averages in vocational subjects are substantially better than in academic subjects. The mean vocational subject grade average was 2.7 compared with a mean academic subject grade average of 2.0.

4. Graduates in versus out of their field of study. Those who entered occupations related to their field of study had better grades in all subjects on the average than those who entered unrelated occupations. Moreover, about 40 percent of those who entered unrelated occupations had a vocational subject grade average of 2.5 or better, indicating a substantial loss of above average performing graduates to the fields studied.

Those who enter and stay with the occupations studied do significantly better in all subjects than those who never enter the occupational field studied. The difference is particularly pronounced in vocational subject grades.

5. Academic versus vocational graduates. Direct to work vocational graduates do slightly better in all academic subjects than direct to work academic graduates. The data contradicts the "dumping ground" image of vocational graduates. Direct to college vocational graduates do, on the average, about as well in academic subject grades as do direct to college academics. The college bound in both groups do better in all subjects than the non-college bound.

6. Academics versus vocationals who entered their field of study. The vocationals who enter occupations in their field of study do impressively better in all subjects than the direct to work academics.

7. Vocational versus comprehensive schools. The graduates from vocational schools outperformed their counterparts from comprehensive schools in all academic subjects. They performed about the same in vocational subjects.

8. Individual differences among schools. School means based upon subject grades of vocational students indicate substantial differences between schools in all subject areas. It is not likely that such differences are wholly attributable to differences in grading standards.

SOME TENTATIVE RECOMMENDATIONS

The following recommendations are based upon the data of this chapter plus a liberal interpretation of what the data implies for some of the issues related to vocational education. The reservations mentioned earlier about researchers making recommendations that jump the hazardous gap between research findings and action decisions still apply. The recommendations are primarily to stimulate discussion and thinking.

Expansion of Vocational Education at the Secondary School Level

There is a growing trend to move some of vocational education into either post-high school, non-college institutions or two year college level institutions at the expense of expansion at the high school level. The facts about the nature of the vocational student resource make this a questionable trend. Let us exclude for the moment the argument that it has not been established what the holding power of secondary schools would be for pupils who were forced to defer vocational education to a post-high school period. How well equipped is the bulk of T&I vocational program students for a college-level type of vocational education? The general answer, implied by the distribution data on subject grades and standardized tests, is that a very sizable percentage of such students, if not the majority, do not have the prerequisites for college-level vocational education. It must be remembered that the data herein presented is based upon graduates. It does not include those who fell by the wayside. Data on the latter, if it had been available and included, would undoubtedly have pulled mean and median values lower.

The same reasoning applies to the expansion of post-high school, non-college vocational education, where it is at the expense of high school level vocational education. Such post-high school vocational education tends to be more technical in the sense that prerequisites for mathematics and science are greater. Witness the growth of such courses as computer programmer, chemical technician, laboratory technician, instrumentation technician, etc. in such institutions. There is an understandable desire on the part of new post-high school vocational education to get away from the long-established T&I courses and to upgrade, as one might say, the quality and status of vocational education offerings with more technical courses. But where does this trend leave the great many potential vocational education students who can not meet the prerequisites for success in these "elevated" course offerings?

It is necessary to face the reality that a very large percentage of secondary school students may not, regardless of opportunity, continue their formal education beyond high school. If vocational education opportunities are not expanded at the high school level, these students will be lost to a formal vocational education. The vocational education planner who overlooks the aptitude, achievement and motivational characteristics of his potential student resource is apt to plan the majority right out of his program.

The foregoing is not an argument against post-high school institutions for vocational education. It is an argument against a rapid expansion of such institutions at the expense of expanding vocational education at the secondary school level.

Increased Efforts to Inform Public About Vocational Education

The popular image of vocational students as youngsters who can make their way through school only because tools have been put into their hands is flatly contradicted by the data in this chapter. They are no less capable performers in academic subjects than academic program graduates who do not go on to college. As a group, the image of substandard subject grade performance and school adjustment is not correct.

Some organized effort should be made to acquaint the public more fully with the achievement, both in school and out of school, of the vocational program graduates. Old images die slowly. An imaginative approach to informing the public can do much to hasten the demise of a false picture.

If the quality and quantity of vocational course offerings are to be expanded to meet the needs for formally developed occupational skills, then stronger public support is essential. Such support is more likely to be developed if some of the misgivings about vocational education can be reduced. Undoubtedly, many parents are reluctant to see their sons and daughters enter vocational programs because of the negative picture that such programs have in their minds. There will be less of this type of parental resistance if the public is adequately informed about vocational programs and their graduates.

It is recommended that the United States Office of Education, operating through appropriate state and local levels, support a pilot effort at improving the public view of vocational education. What is needed is a live demonstration, in a small sample of cities, of how public opinion can be modified through an imaginative information program.

Expansion of Vocational Education to Accommodate the Capability Range in Potential Students

The distribution data for subject grades and standardized test stanines very clearly indicates the broad range of capabilities among vocational graduates. The range would be increased even more if data from non-graduates is included. Some clearly have college-level capability. Others could not operate successfully at that level. Among the latter, there is still a wide range of capabilities. Some can and do complete the more technically demanding courses. Others would have difficulty with such courses.

Even though the data herein presented on the characteristics of the vocational graduate is not all of the story, it does strengthen the argument that the vocational course offerings must be compatible with the range of capabilities found among vocational students and the potential

vocational students, now among the academic program students, who do not go to college. Very few of the schools surveyed in this study had course offerings for the low-capability, low-achiever type of student who is not likely to enter, much less survive, a highly skilled occupation course. Data on this point will be presented in a later chapter. Also, a sizable percentage of graduates, as we shall see, completed their courses by the grace of generous instructors who ignored unfitness to enter the occupation for which trained. Lack of course offerings suitable to their capabilities resulted in many such students entering courses beyond their capabilities. And so they completed a course of occupational training, but left with insufficient occupational skills and knowledge to make an entry into the occupations studied.

Special Purpose Remedial Programs for Students Deficient in Basic Skills

One can not fail but make the time-honored plea that schools do a better job of developing basic reading, writing and arithmetic skills, and stop dodging behind the whiny complaint that, if the learner has not learned, it is his fault and not that of the school. Clearly, very large percentages of vocational (and academic) students leave most high schools with serious deficiencies in the basic skills.

The specific recommendation is that more research funds be devoted to the development of reasonably effective remedial basic skill programs, and that such programs be implemented in all school systems with adequate evaluation instruments to check their effectiveness. When 62 percent of the vocational teachers complain about the poor quality academic work of their students and about 66 percent of the academic teachers voice similar complaints, the problem must be severe enough to warrant some type of remedial programming.

4 THE VOCATIONAL TEACHER AND RELATED DATA

INTRODUCTION

The Centrality of the Teacher

Ask the educator to name the most important ingredient in vocational education, and the odds are high that he will name the teacher. Grant Venn put it this way, "Ultimately, vocational education will be as good as those who teach it."* Few educators would be inclined to disagree.

The bothersome thing about the agreement that the vocational teacher is the most important input to the vocational education process is that so little is known about even the surface variables that describe him, much less the dynamics that make good teachers good in this field. The present study makes no pretense of attempting to describe the effective vocational teacher. The primary objective is to describe the United States vocational teacher in terms of such census-type variables as socio-economic origins, educational background, occupational experiences, his summer and part-time employment as well as certain features of his present position, such as earnings, pupil load and his role in his school's decision-making process. These are admittedly the easy variables to describe. They are also probably the least important aspects of the T&I vocational teacher. Nevertheless, such data is presently lacking. Instead of data, we have opinions, educated guesses and even some myths about what the T&I vocational teacher is like. The problem with this is that decisions get made at high and low levels, educational theories are developed and broad changes are called for--all on the presumption that more is known about the vocational teacher than really is the case. The present chapter is a first step toward correcting the lack of information problem.

A second major objective is to describe the relationships between the teacher variables as herein described and the vocational outcomes experienced by the former students of the teachers. As we have seen, the key outcome is whether the graduate enters the occupational field for which he was trained. Why? Because those that do, earn more over the years, enjoy greater employment security, experience greater earnings increases and, no less important, report greater personal satisfaction in their work. It makes sense, then, to ask whether any of the teacher variables are related to such outcomes. Perhaps the greatest service of this statistical exploration will be to lay to rest some of the current claims about teacher characteristics that influence vocational outcomes.

A third major objective is to provide comparative teacher data for vocational and academic teachers and for vocational and comprehensive schools. The first type of comparison is of interest because both types of teachers service the vocational students and there is a need to know about both to understand the teacher characteristics to which the vocational

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* Venn, Grant. Man, Education and Work. Washington D.C.: American Council on Education, 1964

students are exposed. The second type of comparison is a continuation of the search for essential similarities and differences between vocational and comprehensive schools. The object is to provide the data to those engaged in the what-type-of-school-is-best controversy.

Some Basic Questions

Some of the more basic questions for which the chapter provides data are as follows:

1. What are the socio-economic origins of the T&I vocational teacher? How does he compare in this respect with the academic teacher? What implications do the differences have?

2. How much and what kinds of formal education has the vocational teacher had? What kind of post-high school, non-college education or training has he had? What kind of professional self-development activities engage his time? How does he compare with the academic teacher?

3. What kinds and how much teaching and non-teaching occupational experience do vocational teachers have? How much of their employable time has been spent in the occupational field which they now teach? How much geographic mobility characterizes their occupational histories?

4. How does the vocational teacher spend his summers? To what extent is summertime employment related to the occupational field he teaches? How much part-time employment does he pursue during the regular school year? To what extent is such employment related to the occupational field he teaches?

5. What is his present income as a teacher? How does this compare with the income of academic teachers? What is his total income from all sources? How much comes from summertime and part-time employment? Are his income needs being met?

6. What is his course load in terms of hours and pupils? What are his non-teaching school activities? Do they interfere with his teaching? What is his role in decision-making in areas related to his function as a teacher?

7. What are his activities outside of school? How well does he affiliate with community organizations? What are his leisure time activities, his conversational interests and his community activities? How similar in these respects is he to the vocational graduates who have left school some years ago?

About the Sample and the Data

About 921 T&I vocational teachers and 322 academic teachers from 100 vocational and comprehensive schools provided the chapter data. Table 1 shows how the vocational teachers in the survey sample were distributed by type of school (vocational versus comprehensive), geographic region (East versus West) and school vocational enrollment (less than 300 versus more than 300). About 77 percent of the teachers came from the East, 66

percent from vocational schools and 69 percent from schools with a vocational enrollment greater than 300.

The unequal distribution of vocational teachers in the cells of Table 1 does not invalidate the sample for estimating population parameters. The view taken here is that the sample is a reasonable representation of the population distribution of T&I vocational teachers, where that population is defined as teachers coming from schools offering three or more T&I courses. In any event, there is no problem for parameter estimates where the analysis shows that the sample stratifications, i.e. type of school, region and total vocational enrollment, are unrelated to teacher characteristics.

Table 2 shows a comparable distribution of the smaller sample of academic subject teachers taken from the same 100 schools. It is of methodological interest only.

Table 3 indicates the number and percentage of teachers in the sample survey who taught the vocational and academic subjects listed. It will help the reader understand the kind of teachers that made up the sample.

The questionnaire used to obtain the data is shown in Appendix Section 1. Several general comments are appropriate.

1. Only 3 percent of the teacher questionnaires were dropped from the analysis because they were so poorly completed that the remaining data was suspect. The detail and write-in comments that characterized the questionnaires suggest the teachers took their task seriousiy.

2. Much of the data is the product of recall of prior years' experiences. Some degree of under and over-estimating error is always a part of such data. The relatively large number of teachers surveyed should cancel out such error, assuming no constant errors are involved.

3. Data that derives from opinions must not be confused with data about the object of the opinions. A consensus of opinion that something is inadequate does not mean it is inadequate. It means people think it is inadequate. Much data in the present chapter is of an opinion nature.

TABLE 1. DISTRIBUTION OF T&I VOCATIONAL TEACHERS IN THE STUDY SAMPLE BY REGION, TYPE OF SCHOOL AND SCHOOL VOCATIONAL ENROLLMENT

TYPE OF SCHOOL	VOCATIONAL ENROLLMENT	EAST		WEST		U.S.	
		N	%	N	%	N	%
VOCATIONAL	<300	114	16.1	20	9.4	134	14.5
	>300	349	49.2	125	59.0	474	51.5
	TOTAL	463	65.3	145	68.4	608	66.0
COMPREHENSIVE	<300	118	16.6	37	17.4	155	16.8
	>300	128	18.1	30	14.2	158	17.2
	TOTAL	246	34.7	67	31.6	313	34.0
COMBINED	<300	232	32.7	57	26.9	289	31.4
	>300	477	67.3	155	73.1	632	68.6
	TOTAL	709	77.0	212	23.0	921	100.0

TABLE 2. DISTRIBUTION OF ACADEMIC SUBJECT TEACHERS IN THE STUDY BY REGION, TYPE OF SCHOOL AND SCHOOL VOCATIONAL ENROLLMENT

TYPE OF SCHOOL	VOCATIONAL ENROLLMENT	EAST		WEST		U.S.	
		N	%	N	%	N	%
VOCATIONAL	<300	43	17.2	5	6.9	48	14.9
	>300	81	32.4	18	25.0	99	30.7
	TOTAL	124	49.6	23	31.9	147	45.6
COMPREHENSIVE	<300	78	31.2	39	54.2	117	36.3
	>300	48	19.2	10	13.9	58	18.0
	TOTAL	126	50.4	49	68.1	175	54.3
COMBINED	<300	121	48.4	44	61.1	165	51.2
	>300	129	51.6	28	38.9	157	48.8
	TOTAL	250	77.6	72	22.4	322	100.0

TABLE 3. DISTRIBUTION OF VOCATIONAL AND ACADEMIC TEACHERS IN THE STUDY SAMPLE BY TYPE OF SUBJECT TAUGHT

COURSE TITLE	TYPE OF SCHOOL				UNITED STATES	
	VOCATIONAL		COMPREHENSIVE			
	N	%	N	%	N	%
Auto mechanics	74	12.2	50	16.0	124	13.5
Auto body repair	16	2.6	5	1.6	21	2.3
Aircraft mechanics	14	2.3	0	0.0	14	1.5
Air conditioning/heating	11	1.8	2	0.6	13	1.4
Building trades	2	0.3	8	2.6	10	1.1
Carpentry	17	2.8	13	4.2	30	3.3
Commercial art	22	3.6	4	1.3	26	2.8
Drafting	46	7.6	35	11.2	81	8.8
Electricity	58	9.5	17	5.4	75	8.2
Electronics	38	6.3	17	5.4	55	6.0
Food trades	9	1.5	7	2.3	16	1.7
Foundry	5	0.8	0	0.0	5	0.5
Machine shop	68	11.2	46	14.8	114	12.4
Masonry	4	0.7	8	2.6	12	1.3
Mill/cabinetry	33	5.4	16	5.1	49	5.3
Metal trades	4	0.7	6	1.9	10	1.1
Painting/decorating	6	1.0	1	0.3	7	0.8
Plumbing	13	2.1	0	0.0	13	1.4
Printing	38	6.3	25	8.0	63	6.9
Radio/television	22	3.6	5	1.6	27	2.9
Sheet metal	25	4.1	9	2.9	34	3.7
Shoe repair	4	0.6	1	0.3	5	0.5
Tailoring	8	1.3	7	2.3	15	1.6
Upholstery	5	0.8	1	0.3	6	0.7
Welding	26	4.3	7	2.3	33	3.6
Other than above	40	6.6	22	7.0	62	6.7
ALL VOCATIONAL TEACHERS	608	-	312	-	920	-
English	43	29.3	50	28.4	93	28.8
Mathematics	39	26.5	35	19.9	74	22.9
Science	29	19.7	44	25.0	73	22.6
Social studies	36	24.5	44	25.0	80	24.8
Other academic courses	0	0.0	3	1.7	3	0.9
ALL ACADEMIC TEACHERS	147	-	176	-	323	-

SOCIO-ECONOMIC ORIGINS AND RELATED DATA

The socio-economic origins of teachers may be of interest for several reasons: (1) There is the possibility that teacher-student rapport is influenced by the degree of socio-economic origin gap between teachers and students. One may hypothesize that the smaller the gap, the greater the potential for rapport, where other rapport influencing factors are equal. (2) The socio-economic origins reflect generally the value systems that people embrace, and therefore tell by implication something about vocational and academic teachers that may be useful to the sociologically-oriented educational theorist. Such implications, however, are not drawn in the present study. (3) Information about the socio-economic origins of vocational teachers tells us something about the population from which such teachers come and may have some implications for recruiting the expanded teacher force needed in vocational education.

Male Parent Education

• What is the educational level achieved by the male parents of T&I vocational teachers? How does this compare with the educational levels achieved by the male parents of academic teachers? Table 4 provides the data.

TABLE 4. COMPARATIVE MALE PARENT EDUCATION LEVEL DATA FOR T&I VOCATIONAL TEACHERS AND ACADEMIC TEACHERS

FATHER'S EDUCATION LEVEL	TYPE OF TEACHER			
	VOCATIONAL		ACADEMIC	
	N	%	N	%
Less than 8 years	205	27.1	59	21.4
Completed grade school	252	33.2	63	22.9
High school, incomplete	78	10.3	39	14.2
Completed high school	130	17.1	50	18.2
College, incomplete	46	6.1	33	12.0
Completed college	47	6.2	31	11.3
NUMBER	758		275	
MEAN	9.1		10.2	
MEDIAN	8		10	
S.D.	3.4		4.0	

About 60 percent of vocational teacher male parents have had eight years or less of a grade school education. Another 27 percent of the male parents had either a partially completed or a completed high school education. Only 12 percent had a partially completed or completed college education. The mean number of years of education completed by vocational teacher male parents is 9.1 years. It is clear that T&I vocational teachers came from homes in which male parents had achieved a modest level of formal education. No negative implication is attached to this finding. On the contrary, the similarity between the socio-economic origins of vocational teachers and vocational students may be a positive factor in the establishment of rapport between the two.

The mean male parent education of academic teachers is significantly greater than that of the vocational teacher, even though the basic pattern of male parent education is similar. About 44 percent of academic teacher male parents have completed eight years or less of an elementary education (versus 60 percent for the vocational teacher male parents). The major difference is in male parent college education. About 23 percent of the academic teacher male parents have had some college education (versus 12 percent for the vocational teacher male parents). The majority of the male parents of both academic and vocational teachers have had less than a complete high school education.*

• Is the amount of formal education completed by male parents of vocational teachers increasing over the years? The question was answered indirectly by obtaining the mean years of formal education of the male parents of different teacher age groups. Table 5 provides the data.

TABLE 5. MEAN YEARS OF MALE PARENT EDUCATION FOR DIFFERENT TEACHER AGE GROUPS AMONG T&I VOCATIONAL AND ACADEMIC TEACHERS

AGE OF TEACHER	MALE PARENT YEARS OF EDUCATION					
	VOCATIONAL			ACADEMIC		
	N	MEAN	S.D.	N	MEAN	S.D.
21 - 30	42	10.0	3.6	57	11.4	3.6
31 - 40	178	9.0	3.4	75	9.3	4.1
41 - 50	286	8.9	3.4	64	10.0	4.1
51 - 60	183	9.1	3.4	57	10.5	3.8
61 - 70	62	9.4	3.2	18	8.7	3.3
All years	758	9.1	3.4	275	10.2	4.0

* The data for academic teachers may be generalized only to academic teachers who teach vocational students in comprehensive and vocational high schools.

The amount of male parent education is not inversely related to the age of teachers over the entire span of years covered. Only the male parent of age group 21-30 show an increase in years of formal education completed. The socio-economic origin of both vocational and academic teachers has been remarkably stable for several generations. Most of the teachers have come and continue to come from families in which the male parent has had less than four years of secondary school education.

The vocational-academic teacher comparison is limited by the male parent education difference between male and female academic teachers. Table 6 shows the difference.

TABLE 6. COMPARATIVE MALE PARENT EDUCATION LEVEL DATA FOR MALE AND FEMALE ACADEMIC SUBJECT TEACHERS

FATHER'S EDUCATION LEVEL	ACADEMIC TEACHERS			
	MALE		FEMALE	
	N	%	N	%
Less than 8 years	50	24.6	9	12.5
Completed grade school	52	25.6	11	15.3
High school, incomplete	29	14.3	10	13.9
Completed high school	34	16.7	16	22.2
College, incomplete	19	9.4	14	19.4
Completed college	19	9.4	12	16.7
NUMBER	203		72	
MEAN	9.7		11.6	
MEDIAN	8		12	
S.D.	3.9		17.2	

About 50 percent of the male parents of male academic teachers have had eight years or less of grade school education (versus 28 percent for the male parents of female academic teachers). At the other extreme, about 19 percent of the male parents of the male academic teachers have had some college education (versus 36 percent for the female academic teachers). The male parents of female academic teachers have had an average of two years more formal education than those of male academic teachers.

• How do vocational teachers in vocational and comprehensive schools compare in terms of male parent formal education? Table 7 provides the data.

TABLE 7. COMPARATIVE MALE PARENT EDUCATIONAL LEVEL DATA FOR T&I VOCATIONAL AND COMPREHENSIVE SCHOOL T&I VOCATIONAL TEACHERS

FATHER'S EDUCATION LEVEL	TYPE OF SCHOOL			
	VOCATIONAL		COMPREHENSIVE	
	N	%	N	%
Less than 8 years	138	27.3	67	26.6
Completed grade school	169	33.5	83	32.8
High school, incomplete	52	10.3	26	10.3
Completed high school	86	17.0	44	17.3
College, incomplete	32	6.3	14	5.5
Completed college	28	5.6	19	7.5
NUMBER	505		253	
MEAN	9.0		9.2	
MEDIAN	8		8	
S.D.	3.4		3.3	

There is no significant difference in mean male parent formal education of vocational teachers in the two types of schools. This rules out another potential difference between the two types of schools, i.e. a difference in teacher value systems influenced by parental levels of education.

Male Parent Occupations

• What is the occupational level achieved by the male parents of T&I vocational teachers? How does this compare with the occupational levels achieved by the male parents of academic teachers? Table 8 provides the data.

The majority of vocational teacher male parents (55 percent) are occupied in unskilled, semi-skilled and skilled manual occupations. Another 20 percent worked at clerical or technical occupations. Only 23 percent worked in occupations of a professional, managerial or administrative nature. Thus, most vocational teachers come from families in nich the male parent worked in occupational levels which are the same as those in which their graduates will work. Again, there are yet to be verified implications for teacher-student rapport.

As might be expected, academic teacher male parents have a greater representation in the professional, managerial and administrative levels. There is also a smaller representation in the skilled occupations. Representation in the unskilled and semi-skilled occupations is about the same.

Table 9 shows male parent occupational level differences between male and female academic teachers.

TABLE 8. COMPARATIVE MALE PARENT OCCUPATIONAL LEVEL DATA FOR MALE T&I VOCATIONAL AND ACADEMIC TEACHERS

FATHER'S OCCUPATION LEVEL	TYPE OF TEACHER			
	VOCATIONAL		ACADEMIC	
	N	%	N	%
Major professionals, etc.[1]	31	3.9	16	7.9
Middle professionals, etc.[2]	51	6.4	15	7.4
Minor professionals, etc.[3]	100	12.6	31	15.3
Clerical, sales & technical	163	20.6	40	19.7
Skilled occupations	235	29.7	41	20.2
Semi-skilled occupations	86	10.9	24	11.8
Unskilled occupations	116	14.6	35	17.2
Miscellaneous	10	1.3	1	0.5

1 - Large company owners and officers, professional occupations
2 - Medium company owners, also managers
3 - Small proprietors, also administrators

TABLE 9. COMPARATIVE MALE PARENT OCCUPATIONAL LEVEL DATA FOR MALE AND FEMALE ACADEMIC SUBJECT TEACHERS

FATHER'S OCCUPATION LEVEL	ACADEMIC TEACHERS			
	MALE		FEMALE	
	N	%	N	%
Major professionals, etc.[1]	16	7.9	12	17.6
Middle professionals, etc.[2]	15	7.4	11	16.2
Minor professionals, etc.[3]	31	15.3	13	19.1
Clerical, sales & technical	40	19.7	16	23.5
Skilled occupations	41	20.2	10	14.7
Semi-skilled occupations	24	11.8	2	2.9
Unskilled occupations	35	17.2	4	5.9
Miscellaneous	1	0.5	0	0.0

1 - Large company owners and officers, professional occupations
2 - Medium company owners, also managers
3 - Small proprietors, also administrators

The differences are quite pronounced. About 34 percent of the female teacher male parents worked in professional or managerial occupations (versus 15 percent for the male teacher male parents). Also, the male parents of female academic teachers had much lower representation in the skilled, semi-skilled and unskilled occupations than did those of the male academic teachers.

Table 10 compares male parent occupational levels achieved by vocational graduates, T&I vocational teachers, academic graduates and academic subject teachers.

TABLE 10. COMPARATIVE MALE PARENT OCCUPATION LEVEL DATA FOR T&I VOCATIONAL GRADUATES, T&I VOCATIONAL TEACHERS, ACADEMIC SUBJECT GRADUATES AND ACADEMIC SUBJECT TEACHERS

FATHER'S OCCUPATION LEVEL	VOCATIONAL GRADUATES		VOCATIONAL TEACHERS		ACADEMIC GRADUATES		ACADEMIC TEACHERS	
	N	%	N	%	N	%	N	%
Major professionals, etc.[1]	21	1.3	31	3.9	32	6.4	28	10.3
Middle professionals, etc.[2]	54	3.2	51	6.4	36	7.2	26	9.6
Minor professionals, etc.[3]	96	5.8	100	12.6	77	15.5	44	16.2
Clerical, sales & technical	169	10.2	163	20.6	59	11.9	56	20.7
Skilled occupations	680	40.9	235	29.7	158	31.8	51	18.8
Semi-skilled occupations	312	18.8	86	10.9	70	14.1	26	9.6
Unskilled occupations	276	16.6	116	14.6	59	11.9	39	14.4
Miscellaneous	53	3.2	10	1.3	6	1.2	1	0.4

1 - Includes large company owners and officers, professional occupations
2 - Includes medium company owners, also managers
3 - Includes small proprietors, also administrators

Based on male parent occupations, the vocational graduates are more like their vocational teachers than their academic teachers. The converse is the case for academic graduates. They are more like academic teachers than vocational teachers. We are speaking of groups, not individuals as such. For example, 29 percent of the academic graduates' male parents and 30 percent of the academic teachers' male parents were in the upper three occupational categories, whereas 10 percent of the vocational graduates' male parents and 23 percent of the vocational teachers' male parents were in these categories. However, one can not overlook the very substantial similarities that also exist. The majority of male parents of all four groups were employed in manual occupations, ranging from unskilled to skilled.

●How do vocational and comprehensive schools compare in terms of vocational teacher male parent occupational levels achieved? Table 11 shows there is no significant difference between the two types of schools. Thus, another potential difference between such schools failed to materialize.

TABLE 11. COMPARATIVE MALE PARENT OCCUPATION LEVEL DATA FOR VOCATIONAL AND COMPREHENSIVE SCHOOL T&I VOCATIONAL TEACHERS

FATHER'S OCCUPATION LEVEL	TYPE OF SCHOOL			
	VOCATIONAL		COMPREHENSIVE	
	N	%	N	%
Major professionals, etc.[1]	19	3.6	12	4.5
Middle professionals, etc.[2]	30	5.7	21	7.9
Minor professionals, etc.[3]	68	13.0	32	12.0
Clerical, sales & technical	102	19.4	61	22.8
Skilled occupations	157	29.9	78	29.2
Semi-skilled occupations	60	11.4	26	9.7
Unskilled occupations	80	15.2	36	13.5
Miscellaneous	9	1.7	1	0.4

1 - Large company owners and officers, professional occupations
2 - Medium company owners, also managers
3 - Small proprietors, also administrators

The Socio-economic Origin Index

The A. B. Hollingshead index of social position was used to calculate a socio-economic origin index that takes into account parental education and occupation levels achieved.* The measure brings out more strongly the difference between vocational and academic teachers. Table 12 shows how the male parents of the two types of teachers distributed on this measure. The lower the values, the higher the socio-economic origin index.

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* The index equation is as follows:

Socio-economic origin index = Occupation score (7) + Education score (4)
where:

Occupation score is:

1 - Major professionals
2 - Middle professionals
3 - Minor professionals
4 - Clerical, sales, technical
5 - Skilled occupations
6 - Semi-skilled occupations
7 - Unskilled occupations

Education score is:

1 - Professional (M.A., Ph.D., M.D.)
2 - Four-year college graduate
3 - One to three years college
4 - High school graduate
5 - Ten to eleven years of school
6 - Seven to nine years of school
7 - Under seven years of school

TABLE 12. COMPARATIVE DISTRIBUTIONS OF THE SOCIO-ECONOMIC ORIGINS INDEX SCORES FOR VOCATIONAL AND ACADEMIC SUBJECT TEACHERS

SOCIO-ECONOMIC ORIGIN INDEX		TYPE TEACHER			
		VOCATIONAL		ACADEMIC	
		N	%	N	%
Class I	(11-17)	23	3.2	17	6.6
Class II	(18-31)	48	6.7	32	12.5
Class III	(32-47)	131	18.3	73	28.4
Class IV	(48-63)	357	49.9	84	32.7
Class V	(64-67)	156	21.8	51	19.8
NUMBER		715		257	
MEAN		53.2		48.0	
MEDIAN		56		49	
S.D.		15.0		17.9	

The mean and median values for the academic teacher male parents are significantly lower, meaning a higher socio-economic level. Notice also that about 19 percent of the academic teacher male parents are in Hollingshead upper social position classes, whereas only 10 percent of the vocational teacher male parents fall into those categories. Despite the differences, one must not overlook the similarities. Both academic and vocational teachers come predominately from the lower socio-economic classifications, i.e. families in which the male parents engaged in manual occupations and had less than a complete secondary school education. (Undoubtedly, these common man origins are an asset to the teaching profession. Perhaps they even assure the resilience necessary to persist against the bureaucratic hazards of the educational structure.)

* * * * * * * * *

Male parental income during a teacher's high school years is another indication of socio-economic origin. Appendix Section 4 presents such data for vocational and academic teachers and for vocational teachers from comprehensive and vocational schools. While the data is not corrected for the changing value of the dollar over the years, it does confirm the generally low income family origins of most teachers.

Discussion about the potential significance of teacher socio-economic origins is reserved for a later section. The data waters should not be muddied at this point with speculation.

EDUCATIONAL BACKGROUND AND RELATED DATA

The amount and kind of education experienced by vocational and academic subject teachers who service vocational students is described broadly in four areas:

- Secondary school education
- College level education
- Non-college, post-secondary school education
- Professional self-development activities

The survey made no attempt to come to grips with the quality of such educational experiences. The aim was to provide a broad base description of basic information about teacher educational experiences, particularly those of T&I program vocational teachers.

Secondary School Education

• The vocational teacher. Table 13 provides a vignette of secondary school data reported by the sample of vocational teachers. About 94 percent graduated from secondary schools. Sixty percent reported they took an academic or general program, 34 percent took a vocational or technical program and 5 percent followed a business or commercial program. Undoubtedly, some of the career interest of many vocational teachers was stimulated by their high school vocational education.

The grade averages reported indicate, as expected, better than average performance. The mean vocational teacher might be described as having been a B student in high school. Participation in extracurricular activities was relatively low. The mean number of such activities reported was 2.1.

A partial glimpse of the geographic mobility of vocational teachers is given by the relationship between their present locations and their high school locations. About 76 percent are now teaching in the same state in which they went to high school. Considering that it has been a mean of 27 years since high school attendance, one can conclude that vocational teachers are more geographically stable than geographically mobile. Only 13 percent are teaching in a different geographic region from that in which they attended secondary school.

The vocational versus comprehensive school. Table 14 provides comparative data on vocational teachers in comprehensive and vocational schools. The percentage of vocational teachers in the two tyres of schools that graduated from secondary school is not significantly different (94.9 vs. 93.1 percent). There is a difference, however, in the types of programs attended. A greater percentage of those in vocational schools reported attending a high school vocational program. It may be that vocational schools have a hiring preference for teachers who have had secondary school vocational education. The study has no data on this conjecture.

TABLE 13. VIGNETTE OF HIGH SCHOOL EDUCATION DATA REPORTED BY T&I VOCATIONAL TEACHERS

T&I VOCATIONAL TEACHER HIGH SCHOOL EDUCATION	UNITED STATES VOCATIONAL TEACHERS		
	N	%/M*	S.D.
Type of High School Course Taken			
•Academic - general	525	59.9	-
•Vocational - technical	299	34.1	-
•Business - commercial	44	5.0	-
•Other than above	9	1.0	-
Graduated from High School	858	94.3	-
Grade Average in High School	818	2.8	0.6
Extracurricular Activities	897	2.1	2.1
High School Location vs. Present Location			
•Same state	680	75.8	-
•Different state, same region	89	9.9	-
•Different region (United States)	116	12.9	-
•Different country	12	1.3	-
Years since High School Attendance	876	27.1	10.6

* Mean values are accompanied by standard deviation (S.D.) values.

There is no significant difference in reported grade averages (2.8 vs. 2.7). Vocational teachers in comprehensive schools report somewhat greater participation in extracurricular activities during their secondary school period than those in vocational schools. This can be explained by the greater percentage of such teachers who pursued an academic program in high school and consequently had greater opportunity for extracurricular activities.

There is no impressive difference in the geographic mobility of vocational teachers in the two types of schools. Nor is there a substantial difference in the mean number of years since high school attendance.

The vocational versus academic teacher. Table 15 provides the comparative data. A greater percentage of academic teachers graduated from secondary school (98 vs. 94 percent). As might be expected, a greater percentage of the academic teachers pursued an academic program in high school (89 vs. 60 percent) and fewer took a vocational program (7 vs. 34 percent). They reported a higher grade average (3.1 vs. 2.8), more participation in extracurricular activities (3.2 vs. 2.1) and fewer years since high school attendance(25.1 vs. 27.1). They also appear to have slightly greater geographic mobility than vocational teachers. About 70 percent are teaching in the same state in which they attended high school versus 76 percent of the vocational teachers. Geographic stability rather than mobility remains

TABLE 14. COMPARATIVE HIGH SCHOOL EDUCATION DATA REPORTED BY T&I VOCATIONAL TEACHERS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

T&I VOCATIONAL TEACHER HIGH SCHOOL EDUCATION	TYPE OF SCHOOL					
	VOCATIONAL			COMPREHENSIVE		
	N	%/M*	S.D.	N	%/M*	S.D.
Type of High School Course Taken						
• Academic - general	333	57.2	-	192	65.1	-
• Vocational - technical	210	36.1	-	89	30.2	-
• Business - commercial	33	5.7	-	11	3.7	-
• Other than above	6	1.0	-	3	1.0	-
Graduated from High School	573	94.9	-	285	93.1	-
Grade Average in High School	542	2.8	0.6	276	2.7	0.6
Extracurricular Activities	594	1.9	1.9	303	2.3	2.4
H. S. Location vs. Present Location						
• Same state	495	76.3	-	223	74.8	-
• Different state, same region	64	10.7	-	25	8.4	-
• Different region (United States)	68	11.4	-	48	16.1	-
• Different country	10	1.7	-	2	0.7	-
Years since High School Attendance	583	27.7	10.2	293	25.8	11.0

* Mean values are accompanied by standard deviation (S.D.) values.

the impressive fact for both kinds of teachers. See Appendix Section 4 for comparative secondary school data on male versus female academic subject teachers.

College Education

The vocational teacher. Table 16 provides the college education data for United States vocational teachers.

• What percent attended college and how have they done in obtaining degrees? About 92 percent reported attending college. No doubt, the high percentage of college attendance reported is attributable to state certification requirements for specified college credit courses. Only 28 and 16 percent respectively obtained the Bachelor's and Master's degree. The majority (56 percent) did not obtain a college degree.

• What were the major courses followed, and the college grade averages reported? Seventy-seven percent reported an education major, with 56 percent specifying vocational education. The true percentage of the latter is undoubtedly greater; 21 percent did not specify the type of education major. Seventeen percent of the vocational teachers reported a non-education college major. Engineering (6 percent) was the predominate major after education. The mean college grade average reported was 2.9

TABLE 15. COMPARATIVE HIGH SCHOOL EDUCATION DATA REPORTED BY T&I VOCATIONAL AND ACADEMIC TEACHERS

HIGH SCHOOL EDUCATION	TYPE OF TEACHER					
	VOCATIONAL			ACADEMIC		
	N	%/M*	S.D.	N	%/M*	S.D.
Type of High School Course Taken						
• Academic - general	525	59.9	-	280	89.2	-
• Vocational - technical	299	34.1	-	22	7.0	-
• Business - commercial	44	5.0	-	12	3.8	-
• Other than above	9	1.0	-	0	0.0	-
Graduated from High School	858	94.3	-	313	98.1	-
Grade Average in High School	818	2.8	0.6	301	3.1	0.6
Extracurricular Activities	897	2.1	2.1	314	3.2	2.2
H. S. Location vs. Present Location						
• Same state	680	75.8	-	225	70.5	-
• Different state, same region	89	9.9	-	39	12.2	-
• Different region (United States)	116	12.9	-	53	16.6	-
• Different country	12	1.3	-	2	0.6	-
Years since High School Attendance	876	27.1	10.6	312	25.1	12.3

* Mean values are accompanied by standard deviation (S.D.) values.

TABLE 16. VIGNETTE OF COLLEGE EDUCATION DATA REPORTED BY T&I VOCATIONAL TEACHERS

T&I VOCATIONAL TEACHER COLLEGE EDUCATION	UNITED STATES VOCATIONAL TEACHERS		
	N	%/M*	S.D.
Reported Attending College	839	92.4	-
College Degrees Reported			
•Masters	134	16.1	-
•Bachelors	229	27.5	-
•None	469	56.4	-
Major Course in College			
•Education, unspecified	175	20.9	-
•Education, vocational	471	56.0	-
•Engineering	50	6.0	-
•Humanities	13	1.5	-
•Social science	27	3.2	-
•Biological science	4	0.5	-
•Physical science	20	2.4	-
•Other than above	23	2.7	-
Grade Average in College	735	2.9	0.5
Extracurricular Activities	763	0.9	1.5
College Location versus Present Location			
•Same state	708	84.4	-
•Different state, same region	55	6.6	-
•Different region (United States)	68	8.1	-
•Different country	2	0.2	-
Years since Last Attendance	765	10.9	11.1

* Mean values are accompanied by standard deviation (S.D.) values.

• What further inferences can be made about vocational teachers' geographic mobility? Eighty-four percent of the vocational teachers are located in the same state in which they attended college. This is further evidence of their geographic stability. Only 8 percent are now in a different geographic region from that in which they attended college. The mean years since college attendance is 11 years, a period sufficient for geographic mobility to be evidenced.

The vocational versus comprehensive school. Table 17 provides comparative college data on vocational teachers in comprehensive and vocational schools. A greater percent of the comprehensive school vocational teachers reported college attendance (96 vs. 91 percent). Moreover, a greater percentage reported college degrees. Almost 22 percent of those in comprehensive schools reported a Master's degree versus 13 percent of those in vocational schools. Also, 31.6 percent of those in comprehensive schools reported a Bachelor's degree versus 25.3 percent of those in vocational schools. One can conclude that vocational teachers in comprehensive schools exhibit substantially greater college education than those in vocational schools. Whether this has any bearing on the quality of teaching in the two types of schools remains to be seen. It is likely that there are stronger influences on vocational teachers in comprehensive schools to complete more college education. The study has no data on this point.

There is also an interesting difference in the type of major college course reported. Almost twice as many vocational teachers in vocational schools reported an engineering or science major as those in comprehensive schools (14.5 vs. 7.7 percent). A greater percentage of those in comprehensive schools reported an education major (84 vs. 73 percent). The data indirectly suggest that engineering and the sciences are potential sources for recruiting vocational teachers. Apparently, among those who have decided against a career in their major field, a percentage find their way into vocational education. An active recruitment effort might increase that percentage.

The vocational versus academic teacher. Table 18 provides the comparison data. As expected, virtually all academic teachers (99.4 percent) report college attendance. Moreover, 52.5 percent report holding a Master's degree versus 16 percent of the vocational teachers. About 48 percent report a Bachelor's degree versus 27 percent of the vocational teachers. Less than 4 percent reported no college degree versus 56 percent of the vocational teachers. There is clearly a large formal education gap between the two types of teachers.

Also as expected, there are very substantial differences in the major college course taken. Only 23.5 percent of the academic teachers surveyed majored in education versus 77.6 percent of the vocational teachers. About 47 percent of the academic teachers majored in humanities or social sciences versus 5 percent of the vocational teachers. Thus, the two types of teachers differ not only in the amount of college education but also the kind of college education pursued.

The two types of teachers do not differ in reported college grade averages, but do differ, understandably, in amount of college extracurricular activity reported. The academic teachers also evidence greater geographic

TABLE 17. COMPARATIVE COLLEGE EDUCATION DATA REPORTED BY T&I VOCATIONAL TEACHERS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

T&I VOCATIONAL TEACHER COLLEGE EDUCATION	TYPE OF SCHOOL					
	VOCATIONAL			COMPREHENSIVE		
	N	%/M*	S.D.	N	%/M*	S.D.
Reported Attending College	543	90.7	-	296	95.8	-
College Degrees Reported						
•Masters	70	13.0	-	64	21.8	-
•Bachelors	136	25.3	-	93	31.6	-
•None	332	61.7	-	137	46.6	-
Major Course in College						
•Education, unspecified	140	25.8	-	35	11.8	-
•Education, vocational	257	47.3	-	214	72.3	-
•Engineering	41	7.6	-	9	3.0	-
•Humanities	9	1.6	-	4	1.4	-
•Social science	19	3.5	-	8	2.7	-
•Biological science	3	0.6	-	1	0.3	-
•Physical science	15	2.8	-	5	1.7	-
•Other than above	15	2.8	-	8	2.7	-
Grade Average in College	466	2.9	0.5	269	2.9	0.5
Extracurricular Activities	488	0.6	1.4	275	1.2	1.7
College Location vs. Present Location						
•Same state	454	83.6	-	254	85.8	-
•Different state, same region	40	7.4	-	15	5.1	-
•Different region (United States)	38	7.0	-	30	10.1	-
•Different country	2	0.4	-	0	0.0	-
Years since Last Attendance	491	11.3	11.6	274	10.1	10.2

* Mean values are accompanied by standard deviation (S.D.) values.

TABLE 18. COMPARATIVE COLLEGE EDUCATION DATA REPORTED BY T&I VOCATIONAL AND ACADEMIC TEACHERS

COLLEGE EDUCATION	TYPE OF TEACHER					
	VOCATIONAL			ACADEMIC		
	N	%/M*	S.D.	N	%/M*	S.D.
Reported Attending College	839	92.4	-	318	99.4	-
College Degrees Reported						
•Masters	134	16.1	-	167	52.5	-
•Bachelors	229	27.5	-	139	43.7	-
•None	469	56.4	-	12	3.8	-
Major Course in College						
•Education, unspecified	175	20.9	-	54	17.2	-
•Education, vocational	471	56.0	-	20	6.3	-
•Engineering	50	6.0	-	6	1.9	-
•Humanities	13	1.5	-	81	25.5	-
•Social science	27	3.2	-	67	21.1	-
•Biological science	4	0.5	-	19	6.0	-
•Physical science	20	2.4	-	29	9.1	-
•Other than above	23	2.7	-	38	11.9	-
Grade Average in College	735	2.9	0.5	303	2.9	0.5
Extracurricular Activities	763	0.9	1.5	308	2.8	2.3
College Location vs. Present Location						
•Same state	708	34.4	-	229	72.0	-
•Different state, same region	55	6.6	-	36	11.3	-
•Different region (United States)	68	8.1	-	52	16.4	-
•Different country	2	0.2	-	2	0.6	-
Years since Last Attendance	765	10.9	11.1	318	18.0	12.5

* Mean values are accompanied by standard deviation (S.D.) values.

mobility. About 28 percent are teaching in a state other than that in which they went to college. The equivalent for vocational teachers was 15 percent.

There is a substantial difference in years since the last college course was attended. Vocational teachers attended their last course about eleven years ago versus twenty-five years for the academic teachers. The difference is explained by the general practice of vocational teachers to attend college courses later in life to meet requirements for certification. Most have spent the years between high school attendance and teaching at work in the fields related to their vocational specialty.

Non-college, Post-secondary School Education and Training

There are a great many sources of education and training other than colleges that may contribute to a teacher's total education. Some such sources include post-secondary vocational schools, apprenticeship programs, company training programs, military specialist schools, correspondence courses and adult evening courses of various kinds. The study attempted to determine how much and what kinds of such non-college education or training occurred among teachers.

• The T&I vocational teacher. Table 19 provides the basic data about his non-college, post-secondary school education or training.

What percent reported having taken a non-college, post-secondary school course of study? About 69 percent reported at least one non-college course of study. Considering that a mean of 27 years has passed since secondary school attendance, the 69 percent seems low. It is possible that the value obtained is spuriously low because an unknown percentage of the questionnaire respondents may have been overcome by pencil inertia.

What were the types of non-college, post-secondary school sources attended? About 30.3 percent of the teachers reported attending a post-secondary school vocational course of some type and about 30.9 percent reported attending a military specialist school. (These and the other percentages shown in Table 19 are not mutually exclusive.)

Only 8 percent reported attending an appreticeship program, whereas 9.6 percent reported attending a company course of some type. Again, it should be pointed out that these percentages may be spuriously low as a result of the teacher respondents failing to list all of the different types of non-college, post-secondary school education and training experienced.

How much of such education or training do vocational teachers report? The how much question can be answered in several ways, i.e. the number of courses of study attended and completed and also the duration in months of such course attendance.

The average T&I vocational teacher has taken 2.4 such courses of study since leaving secondary school or 1.1 course per ten years. While that is not an impressively large number of such educational experienced, the course completion rate is excellent. About 93 percent of the courses of study attended were also completed.

TABLE 19. VIGNETTE OF POST-HIGH SCHOOL, NON-COLLEGE EDUCATION DATA REPORTED BY T&I VOCATIONAL TEACHERS

VOCATIONAL TEACHER POST-HIGH SCHOOL, NON-COLLEGE EDUCATION	UNITED STATES VOCATIONAL TEACHERS		
	N	%/M*	S.D.
Reported Post-H. S., Non-College Education	633	69.8	-
Type of Such Education Reported			
•Vocational trade/technical school	279	30.3	-
•Business/commercial	38	4.1	-
•Apprenticeship program	74	8.0	-
•Military service school	285	30.9	-
•Correspondence courses	54	5.9	-
•Company training course	88	9.6	-
•Other than above	122	13.2	-
No. of Such Courses Taken	622	2.4	1.9
No. Taken per 10 Years since H. S.	600	1.1	1.7
No. of Such Courses Completed	564	2.1	1.7
No. Completed per 10 Years since H. S.	545	1.0	1.5
Months of Study Involved	387	25.7	33.2
Months Involved per Year since H. S.	375	1.1	1.4
Non-College Education Index	564	4.4	3.3
Percent of Completed Courses	563	93.3	21.0

* Mean values are accompanied by standard deviation (S.D.) values.

The average number of months of study involved was 25.7 or about one month per year since leaving secondary school. It is safe to assume that for most teachers the period involved in such study came fairly early after leaving secondary school. That is when they were most likely to have attended vocational courses, military specialist schools and apprenticeship programs.

Thus, the T&I teacher's post-high school, non-college education can be summarized by saying that he has had about two courses, involving about two years of study which usually came soon after leaving high school and were attended to completion.

The vocational versus comprehensive school. The issue is whether the vocational teachers in comprehensive schools show a different pattern of post-secondary school, non-college studies than those in vocational schools. Table 20 provides the comparative data.

TABLE 20. COMPARATIVE POST-HIGH SCHOOL, NON-COLLEGE EDUCATION DATA REPORTED BY T&I TEACHERS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

VOCATIONAL TEACHER POST-HIGH SCHOOL, NON-COLLEGE EDUCATION	TYPE OF SCHOOL					
	VOCATIONAL			COMPREHENSIVE		
	N	%/M*	S.D.	N	%/M*	S.D.
Reported Post-H. S., Non-College Education	427	71.3	-	206	66.9	-
Type of Such Education Reported						
•Vocational trade/technical school	192	31.6	-	87	27.8	-
•Business/commercial	29	4.8	-	9	2.9	-
•Apprenticeship program	44	7.2	-	30	9.6	-
•Military service school	189	31.1	-	96	30.7	-
•Correspondence courses	36	5.9	-	18	5.8	-
•Company training course	57	9.4	-	31	9.9	-
•Other than above	94	15.4	-	28	8.9	-
No. of Such Courses Taken	415	2.4	1.8	207	2.4	2.3
No. Taken per 10 Years since H. S.	405	1.1	1.5	195	1.2	2.0
No. of Such Courses Completed	379	2.2	1.8	185	2.0	1.4
No. Completed per 10 Years since H. S.	370	1.0	1.5	175	1.0	1.3
Months of Study Involved	258	24.4	26.9	129	28.4	43.1
Months Involved per Year since H. S.	254	1.1	1.3	121	1.1	1.6
Non-College Education Index	379	4.5	3.5	185	4.1	2.8
Percent of Completed Courses	378	93.3	20.1	185	93.4	22.9

* Mean values are accompanied by standard deviation (S.D.) values.

The vocational teachers in vocational schools reported a higher percentage of such studies than their counterparts in comprehensive schools. The difference, however, is not substantial (71.3 vs. 66.9 percent).

There are no substantial differences in the percentages of different types of post-secondary school, non-college studies reported by the teachers in the two types of schools.

Based upon those who reported taking some type of post-secondary school, non-college course, there are no impressive differences between vocational and comprehensive school vocational teachers in either number of such courses taken or months of study involved in such courses. Moreover, their course completion performance is about the same, a high 93 percent. Thus, the vocational teachers from comprehensive and vocational schools are

very much alike in terms of type and amount of post-high school, non-college educational and training experiences. What slight differences there are do not warrant any conclusions favoring either type of school.

The vocational versus academic teacher. Do vocational teachers show a different pattern of post-secondary school, non-college studies than academic subject teachers? Table 21 provides the data.

About 70 percent of the vocational teachers report some type of such education or training, versus 36 percent of the academic teachers. The difference is the result of a much larger percentage of the latter who pursue college-level studies after graduation from secondary schools.

Of the two types of teachers who do report some such education, there are significant differences in the kind of such education reported. Only 56 percent of the academic teachers reported attending a vocational school course versus 30 percent of the vocational teachers.

TABLE 21. COMPARATIVE POST-HIGH SCHOOL, NON-COLLEGE EDUCATION DATA REPORTED BY T&I VOCATIONAL AND ACADEMIC TEACHERS

POST-HIGH SCHOOL, NON-COLLEGE EDUCATION	TYPE OF TEACHER					
	VOCATIONAL			ACADEMIC		
	N	%/M*	S.D.	N	%/M*	S.D.
Reported Post-H. S., Non-College Education	633	69.8	-	115	36.2	-
Type of Such Education Reported						
•Vocational trade/technical school	279	30.3	-	18	5.6	-
•Business/commercial	38	4.1	-	3	0.9	-
•Apprenticeship program	74	8.0	-	3	0.9	-
•Military service school	285	30.9	-	61	18.9	-
•Correspondence courses	54	5.9	-	8	2.5	-
•Company training course	88	9.6	-	8	2.5	-
•Other than above	122	13.2	-	36	11.2	-
No. of Such Courses Taken	622	2.4	1.9	110	1.8	1.9
No. Taken per 10 Years since H. S.	600	1.1	1.7	107	1.0	2.0
No. of Such Courses Completed	564	2.1	1.7	99	1.6	1.3
No. Completed per 10 Years since H. S.	545	1.0	1.5	95	0.7	0.6
Months of Study Involved	387	25.7	33.2	83	11.5	16.5
Months Involved per Year since H. S.	375	1.1	1.4	79	0.4	0.7
Non-College Education Index	564	4.4	3.3	99	3.4	3.3
Percent of Completed Courses	563	93.3	21.0	99	90.2	27.3

* Mean values are accompanied by standard deviation (S.D.) values.

The two types of teachers also differ in the number of such courses taken and the number of months involved in such studies. Vocational teachers reported greater involvement in non-college courses, as one might expect. Non-college courses, excluding military specialist school attendance, do not play a significant role in the education of academic subject teachers who service vocational students.

Consult Appendix Section 4, for comparative post-secondary school, non-college education data on male versus female academic subject teachers. When one excludes teacher workshops, female academic teachers are virtually uninvolved in any type of non-college course of study after high school completion.

Professional Self-development Activities in Year 1963-1964

The teachers were asked to indicate attendance or non-attendance in eight types of self-development activities during the school year 1963-1964. It was felt that a report on such activities in a specific and current school year would tell the story about such activities in most years.

•What percentages of T&I vocational teachers reported involvement in the listed types of self-development activities? Table 22 provides the data.

Assuming what was reported is correct, the vocational teacher is heavily involved in self-development activities of one kind or another. About 91 percent report regular reading of books and periodicals related to their vocational field. Sixty-nine percent reported attendance of a teacher workshop. About 53 percent reported working part-time in their vocational field, an activity which keeps them abreast with changes in their field. As shown in Table 22, impressive percentages reported participation in all listed types of self-development activity, excluding correspondence courses. The mean number of such activities reported was 3.7 for T&I vocational teachers.

TABLE 22. TYPE OF SELF-DEVELOPMENT ACTIVITIES REPORTED FOR A RECENT YEAR BY T&I VOCATIONAL TEACHERS

TYPE OF SELF-DEVELOPMENT ACTIVITY	VOCATIONAL TEACHERS	
	N	%
Evening school course	342	37.8
Correspondence course	46	5.1
Self-organized home-study	328	36.3
College-level summer course	286	31.6
Read books and periodicals	830	91.4
School-organized development programs	357	39.5
Teacher conferences or workshops	625	69.2

•How do vocational and comprehensive schools compare in terms of the professional self-development activities reported by their vocational teachers? Table 23 provides the data.

TABLE 23. COMPARATIVE DATA ON SELF-DEVELOPMENT ACTIVITIES REPORTED BY T&I VOCATIONAL TEACHERS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPE OF SELF-DEVELOPMENT ACTIVITY	TYPE OF SCHOOL			
	VOCATIONAL		COMPREHENSIVE	
	N	%	N	%
Evening school course	209	35.1	133	43.0
Correspondence course	28	4.7	18	5.8
Self-organized home-study	212	35.6	116	37.7
College-level summer course	173	29.0	113	36.6
Read books and periodicals	540	90.2	290	93.9
School-organized development programs	202	34.0	155	50.2
Teacher conferences or workshops	385	64.8	240	77.7

A substantially higher percentage of the comprehensive school vocational teachers reported attending teacher workshops (78 vs. 65 percent), school organized teacher development programs other than workshops (50 vs. 34 percent), evening school attendance (43 vs. 35 percent) and summer college level courses (37 vs. 29 percent). Even where the differences are not significant, they favor the comprehensive school teachers. Thus, it seems reasonable to conclude that teacher self-development activities are more heavily stressed in the comprehensive schools than in the vocational schools.

•How do vocational and academic teachers compare in terms of reported self-development activities? Table 24 provides the data.

Vocational teachers reported a greater percentage of the following activities:

- •Evening school attendance (38 vs. 24 percent)
- •Self-organized home-study (36 vs. 27 percent)
- •Reading of books and periodicals (91 vs. 60 percent)

Perhaps the academic teachers saturated their educational needs in college.

The differences that favored academic teachers were generally small. Thus, it is reasonable to conclude that vocational teachers are more heavily involved in self-development activities. The mean number of the listed activities reported by vocational teachers was 3.7 vs. 2.8 for academic subject teachers.

TABLE 24. COMPARATIVE SELF-DEVELOPMENT ACTIVITY DATA REPORTED BY T&I VOCATIONAL AND ACADEMIC TEACHERS

TYPE OF SELF-DEVELOPMENT ACTIVITY	TYPE OF TEACHER			
	VOCATIONAL		ACADEMIC	
	N	%	N	%
Evening school course	342	37.8	75	23.7
Correspondence course	46	5.1	13	4.1
Self-organized home-study	328	36.3	85	26.9
College-level summer course	286	31.6	104	32.9
Read books and periodicals	830	91.4	188	59.5
School-organized development programs	357	39.5	121	38.3
Teacher conferences or workshops	625	69.2	232	73.7

OCCUPATIONAL BACKGROUND AND RELATED DATA

The teaching and non-teaching employment history of vocational teachers is of interest because it tells something about their experience and qualifications for teaching. The employment history variables may also be related to the occupational outcomes experienced by the graduates of the teachers surveyed. Data on this possibility is presented at the end of this chapter.

Teaching Employment History of T&I Vocational Teachers

•What is the teaching employment history of T&I vocational teachers? Table 25 provides data on a number of variables related to teaching experience. The variables will be discussed in the order that they appear in the table.

First, the concept of employable time needs explanation. Employable time refers to the total years a teacher was available for full-time employment from the year he left school to the year of the survey. Excluded are periods of unavailability for work because of military service or disability. Employable time is a useful benchmark against which to express time spent in certain types of employment, e.g. a teacher's years of experience in teaching can also be expressed as a percentage of his total employable time. Table 25 indicates that T&I vocational teachers had an average of 18 years of employable time. (See Appendix Section 4 for distribution data on this variable.)

TABLE 25. THE TEACHING EMPLOYMENT HISTORY OF T&I VOCATIONAL TEACHERS

TEACHING EMPLOYMENT HISTORY VARIABLES	UNITED STATES VOCATIONAL TEACHERS		
	N	MEAN	S.D.
Total employable time	890	18.5	9.8
Years experience vocational teacher	886	12.1	9.1
(% of total employed years)	886	64.2	32.0
Present subject experience	900	11.3	8.6
Number vocational subjects taught	889	1.5	2.0
Number teaching positions held	871	1.6	1.0
Years at present school	886	10.4	8.1
Number cities in which employed	901	1.4	0.8
Number states in which employed	903	1.1	0.3

Years of experience as a vocational teacher. The T&I teacher has had a mean 12.1 years of experience as a vocational teacher. However, the individual differences cover the entire range of employment years. About 29 percent of the teachers have had five years or less of experience as vocational teachers. Another 24 percent have had between six and ten years of experience. At the top extreme, about 5 percent have had thirty-one years or more in vocational subject teaching.

The school differences in mean years of vocational teaching experience are considerable. In 8 percent of the schools, the mean years of such experience for all vocational teachers was under six years, whereas in 4 percent of the schools the mean years of experience was above twenty years. The other 88 percent of the schools were distributed between these two extremes. Clearly, schools, like teachers, range from low to high in terms of the mean years of experience in vocational teaching. Whether this has any bearing on the quality of teaching that characterizes schools remains to be determined. Also to be determined is whether such individual differences are related to the post-school occupational outcomes experienced by their graduates. (Distribution data for teachers and schools is presented in Appendix Section 4.)

Percentage of employable time spent in vocational teaching. The average T&I vocational teacher has spent about 64 percent of his employable years as a vocational teacher. Thus, while he has spent more time as a teacher than a non-teacher, about a third of his employed years have been in non-teaching occupations. The percent of time spent as a vocational teacher ranges from 4 to 100 percent for individual teachers. About one-third of all T&I teachers have spent 91 percent or more of their employable time in vocational teaching. Clearly, teaching is their predominant experience. At the other extreme, about 20 percent of the teachers have spent less than 30 percent of their employable time as teachers. Their predominant experience is still the non-teaching employment which invariably precedes entry into the vocational teaching field.

When school means are calculated from the teacher data, considerable school differences are demonstrated. In some schools, almost all teachers have spent 90 percent or more of their employable time in vocational teaching. Other schools have a relatively low mean percentage of teacher employable time spent in teaching. (Consult Appendix Section 4 for teacher and school distribution data on this variable.)

Years of experience in present vocational subject. The average T&I vocational teacher has spent 11.3 of his 12.1 years as a teacher teaching his present major subject. Essentially he is a one-subject teacher. (More will be said about that later.)

As would be expected, the individual differences range over almost the entire normal working life of individuals. At one extreme were teachers who had but one year or so of teaching experience. At the other, there were those with almost 35 years of experience in their major subject. The bulk of the distribution was toward the lower end. About 30 percent of the T&I teachers had five years or less of teaching experience in their vocational subject.

School means based upon teacher years of experience in their present major subject indicated considerable individual school differences. About 10 percent of the schools had a mean present subject teacher experience of less than five years. In other words, all of their teachers had relatively few years of experience in their present subject. A few schools had mean values in excess of twenty years on this variable. They were loaded with experience, perhaps even to the point of being mossy with experience. How do such extreme differences influence the vocational outcomes experienced by the graduates of these teachers? A later section provides the answer.

Consult Appendix Section 4 for teacher and school distribution data on this variable.

Number of different vocational subjects taught. The mean number of vocational subjects taught by T&I teachers is 1.5. That confirms the earlier statement that T&I teachers are essentially one-subject teachers.

About 71 percent of the teachers have taught only one vocational subject. Another 18 percent have taught two vocational subjects. That leaves about 10 percent who claim they have taught more than two vocational subjects. At first glance, this would seem to suggest that lack of subject flexibility is a necessary characteristic of vocational education. However, the fact that 29 percent have taught more than one vocational subject is very impressive. One factor that understandably makes for lack of flexibility in course offerings is the personnel problem that would be encountered if a course no longer needed by local manpower requirements were to be dropped. What does one do with the teacher, especially one that has accumulated many years of service? It would aid course offering flexibility and perhaps increase the number of course offerings in any one school year if teachers acquired the ability to teach more than one type of course. The fact that so many demonstrate this capability is a feasibility argument.

Consult Appendix Section 4 for teacher and school distribution data on this variable.

Number of teaching positions held. The mean number of teaching positions held by T&I teachers is 1.6. It is clear that vocational teachers tend to stay in the school in which they start their careers. About 64 percent reported holding only one teaching position (school) in their careers. With the mean years of vocational teaching experience at 12.1 for all vocational teachers, the school stability of T&I vocational teachers is apparent. Less than 15 percent have held teaching positions in more than two school systems. If the policies and practices of school systems mold and shape teacher educational philosophies, one would have to conclude that most teachers have the imprint of a single school system.

Consult Appendix Section 4 for distribution data on this variable.

Years at present school. The average T&I vocational teacher has 10.4 years at his present school. This is a truncated figure, and does represent how long teachers will stay at a given school. Even so, 10.4 years suggests considerable stability. No one is even likely to accuse T&I teachers of being school hoppers. They tend to stay put.

A little more than a fourth of all T&I vocational teachers have been with their present school for 17 or more years.

School differences on this variable are considerable. Some schools have a relatively high seniority group of teachers, e.g. 7 percent of the schools had mean teacher years in the present school of 15 or more years. Clearly, there has been very little change in vocational teacher personnel in such schools. Other schools have a relatively low seniority among their teachers, e.g. 9 percent had mean teacher years in the present school of 4 years or less. There is either a lot of turnover in these schools or they are relatively new schools. (About 24 of the 100 schools surveyed were less than ten years old; 7 were less than five years old.) Distribution data for teachers and schools on this variable is presented in Appendix Section 4.

Number of cities and states in which employed as teachers. The mean values presented in Table 25 suggest little geographic mobility, and that is the case. About 93 percent have been employed as teachers in only one state, that in which they are presently employed. Another 6 percent have been employed in two states. Considering their mean of 12 years of teaching experience, and their range of such experience up to 45 years, it is fair to conclude that there is little geographic mobility among T&I vocational teachers. It can be mentioned in passing that there is the same lack of geographic mobility among their graduates. The latter are surrounded by a socio-economic strata that is essentially geographically stable rather than mobile. That includes parents, peers and teachers. Considering the influences of such associations, it is not surprising that the vocational graduates also tend to stay in their school communities.

The data suggest a little more movement within states. About 79 percent of the T&I teachers have been employed in one city only. An additional 13 percent reported employment as a teacher in two cities. That leaves about 8 percent who have been employed as a teacher in more than two cities. The data further substantiates the stability of the T&I vocational teacher.

Consult Appendix Section 4 for distribution data on these two variables.

- How do T&I teachers in vocational and comprehensive schools compare in terms of teaching history variables? Table 26 presents the data.

The differences are less impressive than the similarities. Those in vocational schools have had on an average about a year more experience in vocational teaching in general, and about a year and a half more experience teaching their present subject. They also have been on the average a year longer at their present school. There are no differences in number of vocational subjects taught, teaching jobs held or number of cities and states in which employed. Once again, potential differences between the two types of schools failed to materialize in any substantial magnitude.

- How do T&I vocational teachers and academic subject teachers compare in terms of selected teaching history variables? Table 27 presents the data.

TABLE 26. COMPARATIVE DATA ON TEACHING EMPLOYMENT HISTORY VARIABLES FOR T&I VOCATIONAL TEACHERS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TEACHING EMPLOYMENT HISTORY VARIABLES	TYPE OF SCHOOL					
	VOCATIONAL			COMPREHENSIVE		
	N	MEAN	S.D.	N	MEAN	S.D.
Total employment time	574	19.1	9.8	296	17.4	9.8
Years experience vocational teacher	586	12.7	9.0	300	11.5	9.5
(% of total employed years)	586	64.5	31.5	300	63.7	32.8
Present subject experience	595	11.8	8.6	305	10.4	8.6
Number vocational subjects taught	589	1.7	1.1	300	1.6	1.0
Number teaching positions held	586	1.5	0.9	285	1.6	0.9
Years at present school	586	10.8	8.2	300	9.7	8.0
Number cities in which employed	600	1.3	0.8	301	1.4	0.8
Number states in which employed	602	1.1	0.3	301	1.1	0.4

TABLE 27. COMPARATIVE DATA ON TEACHING EMPLOYMENT HISTORY VARIABLES FOR T&I VOCATIONAL AND ACADEMIC TEACHERS

TEACHING EMPLOYMENT HISTORY VARIABLES	TYPE OF TEACHER					
	VOCATIONAL			ACADEMIC		
	N	MEAN	S.D.	N	MEAN	S.D.
Total employable time	890	18.5	9.8	307	15.2	10.9
Years experience as a teacher	886	12.3	9.2	307	13.6	10.6
(% of total employed years)	886	64.2	32.0	307	84.9	24.5
Present subject experience	900	11.3	8.6	315	11.1	9.4
Number of subjects taught	889	1.5	2.0	294	2.5	2.8
Number teaching positions held	871	1.6	1.0	265	2.6	1.5
Years at present school	886	10.4	8.1	307	9.3	8.4
Number cities in which employed	901	1.4	0.8	298	2.1	1.5
Number states in which employed	903	1.1	0.3	297	1.3	0.8

Vocational teachers have an average of about three years more employable time than academic teachers. The latter, however, have spent more years in the teaching profession. Relatively few of their employable time years were spent in non-teaching employment. They have spent about 85 percent of their employable time as teachers (versus 64 percent for the T&I teachers). The difference is of interest for two reasons: One, the vocational student is not likely to learn much about the world of work outside of schools from his academic subject teachers because most of their world of work has been within schools. Second, those who become counselors of vocational students by the route of having been academic subject teachers are not likely to have a grasp of the non-teaching world of work for the same reason.

The average academic teacher has taught 2.5 different academic subjects versus the 1.5 for vocational teachers. Considering the nature of subject-matters involved, this is understandable.

The average academic teacher has also held more teaching jobs, i.e. taught in more schools than his vocational counterpart. As this would suggest, he has also taught in more different cities and states, but the overall picture is still one of stability rather than mobility. He has spent a mean of 9.3 years in his present position versus 10.4 years for the vocational teacher. Seventy-eight percent of the academic teachers have taught in one city only. An additional 22 percent have taught in cities other than the one in which they now teach.

Like the vocational teacher, the academic teacher has spent most of his teaching experience in his present major subject. Of his average 13.6 years of experience as a teacher, a mean of 11.1 years was spent teaching his present major subject.

For comparative data on male and female academic teachers, consult Appendix Section 4. There are substantial sex differences in academic teacher employment history.

Non-teaching Employment History of T&I Vocational Teachers

•What is the non-teaching employment background of T&I vocational teachers? Table 28 provides data on a number of variables describing experience in non-teaching employment.

Years of non-teaching employment. The average T&I teacher has spent 7.3 years in non-teaching work. About 25 percent have spent 5 years or less in such work and at the other end of the distribution about 9 percent spent more than 20 years in non-teaching employment. Excluded from this data is non-teaching employment during the summer months of the school year or part-time employment during the school year. With the exception of a small percentage of teachers who left teaching only to return after a period of non-teaching employment, the years of non-teaching employment came before the teacher had entered the teaching profession. That being so, it is clear that many vocational teachers enter the field after many years of non-teaching work. (See Appendix Section 4 for distribution data on this variable.)

TABLE 28. THE NON-TEACHING EMPLOYMENT HISTORY OF T&I VOCATIONAL TEACHERS

NON-TEACHING EMPLOYMENT HISTORY VARIABLES	UNITED STATES VOCATIONAL TEACHERS		
	N	MEAN	S.D.
Years non-teaching experience	871	7.3	7.5
(% of total employed years)	842	36.8	31.4
Years experience occupation now teaching	871	4.6	6.3
(% of total employed years)	842	30.4	28.6
Years experience related occupation	871	1.3	3.9
(% of total employed years)	842	6.7	17.5
Years experience non-related occupation	871	1.2	3.2
(% of total employed years)	842	6.3	14.5
Number of non-teaching positions	886	3.3	1.9
Mean duration non-teaching jobs	792	3.5	4.5

Percent of employable time in non-teaching work. The average T&I teacher has spent about 37 percent of his total employable time as of the survey date in non-teaching work. The percentage declines, of cou e, with increased years in the teaching profession. About 26 percent spent l ss than 20 percent of their employable time in non-teaching. These had many years of teaching service. The significance of the mean percentage is that it tells us that T&I teachers at the time of the survey spent almost half of their working lives in occupations other than teaching. They are experienced with the world of work outside of schools, a.d are more qualified in this respect to counsel vocational and would-be vocational students than the majority of comprehensive school counselors that do not have such experience. (See Appendix 4 for the distribution data on this variable.)

Years experience in the occupation they are now teaching. Not all of their non-teaching employment has been in the field of the occupation they are now teaching. The average T&I teacher spent about 4.6 years in the occupation he is now teaching before becoming a vocational teacher.

The distribution data is shown in Table 29. The experience ranges from zero to above thirty years. About 9 percent of the teachers never held a full-time job in the occupation they now teach. These teachers came mainly from an industrial arts background or from specialist work in the military services. As for the balance, 27 percent had five years or less of full-time job experience in the occupation they now teach; 28 percent had six to ten years experience inclusively; and 36 percent had more than ten years experience in the field they are now teaching. On the whole, the experience picture is impressive. The majority of T&I teachers have spent more than a sufficient number of years at work in the occupation they now teach to become intimately acquainted with the work involved.

TABLE 29. DISTRIBUTION DATA FOR YEARS OF NON-TEACHING EXPERIENCE IN THE OCCUPATION NOW TEACHING FOR VOCATIONAL TEACHERS AND THEIR SCHOOLS

YEARS CLASS INTERVALS	EXPERIENCE (OCCUPATION TEACHING)					
	TEACHERS			SCHOOLS		
	N	%	C%	N	%	C%
30	1	0.1	100.0	0	0.0	-
26 - 30	8	0.9	99.9	0	0.0	-
21 - 25	20	2.3	99.0	1	1.0	100.0
16 - 20	83	9.5	96.7	0	0.0	99.0
11 - 15	205	23.5	87.2	4	4.0	99.0
6 - 10	242	27.8	63.7	30	30.0	95.0
1 - 5	233	26.8	35.9	60	60.0	65.0
0	79	9.1	9.1	5	5.0	5.0
NUMBER	871			100		
MEAN	4.6			4.4		
MEDIAN	6			4		
S.D.	6.3			4.6		

What is not so favorable is the finding that five percent of the schools had not one teacher who had ever held a full-time job in the occupation that he was now teaching. These were schools with fewer than three teachers. However, the finding has significance because the present study included only schools with three or more courses. The majority of schools in the United States at the time offered less than two T&I courses. One wonders what the occupational experience of T&I teachers is like in such schools.

Years of experience in an occupation related to the one they are now teaching. Some of the T&I teachers' non-teaching experience has been in occupations related to the one he is now teaching. The average T&I teacher had about 1.3 years of such experience. Individual differences vary widely. About 83 percent had no such experience. Another 9 percent had between one and five years of such experience. It is clear the experience in occupations related to the one now being taught is not a major experience source for T&I vocational teachers. For distribution data on this variable, consult Appendix Section 4.

Years of experience in occupations unrelated to the ones they are now teaching. The average T&I teacher has spent 1.2 years in non-teaching occupations unrelated to the occupation he is now teaching. Such experience is not without benefit to the students of T&I teachers because it represents a further experience in the non-teaching world of work.

About 6 percent of the employable time of T&I teachers was spent in non-related occupations. In years, the amount of such experience ranged from zero to above twenty years. About 67 percent had no such experience.

Another 23 percent had five years or less of experience in unrelated occupations. Again, one can conclude that experience in occupations unrelated to the one now being taught by T&I vocational teachers is not a major source of non-teaching employment experience. (See Appendix Section 4 for distribution data on this variable.)

Number of full-time, non-teaching jobs held and the average duration (in years) of such jobs. The T&I teacher has held an average of 3.3 full-time, non-teaching jobs and each such job lasted an average of 3.5 years. Thus, he has had considerable multi-job or multi-employer experience, and such experiences involved several years on the average, long enough to permit the benefits of a long and close association.

The individual differences are considerable on these two variables. The number of jobs held ranged from zero (7 percent) to ten (1 percent) with 40 percent reporting more than four full-time, non-teaching jobs. Similarly, job durations ranged from less than one year to eighteen years. Consult Appendix Section 4 for distribution data on these variables.

•How do vocational and comprehensive school T&I vocational teachers compare in terms of non-teaching employment history? Table 30 provides the data.

TABLE 30. COMPARATIVE DATA ON NON-TEACHING EMPLOYMENT HISTORY VARIABLES FOR T&I VOCATIONAL TEACHERS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

NON-TEACHING EMPLOYMENT HISTORY VARIABLES	TYPE OF SCHOOL					
	VOCATIONAL			COMPREHENSIVE		
	N	MEAN	S.D.	N	MEAN	S.D.
Years non-teaching experience	586	7.5	7.7	285	7.0	7.1
(% of total employed years)	565	35.9	31.1	277	38.6	32.0
Years experience occupation now teaching	586	5.0	6.5	285	4.0	6.0
(% of total employed years)	565	24.7	28.8	277	21.4	28.0
Years experience related occupation	586	1.3	4.0	285	1.5	3.7
(% of total employed years)	565	5.6	15.5	277	9.2	20.8
Years experience non-related occupation	586	1.1	3.1	285	1.4	3.4
(% of total employed years)	565	5.5	13.3	277	7.9	16.5
Number of non-teaching positions	595	3.4	2.1	291	3.2	1.9
Mean duration teaching jobs	552	3.6	4.6	255	3.3	4.4

The vocational school T&I teachers have had more years of non-teaching employment (10.3 vs. 8.9) and more years experience in the occupation they are now teaching (6.9 vs. 5.1) than the comprehensive school T&I vocational teachers.

There are no significant differences in the number of non-teaching jobs held, the mean duration (in years) of such jobs, the years of experience in related occupations or the years of experience in non-related occupations.

Thus, once again the potential differences between the two types of schools fail to materialize. None of the differences in T&I vocational teacher non-teaching employment history are of a magnitude that one would want to conclude that one or the other type of school has great experience advantage.

•How do vocational and academic teachers compare in terms of (1) years of experience in non-teaching employment, (2) number of full-time non-teaching jobs held and (3) the mean duration (in years) of such jobs? Table 31 provides the data.

The vocational teachers have had much more experience in the non-teaching world of work (7.3 vs. 1.2 years). About 60 percent of the academic teachers have had zero years of non-teaching employment experience. It is clear that the majority have relatively little direct experience with non-teaching employment. This would seem to diminish their value as vocational guidance counselors, unless one is willing to accept a bookish substitute for direct experience. The lack of experience that academic subject teachers have had in the non-teaching world of work should be taken into consideration when administrators assign vocational guidance responsibilities to such teachers.

TABLE 31. COMPARATIVE DATA ON NON-TEACHING EMPLOYMENT HISTORY VARIABLES FOR MALE VOCATIONAL AND ACADEMIC TEACHERS

NON-TEACHING EMPLOYMENT HISTORY VARIABLES	TYPE OF TEACHER					
	VOCATIONAL			ACADEMIC		
	N	MEAN	S.D.	N	MEAN	S.D.
Years non-teaching experience	871	7.3	7.5	219	1.2	1.0
(% of total employed years)	842	36.8	31.4	219	15.5	24.4
Number of non-teaching positions	886	3.3	1.9	123	2.4	1.9
Mean duration non-teaching jobs	792	3.5	4.5	103	2.6	2.8

SUMMER AND PART-TIME EMPLOYMENT

What T&I teachers do in the way of summer and part-time employment is of interest for two reasons. One, there is the question of whether such employment keeps them in touch with their occupational field. If it does, this would be an important bridge in the gap between their teaching profession and their occupational subject. It would be a basis for keeping abreast with changes in their occupational field and maintaining association with those in the field. Two, there was the question of how much of the teacher's annual teaching income is supplemented by summer and part-time employment.

Summer Employment

The T&I teachers indicated for each of the past five summers whether they were employed; and if so, the type of employment, the hours worked per week, the weeks worked per summer and their average weekly income. Unless otherwise noted, the data which follows is based only on teachers with six years or more in the teaching field because only these could give a five year picture of what teachers do in the summer.

- Of five summers opportunity to work, what is the number of summers T&I teachers have been employed in teaching, non-teaching or a combination of teaching and non-teaching? Table 32 provides the data.

How many summers in the past five were spent teaching? About 86 percent of the teachers spent zero summers in the past five years teaching. That tells the story. The great majority of T&I teachers do not teach in the summer periods. Less than three percent spent each of the five summers employed as teachers.

How many summers in the past five years were spent in non-teaching employment? Here a different picture emerges. Only 40 percent had no such employment in the five summer period surveyed. Another 40 percent were employed in non-teaching work for four or five of the five summers. Another 15 percent were so employed for two or three of the five summers. Despite the greater summertime employment in non-teaching work, the percent who have not worked in non-teaching occupations is impressive.

How many summers were spent in any kind of work? About 29 percent of the T&I teachers were not employed in any type of full-time work in any of the five summers. Whether such unemployment was voluntary or involuntary, the study did not determine. About 50 percent of the T&I vocational teachers held jobs in four or five out of the past five summers. It appears that the majority of vocational teachers seek and obtain summer employment, although not all that seek such work are employed every summer.

TABLE 32. DISTRIBUTION OF NUMBER OF SUMMERS WORKED IN A FIVE YEAR PERIOD ACCORDING TO TYPE OF WORK DONE

NUMBER OF SUMMERS WORKED IN PAST 5 YEARS *	TEACHING		NON- EACHING		ANY TYPE OF WORK	
	N	%	N	%	N	%
5	14	2.6	158	29.4	206	38.3
4	13	2.4	56	10.4	68	12.6
3	11	2.0	36	6.7	36	6.7
2	17	3.2	42	7.8	41	7.6
1	22	4.1	32	5.9	29	5.4
0	461	85.7	214	39.8	158	29.4
NUMBER	538		538		538	
MEAN	0.4		2.3		2.8	
MEDIAN	0		2		3	
S.D.	1.1		2.2		2.1	

* Based on teachers with $\geq$ 6 years teaching experience

•For each of five years, what is the summer employment picture for T&I teachers? What trends are indicated? Table 33 provides the data. All percentages are based upon the total number of T&I teachers unless otherwise specified.

Employment and type of employment. The percentage of teachers employed each summer ranged from a low of 54 to a high of 58 percent, with a five summer average of 57 percent. Thus, a slight majority of the teachers are employed each summer.

The percent employed in teaching each summer ranged from 7.8 to 12.2 percent with a five summer average of 9.5 percent. There appears to be a trend of a slightly increasing percentage of teachers employed in summertime teaching. Even so, it is a small minority of T&I teachers who work as teachers during the summer period. If expressed as a percentage of all teachers who work in the summer, the percent who teach ranges from 11.4 in 1959 to 19.6 in 1963. Those who do teach in the summer teach mostly the same vocational subject that they teach in the regular school year.

The percent employed in non-teaching each summer ranged from 42 to 49 percent, with a five year summer average of 48 percent. When expressed as a percentage of all T&I teachers who work in the summer period, the percentage employed in non-teaching jumps to a range from 75 to 84 percent. Here again there is a trend. A decreasing percentage of teachers are employed in non-teaching jobs in the summer. The drop is slight, but it may reflect a preference for teaching work where such work is available in the summer.

TABLE 33. SUMMERTIME EMPLOYMENT VARIABLES FOR EACH OF FIVE SUCCESSIVE SUMMERS FOR T&I VOCATIONAL TEACHERS

SUMMERTIME EMPLOYMENT HISTORY VARIABLES **	1963			1962			1961			1960			1959		
	N	%/M*	S.D.	N	%/M*	S.D.	N	%/M*	S.D.	N	%/M*	S.D.	N	%/M*	S.D.
Employed	316	54.6	-	333	57.7	-	331	58.1	-	325	58.2	-	308	56.5	-
Employed, teaching	62	12.2	-	49	9.8	-	42	8.8	-	44	9.0	-	35	7.8	-
•Same subject	46	8.2	-	37	6.6	-	30	5.4	-	34	6.2	-	26	4.9	-
•Related subject	6	1.1	-	5	0.9	-	5	0.9	-	5	0.9	-	5	0.9	-
Employed, non-teaching	239	42.4	-	270	47.9	-	273	49.3	-	268	49.2	-	258	48.7	-
•Same occupation	151	26.8	-	170	30.2	-	167	30.2	-	166	30.5	-	155	29.3	-
•Related occupation	45	8.0	-	52	9.2	-	57	10.3	-	56	10.3	-	58	10.9	-
•Unrelated occupation	43	7.6	-	48	8.5	-	49	8.8	-	46	8.4	-	45	8.5	-
Number weeks employed	301	8.5	2.5	301	8.5	2.5	301	8.7	2.4	294	8.7	2.3	279	8.9	2.4
Hours worked per week	284	36.5	11.9	289	37.0	11.9	286	37.7	11.1	279	37.3	11.2	270	38.2	11.3
Average weekly income	278	132.	65.1	281	126.	69.7	281	119.	49.7	274	117.	68.1	261	118.	80.9
Average summer income	248	1072.	532.7	251	1029.	514.9	254	1017.	499.5	253	997.	471.6	245	983.	497.4

* Mean values are accompanied by standard deviation (S.D.) values.
** Based on teachers with ≦ 6 years of vocational teaching experience

The percentage employed summers in the same occupation that they teach in the regular school year ranges from 26.8 to 30.5 percent. The percentage employed in a related occupation ranges from 8.0 to 10.9 percent. When the numbers are expressed as a percentage of those who work in the summers, the percentages in the same or related occupation range from 63 to 69 percent. Thus, when they work in the summers, the majority work in the occupational field that is the subject of their vocational teaching. Nevertheless, it must be noted that only about 39 percent of all teachers on the average spend their summers working in their occupational field. The majority does not keep its hand in the occupational field, so to speak. (To permit an assessment of trends, the data is for those with six years or more of vocational teaching experience.)

Amount of summer period employment. The typical T&I teacher who works summers spends an average of 8.7 weeks employed and works an average of 37.3 hours per week. The equivalent median values are 9 weeks employed at 38 hours per week. Thus, those that are employed in the summers are employed about 70 percent of the June, July and August summer period.

Summer period earnings. The average T&I teacher who works during the summer period earns about $122 per week. Taking into account the number of weeks worked, the average summer income ranged from $983 to $1,072 over the five year period for an overall average of $1,020 per summer. The T&I vocational teachers who supplement their school year income with summer work earn an additional average 11.7 percent of their mean school year salary.

As might be expected, there is a slightly increasing trend in the average weekly income for summertime employment. As a result, the average summer income increased slightly less than $100 over the five summers. The teachers so affected will agree that the trend is very slight.

•How does the summer employment of T&I teachers from vocational and comprehensive schools compare? Table 34 gives the data for 1963 to simplify the presentation.

There is no difference in the percentage of teachers from both schools who were employed in the summer. The difference came in the type of employment. About 12 percent of those from vocational schools were employed in teaching, whereas only 7 percent of the comprehensive school teachers were so employed. Perhaps the difference is the result of greater opportunity for summer teaching in vocational schools. A greater percentage of those from comprehensive schools are employed in non-teaching jobs. There are no impressive differences between the two schools in the percentages employed in occupations that are the same, related or unrelated to the occupations taught during the school year. There are also no significant differences in number of weeks per summer employed, number of hours per week worked, average weekly earnings and average total summer income. Indeed, the lack of difference is remarkable. Once again, the two types of schools are more alike than they are different.

TABLE 34. COMPARATIVE SUMMERTIME EMPLOYMENT DATA FOR T&I VOCATIONAL TEACHERS FROM COMPREHENSIVE AND VOCATIONAL SCHOOLS

SUMMERTIME EMPLOYMENT HISTORY VARIABLES *	TYPE OF SCHOOL					
	VOCATIONAL			COMPREHENSIVE		
	N	MEAN	S.D.	N	MEAN	S.D.
Employed	211	54.5	-	105	54.7	-
Employed, teaching	48	12.4	-	14	7.3	-
•Same subject	37	9.6	-	9	4.7	-
Employed, non-teaching	154	39.8	-	85	44.3	-
•Same occupation	102	26.4	-	49	25.5	-
•Related occupation	27	7.0	-	18	9.4	-
•Unrelated occupation	25	6.4	-	18	9.4	-
Number weeks employed	198	8.5	2.6	103	8.6	2.4
Hours worked per week	188	36.1	11.0	96	37.1	13.4
Average weekly income	183	132.	64.4	95	132.	66.8
Average summer income	164	1071.	515.6	84	1073.	567.8

* Based on teachers with ≦6 years teaching experience

School Year Part-time Employment

The T&I teachers indicated for each of the past five school years whether they assumed part-time employment after school hours or on weekends, and if so, the hours per week worked and the school year income from such work. For reasons mentioned earlier, the data is presented for those who were teaching over the entire five year period.

• Of the five school years, what number were the T&I teachers employed part-time in teaching, non-teaching or a combination of teaching and non-teaching? Table 35 provides the data.

Years of part-time teaching in past five years. About 60 percent of the T&I teachers reported they had not worked as a teacher after regular school hours in any of the past five years. About 28 percent were involved in such teaching for four or five of the five school years surveyed. The remaining 12 percent worked in after-hours teaching in one to three of the five years.

Years of part-time, non-teaching work in the past five years. About 74 percent of the teachers never held a part-time, non-teaching job after school hours over the five years surveyed. About 16 percent do such work regularly each school year. Thus, only a small minority of T&I vocational teachers hold non-teaching jobs after regular school hours.

TABLE 35. DISTRIBUTION OF NUMBER OF SCHOOL YEARS IN A FIVE YEAR PERIOD IN WHICH PART-TIME, AFTER SCHOOL JOBS WERE HELD BY T&I VOCATIONAL TEACHERS ACCORDING TO TYPE OF WORK DONE

NUMBER OF YEARS WORKED PART-TIME IN THE PAST 5 YEARS*	TEACHING		NON-TEACHING		ANY TYPE OF WORK	
	N	%	N	%	N	%
5	128	23.1	88	15.9	238	43.0
4	27	4.9	5	0.9	24	4.3
3	29	5.2	14	2.5	34	6.1
2	16	2.9	14	2.5	19	3.4
1	22	4.0	23	4.2	34	6.1
0	331	59.9	409	74.0	204	36.9
NUMBER	553		553		553	
MEAN	1.6		1.0		2.6	
MEDIAN	0		0		3	
S.D.	2.1		1.9		2.3	

* Based on teachers with ≥6 years teaching experience

Years of any type of part-time, after school work in the past five years. About 37 percent of the T&I teachers with 6 years or more of teaching experience never held a part-time job of any kind after regular school hours in the five year period surveyed. However, 47 percent held such jobs in four or five of the five years. Smaller percentages held part-time jobs from one to three of the five years covered. Most T&I teachers, then, are involved in some type of part-time work after school.

•For each of five years, what is the part-time employment picture for T&I teachers? What trends are indicated? Table 36 provides the data. All percentages are based upon the total T&I vocational teachers with six years or more of teaching experience to permit an assessment of trends.

Employment and type of employment. The percent of teachers who held after school part-time jobs each school year ranged from 52 to 55 percent, with a five year average of about 53 percent. Thus, a little more than half of the vocational teachers held part-time jobs ear school year. No increasing or decreasing trend is indicated.

The percent employed in part-time teaching ranged from 37 to about 38 percent. Based upon the number who work part-time, the percentages for those employed as teachers ranged from 56 to 63 percent. Better than 95 percent of those who teach evenings teach their major vocational subject.

TABLE 36. SCHOOL YEAR, PART-TIME EMPLOYMENT VARIABLES FOR EACH OF FIVE SUCCESSIVE SCHOOL YEARS FOR T&I VOCATIONAL TEACHERS

SCHOOL YEAR PART-TIME EMPLOYMENT HISTORY VARIABLES **	1962-1963			1961-1962			1960-1961			1959-1960			1958-1959		
	N	%/M*	S.D.	N	%/M*	S.D.	N	%/M*	S.D.	N	%/M*	S.D.	N	%/M*	S.D.
Employed	235	54.9	-	309	52.7	-	310	53.3	-	311	54.2	-	292	52.0	-
Employed, teaching	183	37.9	-	185	37.1	-	196	38.7	-	193	38.8	-	184	37.2	-
Same subject	166	30.6	-	165	30.2	-	176	32.1	-	174	32.3	-	168	31.5	-
Related subject	9	1.7	-	11	2.0	-	10	1.8	-	10	1.9	-	8	1.5	-
Employed, non-teaching	92	17.0	-	85	15.6	-	80	14.6	-	83	15.4	-	79	14.8	-
Same occupation	53	9.8	-	47	8.6	-	45	8.6	-	44	8.2	-	44	8.2	-
Related occupation	18	3.3	-	18	3.3	-	18	3.3	-	20	3.7	-	18	3.4	-
Unrelated occupation	21	3.9	-	20	3.7	-	17	3.1	-	19	3.5	-	17	3.2	-
Hours worked per week	279	10.0	7.3	267	8	7.3	269	9.5	7.4	265	10.2	7.8	241	9.6	7.6
Annual income	252	1178.	975.5	240	1112.	866.5	245	1080.	876.6	242	992.	761.5	230	981.	815.8

* Mean values are accompanied by standard deviation (S.D.) values.
** Based on teachers with ≥6 years of teaching experience

Non-teaching work presents a different picture. An average of about 15.5 percent find part-time, non-teaching jobs. About 8.6 percent hold jobs in the same occupation they teach, 3.4 percent hold jobs in related occupations and 3.5 percent hold jobs in unrelated occupations. Stated another way, the majority of teachers who hold non-teaching jobs after school hours are employed in work the same as or related to the occupation they teach. Even so, this means that less than twelve percent of the T&I teachers with six years or more experience are involved in part-time work related to their occupational field. It would be farfetched to claim that T&I teachers keep their hands, so to say, in their occupational fields by means of part-time work. It also should not be claimed that they <u>should</u> do so.

<u>Hours worked per week and income</u>. Those who work part-time during the school year average about ten hours per week. Individual differences vary widely. Earnings from such part-time employment showed a slowly increasing trend that ranged from a low of $981 in the 1958-1959 school year to a high of $1,178 in the 1962-1963 school year. The five year average earnings amounted to about $1,069 or about 12.3 percent of their present year earnings.

ABOUT THE TEACHER'S PRESENT POSITION

This section examines some of the T&I teacher's present position characteristics which are potentially related to the quality of vocational education. Included are teacher earnings and fringe benefits, required and voluntary non-teaching activities, period and pupil loads and the role of teachers in the school decision-making process.

Vocational Teacher Earnings

The earnings data is presented without regard to years of teaching experience or seniority at the present school. The reader is advised to consult Appendix Section 4 for distribution data on how earnings are influenced by such variables.

The average T&I teacher surveyed was 12.3 years in the teaching profession and 11.3 years at his present school at the time of the survey. The earnings averages herein presented should be considered in the light of that seniority picture.

●What were the salaries of T&I vocational teachers for the school year 1963-1964? Table 37 provides the data.

The mean and median T&I teacher salary is $7,200 and $7,000 respectively, or about $800 per month for a nine month school year. (The salary period covered nine months for 16 percent of the teachers, ten months for 63 percent and twelve months for 21 percent. However, because almost all of the teachers had an effective nine month school year, it makes sense to express their monthly earnings on a nine month basis.)

The individual differences in teacher earnings reflect not only differences in salary schedules, but also differences in seniority and compensation for advanced degrees at different school locations. About 5 percent earned less than $5,000 and 8.5 percent earned $10,000 or more. Thus, about 86 percent of the teachers earned between five and ten thousand dollars for the 1963 school year. While these figures are now dated, they serve the comparative and correlational purposes of the study.

●How much did T&I teachers earn during the school year 1962-1963 for part-time employment after school hours? Table 38 provides the data.

The mean and median part-time employment income reported by the vocational teachers for the school year 1962-1963 was $424 and $500 respectively. These values are low because they include the 30 percent of the teachers who had no part-time employment income. As such, they represent the best estimate of part-time earnings of T&I vocational teachers in the United States.

TABLE 37. T&I VOCATIONAL TEACHER EARNINGS IN PRESENT POSITION

EARNINGS CLASS INTERVALS	PRESENT POSITION EARNINGS					
	TEACHERS			SCHOOLS		
	N	%	C%	N	%	C%
≦12,000	3	0.3	100.0	0	0.0	-
11,000 - 11,999	19	2.1	99.7	0	0.0	-
10,000 - 10,999	57	6.2	97.6	0	0.0	-
9,000 - 9,999	49	5.3	91.4	4	4.0	100.0
8,000 - 8,999	154	16.8	86.1	11	11.0	96.0
7,000 - 7,999	188	20.5	69.3	17	17.0	85.0
6,000 - 6,999	263	28.6	48.8	32	32.0	68.0
5,000 - 5,999	137	14.9	20.2	27	27.0	36.0
4,000 - 4,999	37	4.0	5.3	8	8.0	9.0
≦4,000	12	1.3	1.3	1	1.0	1.0
NUMBER	919			100		
MEAN	7201.00			6482.26		
MEDIAN	7000			6400		
S.D.	1701.0			901.9		

TABLE 38. T&I VOCATIONAL TEACHER EARNINGS IN SCHOOL YEAR (1962-1963)
PART-TIME EMPLOYMENT

DOLLAR CLASS INTERVALS	PART-TIME EARNINGS						SCHOOL MEAN CLASS INTERVALS
	TEACHERS			SCHOOLS			
	N	%	C%	N	%	C%	
≦3,000	30	4.4	100.0	11	11.2	100.0	≦800
2,500 - 2,999	9	1.3	95.6	4	4.1	88.8	700 - 799
2,000 - 2,499	25	3.7	94.3	5	5.1	84.7	600 - 699
1,500 - 1,999	42	6.2	90.6	12	12.2	79.6	500 - 599
1,000 - 1,499	70	10.4	84.4	17	17.3	67.4	400 - 499
500 - 999	175	26.0	74.0	13	13.3	50.1	300 - 399
100 - 499	117	17.4	48.0	10	10.2	36.8	200 - 299
≦ 100	2	0.3	30.6	13	13.3	26.6	100 - 199
0	204	30.3	30.3	13	13.3	13.3	0
NUMBER	674			98			NUMBER
MEAN	424.28			385.47			MEAN
MEDIAN	500			396.52			MEDIAN
S.D.	559.9			419.6			S.D.

When based only on those cases who reported part-time income, the mean and median income increases substantially to $1,227 and $900 respectively. These values represent the average school year income from part-time work by those who engage in after school and weekend work.

• How much did T&I teachers earn during the summer of 1963? Table 39 provides the data.

The mean and median summer employment income reported by T&I teachers was $511 and $600 respectively. The values are based on all teachers surveyed, including those who did not work in the summer of 1963. When the latter are removed from the calculations, the mean and median values jump to $1,084 and $1,410 respectively. For those who worked in the 1963 summer period, the average supplemental income amounted to about 15 percent of the mean school year salary.

TABLE 39. T&I VOCATIONAL TEACHER EARNINGS IN SUMMER PERIOD (1963)

DOLLAR CLASS INTERVALS	1963 SUMMER INCOME						SCHOOL MEAN CLASS INTERVALS
	TEACHERS			SCHOOLS			
	N	%	C%	N	%	C%	
≦2,500	7	1.0	100.0	9	9.2	100.0	1,000 - 1,299
2,000 - 2,499	17	2.4	99.0	4	4.1	90.8	800 - 999
1,500 - 1,999	53	7.6	96.6	35	35.7	86.7	500 - 799
1,000 - 1,499	191	27.3	89.0	22	22.4	51.0	300 - 499
500 - 999	204	29.1	61.7	15	15.3	28.6	100 - 299
100 - 499	71	10.1	32.6	2	2.1	13.3	100
0	158	22.5	22.5	11	11.2	11.2	0
NUMBER	701			98			NUMBER
MEAN	511.32			570.39			MEAN
MEDIAN	600			497.14			MEDIAN
S.D.	596.5			482.0			S.D.

●What is the combined income from present position, school year, part-time employment and summertime employment for T&I vocational teachers? Table 40 provides the data.

The mean and median total earned income reported by T&I teachers, including the cases who did not supplement their teaching salaries, was $8,715 and $8,500 respectively. The distribution of total incomes covers a wide range. About 8 percent reported a total income of less than six thousand dollars. Almost 7 percent reported on income of above twelve thousand dollars.

The mean total income is about $1,500 greater than the mean teaching salary income, a difference of about 20 percent which is the resultful of the vocational teachers resourcefulness in supplementing his regular school salary.

TABLE 40. T&I VOCATIONAL TEACHER ANNUAL EARNINGS FROM ALL SOURCES OF EMPLOYMENT

DOLLAR CLASS INTERVALS	ANNUAL INCOME					
	TEACHERS			SCHOOLS		
	N	%	C%	N	%	C%
≥ 12,000	42	6.5	100.0	2	2.3	100.0
11,000 - 11,999	43	6.6	93.5	4	4.6	97.7
10,000 - 10,999	80	12.4	86.9	6	6.8	93.1
9,000 - 9,999	103	15.9	74.5	12	13.6	86.3
8,000 - 8,999	128	19.8	58.6	15	17.1	72.7
7,000 - 7,999	115	17.8	38.8	31	35.2	55.6
6,000 - 6,999	82	12.7	21.0	11	12.5	20.4
5,000 - 5,999	44	6.8	8.3	6	6.8	7.9
4,000 - 4,999	9	1.4	1.5	1	1.1	1.1
<4,000	1	0.1	0.1	0	0.0	0.0
NUMBER	647			88		
MEAN	8715.55			8046.57		
MEDIAN	8500			7600		
S.D.	2203.9			1371.1		

•How do vocational and comprehensive schools compare in terms of T&I teacher means from present positions, part-time work, summertime work and total employment income? Table 41 provides the data. The means are based upon all T&I teachers, including those who did not hold part-time or summertime jobs.

The vocational school T&I teachers have greater average earnings from each of the three sources of employment income than their counterparts in comprehensive schools. Their average teaching salary is $7,365 versus $6,884 for the comprehensive school teachers, a difference of about four hundred-eighty dollars. Their average summertime income is $520 versus $493, a difference of but twenty-seven dollars. And, their average part-time employment income is $445 versus $382, a difference of sixty-three dollars. The bulk of the difference in total earnings then, comes from their regular teaching position.

Because not all teachers reported having or not having income from all three sources, the total income was obtained by including only those cases who reported all elements of the data. Blank responses were scored as missing data rather than zero income, even though many probably intended the non-response to convey zero summer or part-time earnings. On this basis, then, the total employment income for vocational school teachers was $8,933 versus $8,188 for those in comprehensive schools, a difference of more than seven hundred dollars.

The difference is partially explained by the greater proportion of vocational schools in large cities. Salary scales are generally higher than those in smaller school districts.

•How much additional income do T&I teachers report that they need? Table 42 shows the distribution of additional income needs reported by T&I teachers who claimed that their present position income was insufficient.

First, about 28 percent of the T&I vocational teachers claimed that their present salary was adequate. The data in Table 42 represents the very large 72 percent that claimed their present school salary was inadequate. The average additional income needed was twenty-four hundred dollars. As usual, the individual differences were wide ranging. About four percent needed a modest sum under one thousand dollars. About 12 percent needed more than four thousand dollars. Presumably, the individual differences are a reflection of differences in factors influencing living costs, such as number of dependents, rural-urban location and status in the material needs cycle of life, plus the differences in salaries.

Do the reported needs represent real needs? The best answer is another question. Who is in a better position to judge? There is no reason to believe that the great majority of these appraisals were anything but honest appraisals. The teachers were well aware that the study was not going to put more money in their pockets. They were told so. Indeed, the point was emphasized by a project staff member in a group meeting with the teachers at each school. When one considers that 37 percent of the teachers were in cities with populations above 250,000 and that the average teacher had three dependents, excluding himself, the additional income needs do not seem unreasonable.

TABLE 41. COMPARATIVE DATA ON VOCATIONAL TEACHER EARNINGS FOR VOCATIONAL AND COMPREHENSIVE SCHOOLS

SOURCES OF TOTAL EMPLOYMENT INCOME	TYPE OF SCHOOL					
	VOCATIONAL			COMPREHENSIVE		
	N	MEAN	S.D.	N	MEAN	S.D.
Present position	606	7365.	1711	313	6884.	1637
Summer total (1963)	462	520.	593	239	493.	602
Part-time total (1962-63)	450	445.	577	224	382.	520
Employment income total (1962-63)	432	8933.	2233	215	8188.	2048

TABLE 42. ADDITIONAL INCOME NEEDS REPORTED BY T&I VOCATIONAL TEACHERS

DOLLAR CLASS INTERVALS	ADDITIONAL INCOME NEEDS					
	TEACHERS			SCHOOLS		
	N	%	C%	N	%	C%
≦ 5,500	27	3.1	100.0	0	0.0	-
5,000 - 5,499	25	2.9	96.9	0	0.0	-
4,500 - 4,999	2	0.2	94.0	0	0.0	-
4,000 - 4,499	48	5.6	93.8	1	1.0	100.0
3,500 - 3,999	10	1.2	88.2	1	1.0	99.0
3,000 - 3,499	78	9.0	87.0	4	4.0	98.0
2,500 - 2,999	45	5.2	78.0	10	10.0	94.0
2,000 - 2,499	151	17.5	72.8	12	12.0	84.0
1,500 - 1,999	71	8.2	55.3	22	22.0	72.0
1,000 - 1,499	118	13.7	47.1	31	31.0	50.0
< 1,000	35	4.0	33.4	17	17.0	19.0
0	254	29.4	29.4	2	2.0	2.0
NUMBER	864			100		
MEAN	1695.15			1635.40		
MEDIAN	1500			1499		
S.D.	1655.8			1373.1		

•How do teachers in vocational and comprehensive schools compare in terms of additional income needs? Table 43 provides the data.

The average additional income needed by the T&I teachers in vocational schools is $2,384 versus $2,437 for their counterparts in the comprehensive schools. Unlike the mean values in Table 43, the preceeding values are based upon only those who reported an additional income need. They are probably more realistic. The Table 43 mean values include all T&I teachers, including those in their fifties and sixties whose income needs have decreased because of fewer dependents and diminished need for material accumulations.

The T&I teachers from vocational schools, despite their greater average salary ($7,365 vs. $6,884), need slightly more than those from comprehensive schools. This is partly explained by the greater proportion of vocational schools in metropolitan areas where living costs are higher. The same reason may also explain why a slightly higher percentage of vocational school teachers claimed their present salary was inadequate (73 vs. 67 percent).

TABLE 43. COMPARATIVE DATA ON ADDITIONAL INCOME NEEDS REPORTED BY VOCATIONAL TEACHERS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

DOLLAR CLASS INTERVALS	TYPE OF SCHOOL					
	VOCATIONAL			COMPREHENSIVE		
	N	%	C%	N	%	C%
≤5,500	12	2.1	100.0	15	5.1	100.0
5,000 - 5,499	15	2.6	97.9	10	3.4	94.9
4,500 - 4,999	0	0.0	95.3	2	0.7	91.5
4,000 - 4,499	35	6.1	95.3	13	4.5	90.8
3,500 - 3,999	9	1.6	89.2	1	0.3	86.3
3,000 - 3,499	64	11.2	87.6	14	4.8	86.0
2,500 - 2,999	32	5.6	76.4	13	4.5	81.2
2,000 - 2,499	104	18.2	70.8	47	16.1	76.7
1,500 - 1,999	51	8.9	52.6	20	6.8	60.6
1,000 - 1,499	76	13.3	43.7	42	14.4	53.8
< 1,000	17	3.0	30.4	18	6.2	39.4
0	157	27.4	27.4	97	33.2	33.2
NUMBER	572			292		
MEAN	1729.90			1645.00		
MEDIAN	1500			1200		
S.D.	1569.1			1816.9		

• How do vocational and academic teacher present position salaries compare? How do the two differ in terms of claimed additional income needs?

The average salary of vocational and academic teachers in the same schools was $7,200 and $6,690 respectively. The difference is about $510 in favor of the T&I vocational teachers. The average years of teaching experience for the two comparison groups was 12.3 and 13.6 respectively. Thus, the difference can not be attributed to a difference in teaching experience. The academic teachers had more, not fewer, years of teaching experience. One can conclude, then, that vocational teachers have a higher average salary scale than academic teachers in the same schools.

How do the two teachers differ in income needs? Oddly, the academic teachers, who earn less than the vocational teachers, also report a lower additional income need. The average additional income needed by academic teachers was $1,430 versus $1,700 for the vocational teachers. There are several possible explanations. The academic teachers have fewer dependents (2.3 vs. 3.0 dependents for the vocational teachers). Also, about eleven percent of the academic teachers were unmarried females.

• What type of fringe benefits do T&I vocational teachers receive? Table 44 provides the data.

The fringe benefits are ranked in Table 44 according to the percent of schools offering each benefit. The table tells the story better than words. One of the fringe benefits warrants a comment. Only 19 percent of the schools had a program of reimbursing vocational teachers for summertime, college-level courses. Apparently, the schools do not place much value on this type of continuing teacher education. This may explain why it has been 11 years since the average T&I teacher had a college level course of any type.

TABLE 44. VOCATIONAL TEACHER FRINGE BENEFITS REPORTED BY THEIR SCHOOLS

EMPLOYEE BENEFITS PROVIDED TO TEACHERS	UNITED STATES	
	N	%
Employer pension contributions	82	82.0
Life insurance	25	25.0
Medical-surgical benefits	39	39.0
Major medical insurance	30	30.0
Sick-leave benefits	97	98.0
Sabbaticals	46	46.0
Earned vacation time	15	15.0
Reimbursements for summer education	19	19.0
Expenses to attend professional conferences	70	70.0

The initial interest in fringe benefits was based on the possibility that teachers might be more readily attracted to school systems with generous fringe benefit programs. The lack of geographic mobility among T&I vocational teachers virtually eliminated that possibility. Such benefits may still be a factor in attracting persons to the vocational education field from within a community. The study has no data on this point. A more intensive study of teacher fringe benefits is needed. The data provided herein merely touches the surface of this area of interest.

•How do T&I vocational teacher fringe benefits compare in vocational and comprehensive schools? Table 45 presents the data.

The comparison gives a mixed picture. A greater percentage of vocational schools provide (1) pension contributions, (2) life insurance contributions, (3) medical-surgical insurance benefits, (4) major medical insurance, (5) sick-leave benefits and (6) earned vacation time. A possible explanation is that a greater proportion of the sample's vocational schools was located in major city school systems. Fringe benefits tend to be more generous in the major city school systems.

The comprehensive schools did better on providing summer education reimbursements and expenses to attend professional conferences. Such programs are more closely associated with academic teachers, who are always the majority in comprehensive schools. Undoubtedly the programs have spread to vocational teachers in such schools.

TABLE 45. COMPARATIVE DATA ON TEACHER FRINGE BENEFITS FOR VOCATIONAL AND COMPREHENSIVE SCHOOLS

EMPLOYEE BENEFITS PROVIDED TO TEACHERS	TYPE OF SCHOOL			
	VOCATIONAL		COMPREHENSIVE	
	N	%	N	%
Employer pension contributions	42	84.0	40	80.0
Life insurance	18	36.0	7	14.0
Medical-surgical benefits	23	46.0	16	32.0
Major medical insurance	16	32.0	14	28.0
Sick-leave benefits	50	100.0	47	95.9
Sabbaticals	23	46.0	23	46.0
Earned vacation time	13	26.0	2	4.0
Reimbursements for summer education	7	14.0	12	24.0
Expenses to attend professional conferences	28	56.0	42	84.0

Teacher Subject, Period and Pupil Loads

An assessment of the T&I teachers work load must take into account the number of different subjects he teaches, the number of periods per week spent in teaching, the number of pupils in his classes and finally his non-teaching school activities. The first three of these items are discussed in this section.

- What is the subject load of T&I teachers? How do vocational and comprehensive schools compare in terms of T&I teacher subject load? Table 46 provides the data.

About 86 percent of the T&I teachers taught their major vocational subject and nothing else. Another 4 percent taught an industrial arts subject in addition to their major vocational subject, and about 5 percent taught an academic subject, usually a form of related mathematics or science in addition to their major vocational subject. Less than 2 percent taught two vocational subjects. The remaining 3 percent taught their major vocational subject plus two or more academic subjects or some combination of academic and industrial arts subjects. Thus, the T&I teacher is essentially a one subject teacher, and he is more likely to be a one subject teacher in vocational schools than in comprehensive schools. In the latter schools, a higher percentage of teachers (10 vs. 1 percent) have an industrial arts subject in addition to their major vocational subject.

TABLE 46. SUBJECT LOAD COMBINATIONS REPORTED BY T&I VOCATIONAL TEACHERS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

SUBJECT LOAD COMBINATIONS OF T&I VOCATIONAL TEACHERS	UNITED STATES		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Major vocational subject (only)	766	86.0	521	88.0	245	81.9
Plus one industrial arts subject	35	3.9	5	0.9	30	10.0
Plus one academic subject	46	5.2	35	5.9	11	3.7
Plus two academic subjects	22	2.5	18	3.0	4	1.3
Plus three academic subjects	4	0.4	4	0.7	0	0.0
Plus second vocational subject	16	1.8	9	1.5	7	2.3
Plus combination other than above	2	0.2	0	0.0	2	0.8

●What is the teaching period per week load of the T&I vocational teachers? How does this load differ in vocational and comprehensive schools? Table 47 provides the data.

The mean and median number of periods per week reported by vocational teachers were 29.7 and 30 respectively. Since 75 percent of the schools had period durations of between 50 and 60 minutes, the classroom hour load for the average T&I teacher is about 30 hours per week. This is probably correct despite the errors in the data mentioned in the footnote below.*

The mean number of periods reported by T&I teachers in vocational and comprehensive schools is 30.7 and 27.8 r spectively. The writer is inclined to attribute the difference to an unequal distribution of the errors mentioned in the footnote rather than a time difference in teacher period load between the two types of schools.

TABLE 47. T&I VOCATIONAL TEACHER COURSE LOADS EXPRESSED IN TERMS OF PERIODS

PERIODS PER WEEK	MAJOR SUBJECT PERIOD LOAD					
	TEACHERS			SCHOOLS		
	N	%	C%	N	%	C%
36 - 40	159	20.2	100.0	11	11.0	100.0
31 - 35	39	5.0	79.8	14	14.0	89.0
26 - 30	389	49.4	74.8	53	53.0	75.0
21 - 25	86	10.9	25.4	17	17.0	22.0
16 - 20	55	7.0	14.5	5	5.0	5.0
11 - 15	51	6.5	7.5	0	0.0	0.0
6 - 10	9	1.0	1.0	0	0.0	0.0
NUMBER	787			100		
MEAN	29.7			29.3		
MEDIAN	30			30		
S.D.	7.2			4.1		

* The distribution data suffers from three defects: (1) Some teachers apparently included non-teaching hours at school in their reported number of periods per week. (2) Some teachers were on part-time teaching assignments for the year surveyed, thereby giving an atypical period per week load. (3) The duration of a school period ranged from a low of 35 minutes to a high of 65 minutes, with the most frequent duration being 55 minutes.

• What is the pupil load of T&I vocational teachers? How does this load differ in vocational and comprehensive schools? Table 48 provides the data.

The mean and median reported pupil load is 38.4 and 33 pupils respectively for the major vocational subject. Because some teachers have other subjects also, the overall pupil load is somewhat higher. The mean and median values for the latter are 43.8 and 35 respectively. (The values are for all classes and must not be interpreted as the number of pupils in a single class.)

The pupil load shows wide variation. About 22 percent of the T&I teachers had less than 20 pupils in total. Does this suggest a serious lack of utilization of teacher capacity? Twenty-two percent of the senior classes reported less than 6 students. This accounts for the relatively low graduate output of many T&I courses.

At the other extreme, 19 percent of the teachers had major subject pupil loads in excess of 50 pupils. In an absolute sense, is this an excessively high pupil load? One cannot say. It depends upon the teacher's shop and theory class mix as well as the type of major subject. A teacher may have a relatively small shop class, but a large theory class. Fifty pupils in that type of situation is a different matter from fifty pupils in a shop situation. Similarly, fifty pupils in classes where every pupil

TABLE 48. T&I VOCATIONAL TEACHER COURSE LOADS EXPRESSED IN TERMS OF PUPILS

NUMBER OF PUPILS IN ALL CLASSES	MAJOR SUBJECT PUPIL LOAD					
	TEACHERS			SCHOOLS		
	N	%	C%	N	%	C%
>50	147	19.3	100.0	14	14.0	100.0
46 - 50	29	3.8	80.7	7	7.0	86.0
41 - 45	47	6.2	76.9	9	9.0	79.0
36 - 40	102	13.4	70.7	15	15.0	70.0
31 - 35	82	10.8	57.3	13	13.0	55.0
26 - 30	91	12.0	46.5	19	19.0	42.0
21 - 25	93	12.2	34.5	16	16.0	23.0
16 - 20	108	14.2	22.3	6	6.0	7.0
<15	62	8.1	8.1	1	1.0	1.0
NUMBER	761			100		
MEAN	38.4			37.1		
MEDIAN	33			34.8		
S.D.	25.0			19.2		

has a work station and pursues individual projects is a more tolerable pupil load than the same fifty pupils in classes that involve coordinated group interaction and class supervision such as occurs in some of the building trade classes. For such reasons, then, it seems undesirable to make statements about pupil loads being too high or too low for the average T&I teacher.

The mean number of pupils in the major subject taught by vocational teachers in vocational and comprehensive schools is about 37 and 40 pupils respectively. The total mean pupil load for the two types of schools is 41 and 48 pupils respectively. Thus, the vocational teachers in comprehensive schools have a greater average pupil load than those in vocational schools. Whether the difference is large enough to lower teaching effectiveness is questionable.

●How do vocational and academic teachers compare in terms of total period and pupil load?

The academic teacher has an average period per week load of 25.2 periods versus 30.7 periods for the T&I vocational teacher. However, the pupil load of the academic teacher over all classes is much greater than that of the vocational teacher. The average academic teacher in this study had 135.9 pupils over all classes compared with 43.8 pupils for the vocational teachers. It is no wonder that easy-to-grade objective examinations predominate in academic subjects. (See Appendix Section 4 for distribution data.)

Non-teaching Activities

Teachers do many things in school other than teach. This section describes the non-teaching activities, the hours per month spent in such activities and teacher assessments of whether their non-teaching activities interfere with teaching.

●What are the required non-teaching activities reported by T&I vocational teachers? How many hours per month are spent on each such activity? To what extent do such activities interfere with teaching? Table 49 provides the data.

The three most frequently reported activities are monitoring duties (70 percent), extracurricular activity advisors (19 percent) and general administrative duties (12 percent). All other activities were reported by less than 10 percent of the teachers. Very few teachers reported guidance counseling, tutoring or other activities related to students with problems. Few report curriculum development work.

The average T&I teacher spent 8.5 hours per month on required non-teaching activities. The hours per month spent in specific activities by the average T&I teacher are shown in Table 49.

The mean hours per month reported for the listed activities is based on all T&I teachers, not merely those who reported the activity. If based on only those who reported the activity, the hours per month values would change substantially. For example, those who reported monitoring duties worked an average of 11 hours per month in this activity.

TABLE 49. REQUIRED NON-TEACHING ACTIVITIES REPORTED BY T&I VOCATIONAL TEACHERS AND REPORTED INTERFERENCES OF SUCH ACTIVITIES WITH TEACHING ASSIGNMENTS

TYPES OF NON-TEACHING ACTIVITIES REQUIRED BY VOCATIONAL TEACHERS	U. S. SAMPLE VOCATIONAL TEACHERS			
	N	%	MEAN HR/MO	S.D.
Monitoring duties	408	70.5	7.6	9.3
Substitute teaching	5	0.9	0.1	3.6
Attendance at faculty meetings	50	8.6	0.4	4.1
Extracurricular activity advisor	110	19.0	2.2	11.4
Tutoring/assisting special students	2	0.4	0.1	0.7
Guidance and counseling	23	4.0	0.6	10.7
General administrative duties	67	11.6	1.4	8.9
Administrative duties (special)	48	8.3	1.8	12.2
PTA, open house, etc.	31	5.4	0.4	7.3
Curriculum advisory committee	5	0.9	0.1	8.9
Community service	0	0.0	-	-
Library duties	9	1.6	0.1	3.0
Professional organizations	10	1.7	0.1	9.2
Other than above	62	10.7	1.4	11.2
All reported non-teaching activities	579	-	8.5	12.1

REPORTED TEACHING INTERFERENCE	N	%
•No interference	330	57.9
•Interferes slightly	164	28.8
•Interferes considerably	64	11.2
•Interferes seriously	12	2.1

About 58 percent of the teachers reported that such required activities did not interfere with their teaching role. Another 29 percent claimed there was a slight amount of interference. Only 13 percent felt such activities were a considerable or serious interference. These assessments sound reasonable in view of the relatively low mean hours per month spent in such activities by the average T&I teacher.

Table 50 presents the distribution data for total hours per month of required non-teaching activities. About 10 percent of the teachers reported they had no such activities. A total of 77 percent had less than 21 hours of required non-teaching activities per month or less than one hour per day. However, it is clear that where such activities are in addition to a full teaching load, there are more teachers who must be burdened with such activities. The distribution data for schools indicates an impressive range. Apparently some schools do not require their teachers to engage in non-teaching activities. About 68 percent of the schools require less than an average of 10 hours per teacher per month. The excessive demand, if one cares to call it that, seems to be in about 15 percent of the schools.

TABLE 50. DISTRIBUTION DATA FOR TOTAL HOURS OF REQUIRED NON-TEACHING ACTIVITIES REPORTED BY T&I VOCATIONAL TEACHERS AND THEIR SCHOOLS

HOURS PER MONTH	REQUIRED NON-TEACHING ACTIVITIES					
	TEACHERS			SCHOOLS		
	N	%	C%	N	%	C%
> 46	8	1.4	100.0	0	0.0	-
41 - 45	7	1.2	98.6	0	0.0	-
36 - 40	24	4.2	97.4	0	0.0	-
31 - 35	24	4.2	93.2	0	0.0	-
26 - 30	27	4.7	89.0	3	3.0	100.0
21 - 25	40	6.9	84.3	2	2.0	97.0
16 - 20	80	13.8	77.4	9	9.0	95.0
11 - 15	65	11.2	63.6	18	18.0	86.0
6 - 10	83	14.3	52.4	28	28.0	68.0
1 - 5	160	27.6	38.1	31	31.0	40.0
0	61	10.5	10.5	9	9.0	9.0
NUMBER	579			100		
MEAN	8.5			8.7		
MEDIAN	9			9		
S.D.	12.1			9.0		

•How do required non-teaching activities differ in vocational and comprehensive schools? Table 51 presents the data as reported by T&I vocational teachers.

A larger percentage of comprehensive school teachers reported monitoring duties (77 vs. 67 percent) and extracurricular activity advisor duties 26 vs. 15 percent), whereas a larger percentage of vocational school teachers reported guidance and counseling duties (5 vs. 1.5 percent). All other differences appear negligible. Teachers from comprehensive schools reported slightly higher mean hours per month spent in required non-teaching activities (8.9 vs. 8.4 hours per month), but the difference is not impressive.

The percentage of teachers who claimed such activities interfered considerably or seriously with teaching was 14.8 percent for comprehensive schools versus 12.5 for vocational schools. One can conclude that there is no difference of any significance between the two types of schools in terms of claimed interference of non-teaching activities with teaching.

TABLE 51. COMPARATIVE DATA ON REQUIRED NON-TEACHING ACTIVITIES REPORTED BY T&I VOCATIONAL TEACHERS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPES OF NON-TEACHING ACTIVITIES REQUIRED BY VOCATIONAL TEACHERS	TYPE OF SCHOOL							
	VOCATIONAL				COMPREHENSIVE			
	N	%	MEAN HR/MO	S.D.	N	%	MEAN HR/MO	S.D.
Monitoring duties	251	67.1	6.9	9.0	157	76.6	8.9	9.8
Substitute teaching	4	1.1	0.1	3.5	1	0.5	0.0	0.0
Attendance at faculty meetings	29	7.8	0.3	3.5	21	10.2	0.5	4.9
Extracurricular activity advisor	57	15.2	1.9	2.0	53	25.9	2.7	10.8
Tutoring/assisting special students	1	0.4	0.0	0.0	1	0.5	0.0	0.0
Guidance and counseling	20	5.3	0.8	11.0	3	1.5	0.2	11.3
General administrative duties	45	12.0	0.1	8.3	22	10.7	1.5	10.4
Administrative duties (special)	33	8.8	2.1	11.3	15	7.3	1.1	12.7
PTA, open house, etc.	23	6.1	0.5	8.0	8	3.9	0.2	4.0
Curriculum advisory committee	5	1.3	0.1	8.9	0	0.0	0.0	0.0
Community service	0	0.0	0.0	-	0	0.0	0.0	-
Library duties	7	1.9	0.1	3.1	2	1.0	0.1	3.5
Professional organizations	9	2.4	0.1	3.3	1	0.5	0.2	0.0
Other than above	41	11.0	1.4	9.7	21	10.2	1.5	4.4
All reported non-teaching activities	374	-	8.4	12.0	205	-	8.9	12.5
REPORTED TEACHING INTERFERENCE	N		%		N		%	
No interference	217		59.1		113		55.7	
Interferes slightly	104		28.3		60		29.6	
Interferes considerably	40		10.9		24		11.8	
Interferes seriously	6		1.6		6		3.0	

•How do vocational and academic teachers differ in terms of required non-teaching activities? Table 52 provides the data.

The percentages of academic and vocational teachers who report each of the listed required activities are similar except for two of the activities, supervising extracurricular activities and handling special administrative duties. A substantially greater percentage of academic teachers are involved in the latter two activities. The greater involvement in extracurricular activities is explained by the relationship that many extracurricular activities have with academic subjects.

Academic teachers put in an average of almost twice as many hours per month in required non-teaching activities as do the vocational teachers (15.6 vs. 8.5 hours per month). Despite this large difference, only 6.5 percent more of the academic teachers report such activities interfere to some degree with their teaching duties.

TABLE 52. COMPARATIVE DATA ON REQUIRED NON-TEACHING ACTIVITIES REPORTED BY ACADEMIC AND T&I VOCATIONAL TEACHERS

TYPES OF NON-TEACHING ACTIVITIES REQUIRED BY TEACHERS	TYPE OF TEACHER							
	VOCATIONAL				ACADEMIC			
	N	%	MEAN HR/MO	S.D.	N	%	MEAN HR/MO	S.D.
Monitoring duties	408	70.5	7.6	9.3	193	69.2	8.6	10.1
Substitute teaching	5	0.9	0.1	3.6	8	2.9	0.3	5.7
Attendance at faculty meetings	50	8.6	0.4	4.1	32	11.5	0.4	3.1
Extracurricular activity advisor	110	19.0	2.2	11.4	111	39.8	4.1	10.8
Tutoring/assisting special students	2	0.4	0.1	0.7	3	1.1	0.0	0.7
Guidance and counseling	23	4.0	0.6	10.7	9	3.2	0.4	9.2
General administrative duties	67	11.6	1.4	8.9	32	11.5	1.1	13.2
Administrative duties (special)	48	8.3	1.8	12.2	34	12.2	1.9	11.7
PTA, open house, etc.	31	5.4	0.4	7.3	17	6.1	0.3	5.7
Curriculum advisory committee	5	0.9	0.1	8.9	7	2.5	0.2	14.0
Community service	0	0.0	-	-	5	1.8	0.1	7.1
Library duties	9	1.6	0.1	3.0	5	1.8	0.0	0.0
Professional organizations	10	1.7	0.1	9.2	0	0.0	-	-
Other than above	62	10.7	1.4	11.2	18	6.5	3.8	5.9
All reported non-teaching activities	579	-	8.5	12.1	178		15.6	15.9
REPORTED TEACHING INTERFERENCE	N		%		N		%	
•No interference	330		57.9		141		51.5	
•Interferes slightly	164		28.8		92		33.6	
•Interferes considerably	64		11.2		34		12.4	
•Interferes seriously	12		2.1		7		2.6	

Let's now consider their voluntary non-teaching duties, keeping in mind that the distinction between voluntary and required may be dubious in some schools.

•What are the voluntary non-teaching activities reported by T&I vocational teachers? How many hours per month are spent on such activities? Table 53 provides the data.

For voluntary non-teaching activities, about 46 percent of the T&I teachers reported involvement in guidance and counseling, about 36 percent in extracurricular activity supervision and 11 percent in monitoring duties. The reported voluntary involvement in other activities was considerably less.

TABLE 53. VOLUNTARY NON-TEACHING ACTIVITIES REPORTED BY T&I VOCATIONAL TEACHERS

TYPES OF NON-TEACHING ACTIVITIES VOLUNTEERED BY TEACHERS	U. S. SAMPLE VOCATIONAL TEACHERS			
	N	%	MEAN HR/MO	S.D.
Monitoring duties	47	10.9	0.8	7.9
Substitute teaching	0	0.0	-	-
Attendance at faculty meetings	21	4.9	0.4	10.7
Extracurricular activity advisor	157	36.4	2.8	7.8
Tutoring/assisting special students	11	2.5	0.1	2.6
Guidance and counseling	201	46.5	2.7	5.1
General administrative duties	12	2.8	0.2	4.6
Administrative duties (special)	1	0.2	-	-
PTA, open house, etc.	50	11.6	0.5	4.0
Curriculum advisory committee	7	1.6	0.2	13.1
Community service	25	5.8	0.4	5.6
Library duties	0	0.0	-	-
Professional organizations	18	4.2	0.3	8.8
Other than above	28	6.6	0.5	8.3
All reported non-teaching activities	431	-	3.6	7.5

The average T&I teacher volunteers 3.6 hours per month for non-teaching activities. The range of individual differences is considerable. See Appendix Section 4 for class interval distribution data on this variable.

•How do vocational and comprehensive schools compare in terms of their teacher's voluntary non-teaching activities? Table 54 presents the data

The two types of schools are differentiated sharply by only two activities. A greater percentage of the T&I teachers in vocational schools are involved in voluntary counseling and guidance (52 vs. 38 percent), whereas a greater percentage of the T&I teachers in comprehensive schools are involved in voluntary extracurricular activity supervision (49 vs. 28 percent).

The comprehensive school T&I teachers volunteer more hours per month for non-teaching activities (4.6 vs. 3.2 hours per month). The difference is too small to be of any consequence.

TABLE 54. COMPARATIVE DATA ON VOLUNTARY NON-TEACHING ACTIVITIES REPORTED BY T&I VOCATIONAL TEACHERS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPES OF NON-TEACHING ACTIVITIES VOLUNTEERED BY TEACHERS	TYPE OF SCHOOL							
	VOCATIONAL				COMPREHENSIVE			
	N	%	MEAN HR/MO	S.D.	N	%	MEAN HR/MO	S.D.
Monitoring duties	24	9.5	0.5	8.0	23	12.8	0.9	8.0
Substitute teaching	0	0.0	-	-	0	0.0	-	-
Attendance at faculty meetings	10	4.0	0.3	13.3	11	6.1	0.3	5.2
Extracurricular activity advisor	70	27.8	1.6	8.8	87	48.6	3.1	6.9
Tutoring/assisting special students	7	2.8	0.1	3.0	4	2.2	0.1	2.1
Guidance and counseling	132	52.2	2.0	5.0	69	38.5	2.1	5.3
General administrative duties	5	2.0	0.1	4.8	7	3.9	0.2	4.8
Administrative duties (special)	0	0.0	-	-	1	0.6	-	-
PTA, open house, etc.	30	12.0	0.3	3.1	20	11.2	0.5	5.0
Curriculum advisory committee	5	2.0	0.2	18.4	2	1.1	0.1	2.8
Community service	14	5.6	0.3	4.7	11	6.1	0.4	6.8
Library duties	0	0.0	-	-	0	0.0	-	-
Professional organizations	13	5.2	0.3	9.2	5	2.8	0.2	8.5
Other than above	19	7.6	0.3	5.3	9	5.1	0.5	13.6
All reported non-teaching activities	367	-	3.2	7.4	203	-	4.6	7.6

•How do vocational and academic teachers compare in terms of volunteered non-teaching activities? Table 55 provides the data.

The two types of teachers report comparable percentage involvement in most of the listed non-teaching voluntary activities. Only two activities sharply differentiate the vocational from academic teachers. The latter are more widely involved in supervising extracurricular activities (53 vs. 36 percent), which for reasons cited earlier is understandable. The vocational teachers, however, are more widely involved in voluntary counseling and guidance activities (46 vs. 16 percent). This may be because the nature of their teaching situation is more a teacher-to-individual than a teacher-to-group relationship with the result that more personal relationships are established. Also, the vocational teachers have a much lower total pupil load (43 vs. 36 pupils) than the academic teachers.

In terms of hours per month, the academic teachers are slightly more involved in voluntary non-teaching activities. The mean difference is less than one hour per month.

TABLE 55. COMPARATIVE DATA ON VOLUNTARY NON-TEACHING ACTIVITIES REPORTED BY ACADEMIC AND T&I VOCATIONAL TEACHERS

TYPES OF NON-TEACHING ACTIVITIES VOLUNTEERED BY TEACHERS	TYPE OF TEACHER							
	VOCATIONAL				ACADEMIC			
	N	%	MEAN HR/MO	S.D.	N	%	MEAN HR/MO	S.D.
Monitoring duties	47	10.9	0.8	7.9	22	12.9	0.9	5.9
Substitute teaching	0	0.0	-	-	1	0.6	-	-
Attendance at faculty meetings	21	4.9	0.4	10.7	14	8.2	0.3	2.3
Extracurricular activity advisor	157	36.4	2.8	7.8	90	52.9	4.1	9.3
Tutoring/assisting special students	11	2.5	0.1	2.6	4	2.4	0.3	10.0
Guidance and counseling	201	46.5	2.7	5.1	28	16.5	1.6	9.8
General administrative duties	12	2.8	0.2	4.6	3	1.8	0.1	1.7
Administrative duties (special)	1	0.2	-	-	1	0.6	0.0	0.0
PTA, open house, etc.	50	11.6	0.5	4.0	23	13.5	0.6	5.4
Curriculum advisory committee	7	1.6	0.2	13.1	5	2.9	0.1	1.4
Community service	25	5.8	0.4	5.6	5	2.9	0.1	0.9
Library duties	0	0.0	-	-	2	1.2	0.1	0.7
Professional organizations	18	4.2	0.3	8.8	12	7.1	0.6	5.8
Other than above	28	6.6	0.5	8.3	9	5.3	0.5	9.1
All reported non-teaching activities	431	-	3.6	7.5	178	-	4.4	8.5

•How many hours per month do T&I teachers contribute in terms of combined required and voluntary non-teaching activities? Are there substantial school differences in terms of average hours per month for such activities? Table 56 provides the data.

The average T&I teacher contributes 12.2 hours per month for required and volunteered non-teaching activities. That amounts to about a half an hour per day. While that does not appear to be excessive, the individual differences are wide ranging. About 25 percent of the teachers reported five hours or less of such activities. These were certainly not overburdened. Indeed, one wonders why they were not more heavily involved in activities related to the vocational success of their students, such as establishing relations with community employers, counseling and guiding students in need of personal attention or even tutoring those at the rear of the class. On the other hand, about 23 percent contributed in excess of twenty-six hours per month for such activities. That is more than an hour per day. Assuming that these teachers have not exaggerated the hours they contribute to non-teaching activities, one must conclude that a significant percent are overburdened with non-teaching activities.

TABLE 56. DISTRIBUTION DATA ON COMBINED REQUIRED AND VOLUNTARY NON-TEACHING ACTIVITIES FOR VOCATIONAL TEACHERS AND THEIR SCHOOLS

HOURS PER MONTH	TOTAL NON-TEACHING ACTIVITIES					
	TEACHERS			SCHOOLS		
	N	%	C%	N	%	C%
≥ 46	31	4.7	100.0	0	0.0	-
41 - 45	15	2.3	95.3	1	1.0	100.0
36 - 40	25	3.8	93.0	2	2.0	99.0
31 - 35	38	5.8	89.2	2	2.0	97.0
26 - 30	39	6.0	83.4	9	9.0	95.0
21 - 25	53	8.1	77.4	17	17.0	86.0
16 - 20	88	13.5	69.3	24	24.0	69.0
11 - 15	82	12.5	55.8	25	25.0	45.0
6 - 10	115	17.6	43.3	17	17.0	20.0
1 - 5	168	25.7	25.7	3	3.0	3.0
NUMBER	654			100		
MEAN	12.2			11.8		
MEDIAN	14			12		
S.D.	15.0			11.7		

The individual school differences on this variable are impressive. Most schools seem to be reasonable in terms of teacher time for non-teaching activities. About 20 percent, for example, had an average hours per month for such activities that was less than ten. Yet, some schools appear to be overdoing it. About 14 percent involved their teachers in such activities for an average of 25 hours or more per month.

Teacher Role in Decision-making

Teacher complaints about a lack of voice in the school system decision-making process are heard with increasing frequency. At least, so it seems in newspaper accounts of friction between the administrators and the teachers.

The present study asked teachers to consider each of fourteen areas of decision-making and to indicate the degree of decision-making influence they had in each area. Where they claimed that they had no influence, they were asked to indicate whether they were disturbed by their lack of influence.

- What degree of influence do T&I teachers have in the school decision-making process and what is their reaction to having no influence? Table 57 provides the data.

A weighted mean influence index was calculated for each decision-making area by multiplying the number in each response category with the weight assigned to the response category and dividing by the total number of responses. The items in Table 57 are ranked from most to least influence based upon the mean influence index.

It is clear that T&I teachers do have considerable influence upon (1) changes in instructional methods, (2) selection of shop equipment, (3) selection of instructional equipment, (4) selection of textbooks, (5) planning of field trips, (6) changes in subject content and (7) selection of library books and periodicals related to their course of instruction. The conclusion is based upon the mean influence indexes. The percentages tell the story more precisely. There are impressive percentages of teachers who have little or no influence in the decisions related to some of the above categories. For example, about 23 percent of the teachers have little or no influence on the selection of textbooks.

The areas in which most teachers have little or no influence are: (1) determining academic subject standards, (2) making policy regarding class size, (3) scheduling subjects, (4) establishing prerequisites for admission to vocational courses and (5) non-teaching activity assignments. In short, where the T&I teacher may cause an administrative problem, he has little or no voice in the decision-making. Where the potential for causing an administrative problem is minor, he has a lot to say. For example, he has almost sole decision authority on the matter of changes in methods of instruction. Such changes are not likely to cause an administrative problem. However, on the matter of who will be admitted to his course, he has relatively little to say. If he set "unreasonably" high course admission standards, it might create a problem for the administrator. The solution apparently is to give him little voice in establishing such standards. Notice, incidentally,

TABLE 57. THE ROLE IN DECISION-MAKING REPORTED BY T&I VOCATIONAL TEACHERS FOR AREAS THAT MAY INFLUENCE QUALITY OF VOCATIONAL EDUCATION

AREAS OF POTENTIAL DECISION-MAKING OR DECISION INFLUENCE	DEGREE OF INFLUENCE								DISTURBED BY "NO INFLUENCE"		MEAN INFLUENCE *		
	SOLE DECISION		MUCH INFLUENCE		SOME INFLUENCE		NO INFLUENCE						
	N	%	N	%	N	%	N	%	N	%	N	MEAN	S.D.
Changes in instructional methods	400	46.6	335	39.0	93	10.8	30	3.5	16	1.9	858	3.29	0.80
Selection of shop equipment, materials	268	31.5	408	48.0	144	16.9	30	3.5	16	1.9	850	3.08	0.79
Selection of instructional equipment	283	32.9	393	45.7	153	17.8	31	3.6	19	2.2	860	3.08	0.80
Selection of textbooks	326	37.5	344	39.6	131	15.1	68	7.8	29	3.3	869	3.07	0.91
Field trip planning	311	37.9	307	37.4	142	17.3	61	7.4	21	2.6	821	3.06	0.92
Changes in content of subjects	264	30.7	387	45.0	155	18.0	54	6.3	17	2.0	860	3.00	0.86
Selection of library books, periodicals	304	35.7	295	34.7	200	23.5	52	6.1	10	1.2	851	3.00	0.92
Changes in subject requirements	183	22.2	279	33.9	200	24.3	161	19.6	54	6.6	823	2.59	1.04
Students selected for coop program	118	18.9	177	28.4	156	25.0	172	27.6	28	4.5	623	2.39	1.08
Determining academic standards	59	7.9	154	20.6	219	29.4	314	42.1	108	14.5	746	1.94	0.97
Policy regarding class size	15	1.8	123	15.1	316	38.9	359	44.2	183	22.5	813	1.75	0.78
Scheduling of courses	39	5.0	118	15.1	233	29.8	393	50.2	79	10.1	783	1.75	0.89
Prerequisites for course enrollment	26	3.3	104	13.2	267	33.9	391	49.6	180	22.8	788	1.70	0.82
Non-teaching duty assignments	30	4.2	80	11.3	225	31.7	375	52.8	91	12.8	710	1.67	0.84

* 1-No influence, 2-Some influence, 3-Much influence, 4-Sole decision

that about 23 percent of all T&I teachers claim that they are disturbed by their lack of influence on course admission standards. Similarly, about 22 percent are bothered by their lack of voice in establishing policy regarding class size. Both of these variables have a high potential relationship with the effectiveness of vocational education. The seriousness of their concern for quality vocational education is testified to by the absence of disturbed reactions in two areas where they also have little or no voice, i.e. the scheduling of subjects and the assignment of non-teaching duties. Apparently, they don't want merely a voice in decision-making per se, but a voice in decision-making that has an influence on the effectiveness of their teaching.

● To what extent are there individual and school differences in teacher participation in the school decision-making process? Table 58 provides the distribution data for the teacher and school decision-making index.

TABLE 58. DISTRIBUTION OF DECISION-MAKING ROLE INDEX FOR VOCATIONAL TEACHERS AND THEIR SCHOOLS

CLASS INTERVALS *	DECISION-MAKING INFLUENCE INDEX					
	TEACHERS			SCHOOLS		
	N	%	C%	N	%	C%
4.0	2	0.2	100.0	0	0.0	-
3.5 - 3.9	12	1.3	99.8	0	0.0	-
3.0 - 3.4	115	12.7	98.5	1	1.0	100.0
2.5 - 2.9	287	31.8	85.8	38	38.0	99.0
2.0 - 2.4	303	33.6	54.0	50	50.0	61.0
1.5 - 1.9	132	14.6	20.4	11	11.0	11.0
1.0 - 1.4	52	5.8	5.8	0	0.0	0.0
NUMBER	903			100		
MEAN	2.3			2.4		
MEDIAN	2.4			2.2		
S.D.	0.5			0.2		

* 1-No influence, 2-Some influence, 3-Much influence, 4-Sole decision

The index score for teachers was derived by weighting the answers as indicated at the bottom of the table and calculating a mean value. The index, therefore, ranged from 1 (no influence) to 4 (sole decision). School scores were obtained by averaging teacher scores.

• How do vocational and comprehensive schools compare in terms of T&I teacher involvement in decision-making? Table 59 provides the data in the form of mean values calculated for each area of decision-making.

There is no difference between the two types of schools on the overall teacher decision-making index. However, there are significant differences on two individual items. Vocational teachers in vocational schools have a greater voice in the scheduling of courses whereas those in comprehensive schools have a greater say in class size limitations. Even these differences are not impressive in any practical sense.

TABLE 59. COMPARATIVE DATA ON ROLE IN DECISION-MAKING REPORTED BY T&I VOCATIONAL TEACHER IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

AREAS OF POTENTIAL DECISION MAKING OR DECISION INFLUENCE ***	TYPE OF SCHOOL					
	VOCATIONAL			COMPREHENSIVE		
	N	MEAN	S.D.	N	MEAN	S.D.
Changes in content of subjects	569	3.01	0.9	291	2.99	0.8
Changes in subject requirements	544	2.62	1.0	279	2.52	1.1
Selection of textbooks	569	3.06	0.9	300	3.07	0.9
Changes in instructional methods	565	3.25	0.8	293	3.37	0.7 *
Selection of instructional equipment	565	3.09	0.8	295	3.05	0.8
Selection of library books and periodicals	558	3.00	0.9	293	2.99	0.9
Selection of shop equipment materials	563	3.10	0.8	287	3.03	0.7
Scheduling of courses	515	1.82	0.9	268	1.61	0.8 **
Prerequisites for course enrollment	521	1.69	0.8	267	1.73	0.8
Non-teaching duty assignments	453	1.66	0.8	257	1.69	0.8
Policy regarding class size	527	1.69	0.8	286	1.85	0.7 **
Field trip planning	535	3.03	0.9	286	3.12	0.9
Students selected for coop program	410	2.44	1.1	213	2.28	1.0
Determining academic standards	493	1.92	1.0	253	2.00	1.0
Decision index (overall)	596	2.34	0.6	307	2.35	0.5

* Significant at .05 level of confidence
** Significant at .01 level of confidence
*** 1-No influence, 2-Some influence, 3-Much influence, 4-Sole decision

The mean and median overall decision-making influence index for T&I vocational teachers is 2.3 and 2.4 respectively. Thus, the average teacher has an overall influence that is between "some" influence and "much" influence. The distribution of individual teacher scores, however, covers almost the entire range. At the bottom, some teachers report they have almost no voice in anything. At the upper end, there are teachers who claim they have almost complete decision-making authority in all areas considered. (The lack of plausibility at the extremes is worrisome.)

The school differences tell an important story. For one, the range is narrower than is the case for individual teachers. This suggests that school policy alone is not responsible for the differences among teachers in decision-making influence. Undoubtedly, personal teacher characteristics are part of the explanation why teachers differ in the amount of voice they have in the school decision-making process. Nevertheless, the school differences confirm that schools differ in the degree to which they permit teachers to have a voice in school decision-making. In eleven percent of the schools, the school means on teacher influence came to 1.9 or less. In these schools, it can be said that teachers have relatively little voice in the decision-making that influences the teaching process.

While this is not the place for a polemic on authoritarianism in public school systems, one can not help but point out that administrators who deny teachers an active role in the decision-making process, as it effects the quality of teaching, invite--no, they induce--low level teacher motivation.

•How do vocational and academic teachers compare in terms of decision-making influence? Table 60 provides the data.

The T&I vocational teacher has a much greater voice in the school decision-making process than the academic teacher. This is partly because vocational teachers have the occupational experience that is necessary for decisions related to such matters as subject content, textbook selection, instructional methods and equipment selection. Their administrators are usually lacking in such experience and defer, of necessity, much decision-making to the vocational teacher. The academic teacher has no such advantage. On the contrary, his administrator very often has more years of experience with his subject than he himself has. This kind of situation tends to diminish his decision-making role. The point is best illustrated by the difference in voice about textbook selections. Thirty-eight percent of the vocational teachers report this is their sole decision; only seven percent of the academics made this claim. The academic teacher, like the psychologist, has the misfortune to be in a field where everybody knows his business. At least, so they think.

TABLE 60. COMPARATIVE DATA ON ROLE IN DECISION-MAKING REPORTED BY ACADEMIC AND T&I VOCATIONAL TEACHERS

AREAS OF POTENTIAL DECISION MAKING OR DECISION INFLUENCE *	TYPE OF TEACHER					
	VOCATIONAL			ACADEMIC		
	N	MEAN	S.D.	N	MEAN	S.D.
Changes in content of subjects	860	3.00	0.9	308	2.49	0.8 **
Changes in subject requirements	823	2.59	1.0	293	1.93	0.9 **
Selection of textbooks	869	3.07	0.9	309	2.37	0.8 **
Changes in instructional methods	858	3.29	0.8	301	2.94	0.9 **
Selection of instructional equipment	860	3.08	0.8	305	2.71	0.8 **
Selection of library books and periodicals	851	3.00	0.9	302	2.60	0.8 **
Scheduling of courses	783	1.75	0.9	284	1.49	0.7 **
Non-teaching duty assignments	710	1.67	0.8	279	1.70	0.8
Policy regarding class size	813	1.75	0.8	290	1.42	0.6 **
Field trip planning	821	3.06	0.9	266	2.57	1.0 **
Determining academic standards	746	1.94	1.0	286	2.14	0.9 **
Decision index	903	2.35	0.6	320	1.94	0.4 **

* 1-No influence, 2-Some influence, 3-Much influence, 4-Sole decision
** Significant at .01 level of confidence

THE TEACHER OUTSIDE OF SCHOOL

A knowledge of what vocational teachers do, in a non-occupational way, outside of school may not have any significant implication for vocational education, but it does round out the picture. It may also stimulate hypotheses about the more subtle, non-subject matter influence that such teachers have on vocational students.

Organization Affiliation

The teachers were asked to indicate the status of their membership in each of eleven listed types of community organizations. The response categories were weighted as follows: 1-non-member, 2-inactive member, 3-active member and 4-officer. This permitted a mean rating for each type of organization and also for each teacher. The mean rating so developed is known as the organization affiliation index and provides a basis for comparing vocational teachers from comprehensive and vocational schools and vocational teachers with academic teachers.

•What type of community organizations do vocational teachers affiliate with and what is their membership status in such organizations? Table 61 provides the data.

TABLE 61. COMMUNITY ORGANIZATION AFFILIATION STATUS OF T&I VOCATIONAL TEACHERS

TYPE OF ORGANIZATION	REPORTED ORGANIZATION MEMBERSHIP								MEAN RATING *		
	NON-MEMBER		INACTIVE		ACTIVE		OFFICER				
	N	%	N	%	N	%	N	%	N	MEAN	S.D.
Church or religious	78	9.0	207	24.0	431	49.9	147	17.0	863	2.75	0.84
Political	517	59.6	228	26.3	112	12.9	11	1.3	868	1.56	0.76
Service	668	78.3	63	7.4	92	10.8	30	3.5	853	1.40	0.82
Sports club or association	573	67.7	58	6.9	180	21.3	35	4.1	846	1.62	0.95
Labor union	499	58.4	153	17.9	185	21.6	18	2.1	855	1.68	0.88
Fraternal organization	509	59.1	133	15.4	186	21.6	33	3.8	861	1.70	0.93
Veterans organization	637	75.3	121	14.3	71	8.4	17	2.0	846	1.37	0.72
Business or industria.	553	65.5	76	9.0	184	21.8	31	3.7	844	1.64	0.94
Cultural	613	73.7	72	8.7	131	15.7	16	1.9	832	1.46	0.82
Local civic association	596	72.7	63	7.7	137	16.7	24	2.9	820	1.50	0.87
Educational association	74	8.6	210	24.3	525	60.7	56	6.5	865	2.65	0.73

* 1-Non-member, 2-Inactive, 3-Active, 4-Officer

Vocational teachers reported membership in the following types of organizations:

•Educational	93%
•Religious	91
•Labor	42
•Fraternal	41
•Political	40
•Business	35
•Sports	32

Active or officer status was held in the following types of organizations:

•Educational	67%
•Religious	67
•Business	26
•Sports	25
•Fraternal	25
•Labor	24
•Political	14

The average T&I instructor reported membership status in 4.4 of the organization categories and active membership status in 2.9 organization categories. Thus, he appears to be a reasonably active organization participant. It remains to be demonstrated whether such membership has any bearing on his success in placing graduates into their field of study.

•How do vocational teachers in vocational and comprehensive schools compare in terms of community organization affiliation? Table 62 provides the data.

The vocational teachers in comprehensive schools show significantly more active participation in religious, political, service, fraternal, business, civic and educational community organizations than those in vocational schools. Those from vocational schools show significantly greater in[illegible]ement in labor unions. Apparently, the association in comprehensive [illegible]s stimulates T&I teachers to greater community organization membership [illegible]n is the case for those in vocational schools.

The stronger affiliation of vocational school teachers with labor organizations is not without significance. It suggests a closer relationship with organized labor and is consistent with the finding that vocational schools do a significantly better job of placing their graduates into the occupations for which trained.

•How do vocational and academic teachers compare in terms of community organization affiliation? Table 63 provides the data.

The academic teachers show significantly greater membership and participation in cultural organizations, whereas the vocational teachers show greater membership and participation in labor unions and industrial or business organizations. None of the other organization affiliation differences are statistically significant. As is the case with their

former students, the two types of teachers are more alike in their pattern of community organization affiliation than they are different.

Consult Appendix Section 4 for percentage data on each type of teacher with respect to membership status in each type of organization.

Leisure Time Activities

Teachers were asked to report the frequency of engagement in nineteen common leisure activities. The four response alternatives (daily, often, seldom or never) were weighted 4, 3, 2 and 1 respectively in order to obtain a mean frequency rating for each type of leisure activity.

•How frequently do T&I vocational teachers engage in the different type of leisure activities? Table 64 provides the data.

The most frequently engaged-in activities are reading daily newspapers, fixing things around the house, listening to music, watching television, reading magazines, reading books, working in the garden, visiting friends, watching sporting events and engaging in craft hobbies. All of the foregoing activities had mean frequency ratings of 2.5 or higher. Going to the movies was the least frequently involved activity.

With some exceptions, the pattern is very similar to that developed for vocational graduates. The exceptions are less movie attendance, less participation in individual sports and more involvement in home workshops.

•How do vocational teachers in comprehensive and vocational schools compare in terms of frequency of involvement in different leisure activities? Table 65 provides the data.

Disregarding the significant difference in craft hobby involvement, the T&I teachers in comprehensive and vocational schools are as alike as two peas in the pod. Once again, we see no differences between the two types of schools.

•How do vocational and academic teachers compare in terms of leisure activity frequency? Table 66 provides the data.

Academic teachers report significantly more frequent involvement in the following leisure activities:

- Organized and individual sports
- Watching spectator sports
- Reading magazines
- Going to the movies
- Reading general books
- Attending cultural events

TABLE 62. COMPARATIVE COMMUNITY ORGANIZATION AFFILIATION STATUS OF VOCATIONAL TEACHERS IN COMPREHENSIVE AND VOCATIONAL SCHOOLS

TYPE OF ORGANIZATION ***	TYPE OF SCHOOL						
	VOCATIONAL			COMPREHENSIVE			
	N	MEAN	S.D.	N	MEAN	S.D.	
Church or religious	573	2.69	0.84	290	2.87	0.85	**
Political	577	1.49	0.73	291	1.69	0.81	**
Service	566	1.33	0.75	287	1.52	0.92	**
Sports club or association	563	1.58	0.94	283	1.70	0.98	
Labor union	572	1.83	0.93	283	1.36	0.69	**
Fraternal organization	573	1.63	0.90	288	1.84	0.99	**
Veterans organization	566	1.38	0.74	280	1.36	0.69	
Business or industrial	562	1.57	0.92	282	1.77	0.98	**
Cultural	557	1.42	0.80	275	1.54	0.87	*
Local civic association	550	1.44	0.83	270	1.63	0.94	**
Educational association	574	2.56	0.77	291	2.83	0.60	**

TABLE 63. COMPARATIVE COMMUNITY ORGANIZATION AFFILIATION STATUS OF MALE VOCATIONAL AND ACADEMIC TEACHERS

TYPE OF ORGANIZATION ***	TYPE OF TEACHER						
	VOCATIONAL			ACADEMIC			
	N	MEAN	S.D.	N	MEAN	S.D.	
Church or religious	863	2.75	0.84	225	2.76	0.88	
Political	868	1.56	0.76	221	1.65	0.75	
Service	853	1.40	0.82	219	1.34	0.75	
Sports club or association	846	1.62	0.95	218	1.75	1.01	
Labor union	855	1.68	0.88	219	1.39	0.77	**
Fraternal organization	861	1.70	0.93	217	1.64	0.90	
Veterans organization	846	1.37	0.72	217	1.29	0.63	
Business or industrial	844	1.64	0.94	214	1.28	0.68	**
Cultural	832	1.46	0.82	216	1.59	0.89	*
Local civic association	820	1.50	0.87	215	1.50	0.86	
Educational association	865	2.65	0.73	224	2.65	0.77	

* Significant at .05 level of confidence
** Significant at .01 level of confidence
*** 1-Not a member, 2-Inactive, 3-Active, 4-Officer

TABLE 64. LEISURE ACTIVITY FREQUENCIES REPORTED BY T&I VOCATIONAL TEACHERS

REPORTED LEISURE ACTIVITIES *	REPORTED FREQUENCY OF ACTIVITY								MEAN ACTIVITY RATING		
	DAILY		OFTEN		SELDOM		NEVER				
	N	%	N	%	N	%	N	%	N	MEAN	S.D.
Visiting or entertaining friends	28	3.0	623	67.6	234	25.4	36	3.9	921	2.70	0.59
Reading daily newspapers	814	88.4	66	7.2	23	2.5	18	2.0	921	3.82	0.56
Participating in organized sports	22	2.4	157	17.0	289	31.4	453	49.2	921	1.73	0.83
Participating in individual sports	27	2.9	326	35.4	309	33.6	259	28.1	921	2.13	0.86
Watching sporting events	42	4.6	540	58.6	250	27.1	89	9.7	921	2.58	0.73
Reading newsmagazines, like TIME	152	16.5	514	55.8	181	19.7	74	8.0	921	2.81	0.80
Reading magazines, like LIFE, LOOK	125	13.6	478	51.9	225	24.4	93	10.1	921	2.69	0.83
Engaging in craft hobbies	116	12.6	404	43.9	240	26.1	161	17.5	921	2.52	0.92
Working in yard or garden	132	14.3	546	59.3	159	17.3	84	9.1	921	2.79	0.80
Fixing things around the house	252	27.4	594	64.5	49	5.3	26	2.8	921	3.16	0.64
Going to the movies	4	0.4	70	7.6	411	44.6	436	47.3	921	1.61	0.65
Reading books	176	19.1	477	51.8	226	24.5	42	4.6	921	2.86	0.77
Listening to music	274	29.8	458	49.7	146	15.9	43	4.7	921	3.05	0.80
Attending plays, opera, ballet	4	0.4	136	14.8	371	40.3	410	44.5	921	1.71	0.73
Dancing for pleasure	5	0.5	153	16.6	357	38.8	406	44.1	921	1.74	0.75
Taking adult education courses	30	3.3	370	40.2	294	31.9	227	24.6	921	2.22	0.86
Traveling or taking trips	9	1.0	513	55.7	321	34.9	78	8.5	921	2.49	0.66
Watching television	258	28.0	364	39.5	239	26.0	60	6.5	921	2.89	0.89
Reading professional journals	168	18.2	621	67.4	96	10.4	36	3.9	921	3.00	0.67

* 1-Never, 2-Seldom, 3-Often, 4-Daily

TABLE 65. COMPARATIVE LEISURE ACTIVITY FREQUENCY DATA REPORTED BY VOCATIONAL TEACHERS IN COMPREHENSIVE AND VOCATIONAL SCHOOLS

COMMON LEISURE ACTIVITIES ***	TYPE OF SCHOOL						
	VOCATIONAL			COMPREHENSIVE			
	N	MEAN	S.D.	N	MEAN	S.D.	
Visiting or entertaining friends	608	2.70	0.56	313	2.70	0.65	
Reading daily newspapers	608	3.84	0.52	313	3.79	0.63	
Participating in organized sports	608	1.73	0.84	313	1.72	0.81	
Participating in individual sports	608	2.13	0.87	313	2.13	0.83	
Watching sporting events	608	2.57	0.73	313	2.61	0.73	
Reading newsmagazines, like TIME	608	2.79	0.79	313	2.84	0.83	
Reading magazines, like LIFE, LOOK	608	2.65	0.81	313	2.77	0.87	*
Engaging in craft hobbies	608	2.45	0.93	313	2.64	0.90	**
Working in yard or garden	608	2.79	0.82	313	2.70	0.76	
Fixing things around the house	608	3.20	0.62	313	3.10	0.68	*
Going to the movies	608	1.61	0.65	313	1.61	0.63	
Reading books	608	2.90	0.75	313	2.78	0.81	*
Listening to music	608	3.06	0.77	313	3.01	0.86	
Attending plays, opera, ballet	608	1.70	0.72	313	1.74	0.73	
Dancing for pleasure	608	1.75	0.75	313	1.70	0.74	
Taking adult education courses	608	2.25	0.84	313	2.17	0.89	
Traveling or taking trips	608	2.49	0.65	313	2.49	0.68	
Watching television	608	2.88	0.88	313	2.92	0.91	
Reading professional journals	608	3.03	0.65	313	2.94	0.70	

* Significant at .05 level of confidence
** Significant at .01 level of confidence
*** 1-Never, 2-Seldom, 3-Often, 4-Daily

TABLE 66. COMPARATIVE LEISURE ACTIVITY FREQUENCY DATA FOR MALE VOCATIONAL AND ACADEMIC TEACHERS

COMMON LEISURE ACTIVITIES *	TYPE OF TEACHER						
	VOCATIONAL			ACADEMIC			
	N	MEAN	S.D.	N	MEAN	S.D.	
Visiting or entertaining friends	921	2.70	0.59	231	2.75	0.58	
Reading daily newspapers	921	3.82	0.56	231	3.85	0.54	
Participating in organized sports	921	1.73	0.83	231	1.94	0.84	**
Participating in individual sports	921	2.13	0.86	231	2.33	0.90	**
Watching sporting events	921	2.58	0.73	231	2.72	0.70	**
Reading newsmagazines, like TIME	921	2.81	0.80	231	3.11	0.74	**
Reading magazines, like LIFE, LOOK	921	2.69	0.83	231	2.93	0.79	**
Engaging in craft hobbies	921	2.52	0.92	231	1.95	0.90	**
Working in yard or garden	921	2.79	0.80	231	2.75	0.86	
Fixing things around the house	921	3.16	0.64	231	2.86	0.73	**
Going to the movies	921	1.61	0.65	231	1.75	0.66	**
Reading books	921	2.86	0.77	231	3.04	0.70	**
Listening to music	921	3.05	0.80	231	3.09	0.82	
Attending plays, opera, ballet	921	1.71	0.73	231	2.00	0.74	**
Dancing for pleasure	921	1.74	0.75	231	1.73	0.72	
Taking adult education courses	921	2.22	0.86	231	2.02	0.90	**
Traveling or taking trips	921	2.49	0.66	231	2.55	0.64	
Watching television	921	2.89	0.89	231	2.93	0.90	
Reading professional journals	921	3.00	0.67	231	2.79	0.65	**

* 1-Never, 2-Seldom, 3-Often, 4-Daily
** Significant at .01 level of confidence

Vocational teachers report significantly more frequent involvement in:

- Craft and workshop hobbies
- Repairs around the house
- Adult education courses
- Reading professional journals

There are no significant differences between the two types of teachers in:

- Reading newspapers
- Visiting friends
- Working in gardens
- Listening to music
- Social dancing
- Taking trips
- Watching television

The overall pattern suggests more similarity than difference between the two types of teachers. The different kinds of formal education experienced by the two types of teachers do not greatly alter their leisure time activities, at least not as measured by a superficial questionnaire method. (The differences that are demonstrated are those of shades of grey rather than black and white.)

Conversational Preferences

The teachers were asked to indicate which of a list of common social topics they were likely to talk about when they got together with other people socially.

- What are the conversational preferences of T&I vocational teachers? How do the vocational teachers in vocational schools differ from those in comprehensive schools in terms of what they are likely to talk about socially? Table 67 provides the data.

Not surprisingly, teachers like other people talk most frequently about their work. About 83 percent say this is a likely topic when they get together with others. They are least likely to talk about cultural topics such as music or art. See Table 67 for the rank order of their preference.

There is only one topic on which vocational teachers from the two schools differ substantially. A much greater percentage of vocational school teachers talk about labor union matters than do those from the comprehensive schools. This is consistent with the earlier finding that a larger percentage of the T&I teachers in vocational schools belong to labor unions than do those from comprehensive schools.

- How do vocational and academic teachers compare in terms of conversational preferences? Table 68 provides the data.

TABLE 67. COMPARATIVE DATA ON CONVERSATIONAL TOPIC PREFERENCES OF VOCATIONAL TEACHERS IN COMPREHENSIVE AND VOCATIONAL SCHOOLS

CONVERSATIONAL PREFERENCES	UNITED STATES VOCATIONAL		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Your work	752	83.0	502	83.8	250	81.4
Religion	356	39.3	230	38.3	126	41.0
Politics	557	61.4	364	60.7	193	62.9
Business conditions	572	63.1	376	62.7	196	63.8
World affairs	670	73.9	437	72.8	233	75.9
National problems	670	73.9	446	74.3	224	73.0
Your hobbies	565	62.4	375	62.6	190	61.9
Community problems	691	76.2	451	75.2	240	78.2
Sports	572	63.1	384	64.0	188	61.2
Music, art, etc.	294	32.4	207	34.5	87	28.3
Government matters	509	56.1	330	55.0	179	58.3
Labor union matters	300	33.1	231	38.6	69	22.5
Your family	571	63.0	387	64.6	184	59.9

TABLE 68. COMPARATIVE DATA ON CONVERSATIONAL TOPIC PREFERENCES REPORTED BY MALE VOCATIONAL AND ACADEMIC TEACHERS

CONVERSATIONAL PREFERENCES	TYPE OF TEACHER			
	VOCATIONAL		ACADEMIC	
	N	%	N	%
Your work	752	83.0	196	85.6
Religion	356	39.3	93	40.6
Politics	557	61.4	173	75.5
Business conditions	572	63.1	124	54.1
World affairs	670	73.9	192	83.8
National problems	670	73.9	189	82.5
Your hobbies	565	62.4	105	45.9
Community problems	691	76.2	169	73.8
Sports	572	63.1	173	75.5
Music, art, etc.	294	32.4	79	34.5
Government matters	509	56.1	144	62.9
Labor union matters	300	33.1	65	28.4
Your family	571	63.0	157	68.6

The academic teachers are more likely to talk about politics, world affairs, national affairs, sports and government problems. All these topics show a five percent or greater difference between the two teachers.

The vocational teachers are more likely to talk about business conditions, hobbies and labor union matters.

Their preferences are more or less general in terms of conversations about work, religion, community problems and cultural events.

Community Activity Involvement

The teachers were asked to list the different types of community activities that engaged their time in the last school year. The sum of the number of activities reported was taken as a measure of community activity. However, data from the open-ended type question is always open to the criticism that probably not all respondents were equally accurate and complete in listing their so-called community activities.

• What types of community activities do T&I teachers report? Are there any differences in what the T&I teachers in vocational and comprehensive schools report? Table 60 provides the data.

TABLE 69. COMPARATIVE DATA ON COMMUNITY ACTIVITIES REPORTED BY VOCATIONAL TEACHERS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPE OF COMMUNITY ACTIVITY ENGAGED IN BY TEACHERS	UNITED STATES VOCATIONAL		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Charity fund raising	48	5.3	30	5.0	18	5.9
School and/or church fund raising	20	2.2	16	2.7	4	1.3
Youth organizations	156	17.3	95	15.9	61	19.9
Sunday school instructor	14	1.6	12	2.0	2	0.6
Other church activities	37	4.1	24	4.0	13	4.2
Community redevelopment projects	33	3.6	20	3.4	13	4.2
Participation in civic events	12	1.3	11	1.8	1	0.3
Civic action or social work	41	4.5	22	3.7	19	6.2
Organized civic action groups	55	6.1	32	5.4	23	7.5
Volunteer city services	32	3.5	19	3.2	13	4.2
Political party membership activity	13	1.4	8	1.3	5	1.6
Veterans organizations	10	1.1	9	1.5	1	0.3
Fraternal organizations	14	1.6	7	1.2	7	2.3
Educational community services	27	3.0	15	2.5	12	3.9
Business/professional organization	12	1.3	6	1.0	6	2.0

Excluding participation in youth activities, less than 10 percent of the teachers are involved in any type of community activity. About 66 percent reported they were involved in no community activities of any type during the school year. Clearly, there is very little community activity involvement among vocational teachers. However, this is probably also true for the public in general.

The community activity involvement of vocational and comprehensive school T&I teachers was essentially the same, namely very little, except for youth organization activities. About 68 and 60 percent of the vocational and comprehensive school T&I teachers reported no such activities. Thus. in the norm, T&I teachers are non-participants in community activities as well as non-participating members, if they are members, of community organizations. Whether this is more or less so than for the public they serve, this study can not say.

•How do academic and vocational teachers compare in community activity involvement? Table 70 provides the data.

The percentage of academic teachers who reported no community activities was 65 percent versus 60 percent for the vocational teachers. The mean number of such activities reported was 0.6 and 0.7 for vocational and academic teachers respectively. The two teachers do not differ significantly in terms of community activities.

TABLE 70. COMPARATIVE DATA ON COMMUNITY ACTIVITIES REPORTED BY MALE VOCATIONAL AND ACADEMIC TEACHERS

TYPE OF COMMUNITY ACTIVITY ENGAGED IN BY TEACHERS	TYPE OF TEACHER			
	VOCATIONAL		ACADEMIC	
	N	%	N	%
Charity fund raising	48	5.3	24	10.5
School and/or church fund raising	20	2.2	8	3.5
Youth organizations	156	17.3	27	11.8
Sunday school instructor	14	1.6	5	2.2
Other church activities	37	4.1	18	7.9
Community redevelopment projects	33	3.6	9	3.9
Participation in civic events	12	1.3	2	0.9
Civic action or social work	41	4.5	16	7.0
Organized civic action groups	55	6.1	14	6.1
Volunteer city services	32	3.5	4	1.8
Political party membership activity	13	1.4	4	1.8
Veterans organizations	10	1.1	3	1.3
Fraternal organizations	14	1.6	2	0.9
Educational community services	27	3.0	8	3.5
Business/professional organization	12	1.3	1	0.4

TEACHER VARIABLE CORRELATION ANALYSIS

Teacher Variable Definitions

Of the 400 total teacher variables, 32 were subjected to correlation analysis. Some are self-explanatory. Others require either definition or explanation for reader understanding. The latter are usually variables derived from raw questionnaire data by use of weighting or calculational procedures. The variables used are.

1. Teacher age. Self-explanatory.

2. Number of dependents. Self-explanatory.

3. Father's occupation. The occupation titles provided by the teachers were categorized into the 7 occupation categories shown in Table 8, page 4-10. The categories were weighted from one to seven, with major professional occupations having the lowest weight and unskilled occupations having the highest weight.

4. Father's education. The education level of the male parent was determined by crediting one point for each year completed. Range: 1-20 points.

5. Teacher socio-economic origins. The measure reflects both male parent occupation and education. See page 4-12 for the equation that defines the measure.

6. Formal education achieved. The formal education of the teacher was credited points by level achieved as follows: 2-high school incomplete; 4-high school graduates; 6-some college, no degree; 8-college, B.A. degree or equivalent; 10-college, M.A. degree or equivalent. Range: 2-10 points.

7. Subject grade performance. The teacher reported grade averages for high school and college were converted to a grade point value, where A=4, B=3, C=2 and D=1. The high school and college grade values were weighted 1 and 2 respectively in obtaining a weighted grade average. Range: 1-4.

8. Post-high school training index. The number of post-high school, non-college courses of study reported taken was added to the number of such courses reported completed. The courses of study could be in any of the following categories: vocational or technical school course, business or commercial school course, apprenticeship program, military service school, correspondence course or company training course.

9. Professional self-development index. The teachers were credited one point for each type of self-development activity reported for the 1963

school year. For a list of the self-development activities, see Table 22, page 4-26. Index range: 0-8.

10. Years non-teaching job experience. The year-month durations of all non-teaching jobs held prior to becoming a teacher were totaled to obtain total years of non-teaching employment experience.

11. Years experience in trade. The year-month durations of all jobs held in the same occupation that they were now teaching, prior to becoming a teacher, were totaled to obtain total years of experience in the trade before becoming a teacher.

12. Number of summers worked full-time in past five. For teachers with six years or more in the field of teaching, the number of summers worked full-time in the past five summers gave a measure of summer period employment activity. Range: 0-5.

13. Number of school years worked part-time in past five. For teachers with six years or more of experience in the teaching field, the number of school years in which they held part-time, non-teaching jobs in the past five school years provided a measure of part-time employment activity. Range: 0-5.

14. Relatedness of summer and part-time teaching jobs. All summer and part-time teaching jobs held by the teacher in the past five years were scored 3 if what was taught was the same as their major school year subject, 2 if related to that subject and 1 if it was unrelated. Range: 5-30.

15. Relatedness of summer and part-time, non-teaching jobs. For each summer and regular school year in the past five in which a teacher held a summer full-time job and a school year part-time job, the teacher received a credit of 3 for jobs held in the same occupation they regularly taught, 2 if related to that occupation and 1 if unrelated to the occupation. Range: 5-30.

16. Years in present position. Self-explanatory.

17. Present position salary. School year 1963-64.

18. Total earned income. For the period from September, 1962, to and including August, 1963, total earned income included total regular school salary, total part-time job earnings and total summer job earnings for each teacher.

19. Additional income needed. Each teacher gave a dollar estimate of the additional salary he needed for what he considered to be an adequate income to meet his family and personal needs.

20. Number of teaching periods per week. Self-explanatory.

21. Number of pupils in all subjects. The total number of pupils reported enrolled in all classes taught by vocational teachers; the number defines the teacher's pupil load.

22. Hours per month of non-teaching activities. The estimated number of hours of required and voluntary non-teaching activities derived for each teacher by summing the average hours per months reported for different types of activities. See Table 55, page 4-67 for a list of the non-teaching activities to which the teachers responded.

23. Instructional methods use index. The teachers indicated the frequency with which they employed each of a list of instructional methods. The frequency categories were weighted as follows: 4-daily, 3-often, 2-seldom and 1-never. The mean of credited values was defined as the range of instructional methods index. The higher the mean, the wider the use of different methods of instruction. See Question 28 in the Teacher Form (Appendix Section 1) for a list of the different instructional methods.

24. Instructional equipment use index. The teachers indicated the frequency of use for different types of instructional equipment. The frequency categories were weighted as follows: 4-daily, 3-often, 2-seldom and 1-never. The mean of the credited values was defined as the instructional equipment use index. See Question 29 in the Teacher Form (Appendix Section 1) for a list of the different instructional equipments.

25. Evaluation methods use index. The teachers indicated their frequency of use for different methods of student evaluation. The frequency categories were weighted as follows: 4-very important, 3-important, 2-of some importance and 1-not used. The mean of the credited values was defined as the evaluation methods use index. See Question 31 in the Teacher Form (Appendix Section 1) for a list of the evaluation methods.

26. Course outline use. Teachers were scored 4, 3, 2 and 1 for answers that indicated they followed their approved course outline 100, 75, 50 and 25 percent respectively. The weighting does not imply they should follow such outlines; it merely makes possible an explanation of the variable.

27. Student problem frequency index. The teachers indicated the frequency of each of a list of student problems. The frequency categories were weighted as follows: 4-never, 3-seldom, 2-often and 1-daily. The mean of credited values was defined as the teacher's student problem index. The higher the score, the less frequent the student problems reported. See Table 59, page 3-67 for a list of the common student problems.

28. Decision-making influence index. The teachers indicated the degree to which they led a role in decision-making on a list of decision areas. The degree of influence was weighted 4-sole decision, 3-much influence, 2-some influence and 1-no influence. The mean of the credited values was defined as the teacher's decision-making influence index. The higher the score, the greater his role in decision-making. See Table 57, page 4-70 for a list of the decision-making areas.

29. Leisure activity index. Each teacher indicated the frequency of engagement in each item on a list of different types of leisure activities. The frequency categories were weighted as follows: 4-daily, 3-often, 2-seldom and 1-never. The mean of the credited values was defined as the teacher's leisure activity range and involvement index. The higher the

score, the greater his involvement in leisure activities. See Table 64, page 4-79 for a list of the rated leisure activities.

30. Conversational range index. Each teacher checked those items on a list of conversational topics which occurred frequently in his own social conversations. The total number checked became his conversational range index. See Table 67, page 4-83 for a list of the conversational topics.

31. Organization affiliation index. The teachers responded to a list of different types of community organizations by indicating their degree of affiliation. The affiliation categories were weighted as follows: 4-officer, 3-active member, 2-inactive member and 1-not a member. The mean of the credited values was the teachers organization affiliation index. The higher the score, the more active the teacher is in community organizations. See Table 61, page 4-75 for a list of the different types of community organizations.

32. Community activity index. The teachers were asked to list the different community activities engaged in during the last school year. Responses were screened, and teachers were credited one point per activity that could be interpreted as a community activity.

Teacher Variable Intercorrelations

The intercorrelation coefficients for the teacher variables are given in Table 71. The intercorrelations are of interest for two reasons: (1) Some intercorrelations provide an internal check on the validity of the data. For example, one would expect significant correlation between teacher age and years of experience as a teacher, or between years in present position and present position salary. There are enough of such common sense confirmations to generate confidence about the teacher data. (2) Some intercorrelations provide insight into the factors that are related to teacher characteristics of special interest. For example, teacher decision-making influence seems to be positively related to amount of formal education, amount of part-time and summertime employment, broader use of instructional methods and equipment, and lesser frequency of student problems. It is inversely related to years of non-teaching experience, total pupil load and present position salary. The general picture that emerges suggests that the more active teachers, e.g. more education, more supplementary work, more use of different teaching methods and equipment, etc., are the ones who have a greater voice in the school decision-making process. They are not necessarily the older, more experienced and better paid teachers.

With that background, let's consider some of the more interesting correlations:

1. Professional self-development index. The measure purports to describe how active teachers are in professional self-development. Age of the teacher, understandably, is negatively correlated with self-development. The older the teacher, the less likely he is to be involved in such activities. The same is true for years of teaching experience, years in present position and present position salary. The higher the teacher scores on these vari-

ables, the less likely is he to be involved in professional self-development, probably because the felt need for such activities diminishes.

On the other side, the teachers who score high in part-time and summertime work, and who hold such jobs in the occupation they teach also tend to be more active in professional self-development. They are also more active in non-teaching activities in school, and exhibit a wider use of instructional methods, equipment and evaluation techniques. They are even more active in their leisure pursuits and organizational affiliations. Behind all the detail, a pattern is suggested that harmonizes with common sense, namely the younger and more generally active teachers are the ones who spend more time in professional self-development.

2. Frequency of student problems. Few variables seem to be related with this measure. It shows no significant correlation with age, socio-economic origins, amount of formal education, years of teaching experience, years of non-teaching experience, years spent in the trade before becoming a teacher, total pupil load or whether the teacher uses a wide range of instructional methods and equipment.

The teachers who follow their course outlines to a greater degree have less student problems. Those with more non-teaching activities have no such problems. And the teachers who reported the higher scholastic achievement in high school and college report less student problems. Quite possibly, what is being revealed is that teachers with considerable self-dicipline , e.g. did well in school, adhere to prescribed course outlines, do not get involved in excessive non-teaching activities, etc., find it easier to maintain classroom discipline. It is also qu.te possible that the student problem index does not reflect what it purports to measure.

3. Years of experience in the trade. One would be inclined to think that years of experience in the occupation later taught as a vocational teacher would relate to one of the more positive teacher attributes. It does not. It correlates inversely with the decision-making role in school, i.e. the more years spent in the trade, the less they report a voice in decision-making. It correlates inversely with non-teaching activities. It correlates inversely with years at the present school, and that may explain the prior two relationships.

4. Additional income needed. The dollar amount of additional income needed correlates significantly and positively with: present position salary (.20) and total earned income (.05). The interpretation would seem to be that the more they make, the more they need. This is more readily understandable when one realizes the relationship suggested holds within an income range in which the higher earnings are also likely to open up new horizons for spending.

5. Population of the city served. One might expect differences between small city and big city teachers on many of the variables. The correlations do not reveal much, other than that the teachers in the larger cities tend to be older, with more years in the teaching field and more heavily involved in non-teaching school activities.

TABLE 71. VOCATIONAL TEACHER VARIABLE INTERCORRELATIONS

		SOCIO-ECONOMIC ORGINS AND FAMILY DATA					EDUCATIONAL BACKGROUND AND RELATED DATA				OCCUPATIONAL BACKGROUND AND RELATED DATA			SUMMER AND PART-TIME EMPLOYMENT			
	VOCATIONAL TEACHER VARIABLE INTERCORRELATIONS	1 TEACHER AGE	2 NUMBER OF DEPENDENTS	3 FATHER'S OCCUPATION	4 FATHER'S EDUCATION	5 TEACHER SOCIO-ECONOMIC ORIGINS	6 FORMAL EDUCATION ACHIEVED	7 SUBJECT GRADE PERFORMANCE	8 POST-HIGH SCHOOL TRAINING INDEX	9 PROFESSIONAL SELF-DEVELOPMENT INDEX	10 YEARS NON-TEACHING JOB EXPERIENCE	11 YEARS EXPERIENCE IN TRADE	12 YEARS EXPERIENCE VOCATIONAL TEACHER	13 SUMMERS WORKED F-T IN PAST FIVE	14 SCHOOL YEARS WORKED P-T IN PAST FIVE	15 RELATEDNESS S&P-T TEACHING JOBS	16 RELATEDNESS S&P-T NON-TEACHING JOBS
1	Teacher Age	-	.05	.06	.13**	-.04	-.01	.12**	.05	-.23**	.11**	.07*	.67**	-.27**	-.25**	-.10*	-.22**
2	Number of dependents	912	-	-.05	-.01	-.04	.02	-.02	.04	.00	-.02	-.01	.02	.03	.02	.01	.01
3	Father's occupation	912	921	-	.43**	.94**	.06	.01	.03	.00	.02	.03	.04	-.03	-.06	-.05	-.02
4	Father's education	912	921	921	-	-.56**	.09*	-.02	-.01	-.02	-.04	.06	.03	-.08*	-.08*	-.06	-.02
5	Teacher socio-economic origins	715	722	722	722	-	-.07*	-.02	.04	.04	.03	.04	-.00	.04	-.01	-.02	-.01
6	Formal education achieved	889	898	898	898	709	-	.08*	-.10*	.02	-.20**	-.25**	-.14**	.07	-.04	-.01	-.01
7	Subject grade performance	783	792	792	792	626	787	-	.08*	-.02	-.00	-.02*	.11**	.03	-.08*	-.04	-.00
8	Post-high school training index	559	564	564	564	452	557	504	-	.01	.04	.05	-.01	-.04	.05	.08*	-.09*
9	Professional self-developm't index	912	921	921	921	722	898	792	564	-	.01	-.01	-.21**	.27**	.27**	.10*	.23**
10	Years non-teaching job experience	864	871	871	871	689	854	751	540	871	-	.90**	-.23**	-.12**	-.01	.02	-.04
11	Years experience in trade	864	871	871	871	689	854	751	540	871	871	-	-.21**	-.00	.05	.05	.07*
12	Years experience voc. teacher	877	886	886	886	696	866	767	551	886	842	842	-	-.20**	-.12**	-.08*	-.13**
13	Summers worked f-t in past five	534	538	538	538	419	526	472	328	538	512	512	538	-	.37**	.17**	.67
14	School yrs. worked p-t in past five	548	553	553	553	434	540	486	332	553	526	526	553	507	-	.57**	.36**
15	Relatedness of S&P-T teachings jobs	628	633	633	633	494	617	552	385	633	601	601	633	538	553	-	.13**
16	Relatedness of S&P-T non-teach. jobs	628	633	633	633	494	617	552	385	633	601	601	633	538	553	633	-
17	Years in present position	877	921	921	921	722	898	712	564	921	871	871	886	538	553	633	633
18	Present position salary	912	921	921	921	722	898	792	564	921	871	871	886	538	553	633	633
19	Total earned income	912	921	921	921	722	898	792	564	921	871	871	886	538	533	633	633
20	Additional income needed	912	921	921	921	722	898	792	564	921	871	871	886	538	553	633	633
21	Number teaching periods per week	912	921	921	921	722	898	792	564	921	871	871	886	538	553	633	633
22	Number of pupils in all subjects	912	921	921	921	722	898	792	564	921	871	871	886	538	553	633	633
23	Non-teaching activity hrs. per mo.	912	921	921	921	722	898	792	564	921	871	871	886	538	553	633	633
24	Instructional methods use index	909	918	918	918	721	895	790	563	918	869	869	883	535	551	630	630
25	Instructional equipment use index	904	913	913	913	718	890	786	561	913	864	864	878	533	547	627	627
26	Evaluation methods use index	908	917	917	917	720	895	790	563	917	868	868	882	534	551	629	629
27	Course outline use	886	895	895	895	702	875	774	554	895	849	849	865	523	538	618	618
28	Student problem frequency index	908	917	917	917	719	895	790	562	917	868	868	882	536	552	631	631
29	Decision-making influence index	895	903	903	903	710	882	779	558	903	856	856	870	530	547	624	624
30	Leisure activity index	904	913	913	913	717	893	789	563	913	865	865	880	534	550	629	629
31	Conversational range index	912	921	921	921	722	898	792	564	921	871	871	886	538	553	633	633
32	Organization affiliation index	912	921	921	921	722	898	792	564	921	871	871	886	538	553	633	633
33	Community activity index	912	921	921	921	722	898	792	564	921	871	871	886	538	553	633	633
34	Population	912	921	921	921	722	898	792	564	921	871	871	886	538	553	633	633
35	T&I Enrollment	912	921	921	921	722	898	792	564	921	871	871	886	538	553	633	633
36	Total Enrollment	912	921	921	921	722	898	792	564	921	871	871	886	538	553	633	633

TABLE 71. VOCATIONAL TEACHER VARIABLE INTERCORRELATIONS

ABOUT THE TEACHER'S PRESENT POSITION													THE TEACHER OUTSIDE OF SCHOOL				CENSUS DATA			VOCATIONAL TEACHER VARIABLE INTERCORRELATIONS	
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36		
YEARS IN PRESENT POSITION	PRESENT POSITION SALARY	TOTAL EARNED INCOME	ADDITIONAL INCOME NEEDED	NUMBER TEACHING PERIODS PER WEEK	NUMBER OF PUPILS IN ALL SUBJECTS	NON-TEACHING ACTIVITY HRS. PER MO.	INSTRUCTIONAL METHODS USE INDEX	INSTRUCTIONAL EQUIPMENT USE INDEX	EVALUATION METHODS USE INDEX	COURSE OUTLINE USE	STUDENT PROBLEM FREQUENCY INDEX	DECISION-MAKING INFLUENCE INDEX	LEISURE ACTIVITY INDEX	CONVERSATIONAL RANGE INDEX	ORGANIZATION AFFILIATION INDEX	COMMUNITY ACTIVITY INDEX	POPULATION	T&I ENROLLMENT	TOTAL ENROLLMENT		
.28**	.12**	-.13**	.04	.02	.02	.00	-.00	-.06	-.03	.07*	-.00	-.06	-.02	-.01	.10**	-.01	.12**	.10**	.02	Teacher age	
.07	.14**	-.00	.06	.03	.01	.04	.04	.01	.01	.01	.00	.03	.08*	-.02	.07*	.06	-.03	.02	.02	Number of dependents	
.07*	-.03	-.01	.01	-.01	-.01	-.07*	.04	-.00	.00	-.04	-.00	-.06	.03	.05	-.01	.01	.03	.06	-.01	Father's occupation	
.02	-.02	.01	-.00	-.00	.05	-.04	-.01	-.04	.02	-.01	.05	-.09*	-.05	-.02	-.07*	-.04	.02	.01	.07*	Father's education	
.04	-.04	-.00	.00	-.01	-.04	.07*	.00	.02	-.05	.02	-.03	-.04	-.01	.02	-.01	.03	-.00	.05	-.03	Teacher socio-economic origins	
.03	.00	-.03	.03	-.06	-.01	.06	.01	.06	-.02	.01	-.03	.10**	.06	.06	.12**	.05	.03	-.07*	.13**	Formal education achieved	
.04*	.05*	-.03	.03	.04	-.00	.02	.06	.01	.04	.12**	.08*	-.02	-.02	.03	.01	-.00	.06	.06	.05	Subject grade performance	
-.04	.03	.01	.02	.08*	-.01	.06	.04	.10*	.02	.12**	.01	-.04	.04	-.02	.02	-.02	-.06	.00	-.06	Post-high school training index	
-.13**	-.15**	-.04	-.04	-.03	-.03	.13**	.20**	.21**	.17**	.03	.03	.08*	.21**	.15**	.16**	.13**	-.05	-.05	.06	Professional self-developm't index	
-.08*	.04	-.03	-.01	-.01	.03	-.07*	-.01	.01	.05	-.02	-.03	-.11**	-.06	-.00	-.08*	-.05	.05	.02	-.03	Years non-teaching job experience	1
-.10**	.04	-.02	-.02	.03	.06	-.07*	-.03	.00	.04	-.03	-.01	-.11**	-.06	.02	-.09*	-.03	.06	.02	-.03	Years experience in trade	1
.90**	.11**	-.14**	.02	.06	-.00	.05	-.01	-.06	-.06	.10*	.01	.02	-.02	.02	.08*	-.02	.09*	.07	.06	Years experience vocational teacher	1
-.21**	.05	.17**	-.02	-.04	-.08*	.06	.04	.05	.04	-.02	-.00	.09*	.06	.04	.18**	.08*	-.02	.05	.02	Summers worked f-t in past five	1
-.12**	-.10**	.14**	.03	-.03	-.10**	.09*	.09*	.14**	.04	.03	-.01	.09*	-.04	.08*	-.01	.04	-.04	.02	.02	School yrs. worked p-t in past five	1
-.04	-.03	-.08	-.01	-.02	-.04	.02	.09*	.11**	.04	.0'	-.02	.08*	-.04	.06	-.05	.02	.01	.05	.00	Relatedness of S&P-T teaching jobs	1
-.13**	-.02	-.01	.01	-.05	-.10**	.05	.04	-.01	.10**	-.03	.03	.13**	.05	.04	.11**	.03	.01	.02	.01	Relatedness of S&P-T non-teach. jobs	1
-	.11**	-.04	.03	.04	.01	.03	.03	-.01	-.04	.11**	-.04	-.03	-.00	-.08*	.10**	-.04	-.03	.05	.01	Years in present position	1
921	-	.15**	.20**	.04	.02	-.03	.00	.02	.02	.08*	-.02	-.00	-.04	.10*	.03	.07*	.06	.06*	.08*	Present position salary	1
921	921	-	.07*	.05	.04	-.07*	-.06	.02	-.06	-.05	-.03	-.08*	-.03	-.08*	-.07*	-.03	-.08*	-.08*	-.04	Total earned income	1
921	921	921	-	.03	.06	-.04	-.02	.04	.02	.04	-.04	-.01	-.04	-.06	.02	.02	-.02	.05	.07*	Additional income needed	2
921	921	921	921	-	.37**	-.06	.08*	.04	-.02	.08*	.02	-.04	-.01	-.01	.03	.04	-.06	.00	-.11**	Number teaching periods per week	2
921	921	921	921	921	-	.06	-.02	.08*	.05	.06	.03	-.14**	.03	.05	-.05	.01	.04	.07*	.07*	Number of pupils in all subjects	2
921	921	921	921	921	921	-	.04	.09*	.07*	.01	-.10**	.00	.05	.02	.10**	.07*	.12**	.09*	.10**	Non-teaching activity hrs. per mo.	2
918	918	918	918	918	918	918	-	.42**	.40**	.14**	.04	.21**	.32**	.20**	.18**	.08*	-.02	-.06	-.06	Instructional methods use index	2
913	913	913	913	913	913	913	912	-	.20**	.15**	.01	.11**	.19**	.09*	.13**	.08*	-.04	-.03	-.03	Instructional equipment use index	2
917	917	917	917	917	917	917	917	911	-	.13**	.05	.05	.26**	.17**	.17**	.08*	.06	.05	.03	Evaluation methods use index	2
895	895	895	895	895	895	895	893	889	892	-	.13**	-.02	.03	.02	.08*	.03	.03	.02	-.02	Course outline use	2
917	917	917	917	917	917	917	915	910	914	893	-	.08*	-.01	-.01	.03	-.02	-.08*	-.03	-.01	Student problem frequency index	2
903	903	903	903	903	903	903	901	897	901	881	902	-	.08*	.05	-.00	-.02	-.10	-.13**	-.10**	Decision-making influence index	2
913	913	913	913	913	913	913	911	906	911	890	911	898	-	.24**	.31**	.14**	-.01	-.02	-.05	Leisure activity index	
921	921	921	921	921	921	921	918	913	917	895	917	903	913	-	.05	.10**	.08*	.08*	.03	Conversational range index	
921	921	921	921	921	921	921	918	913	917	895	917	903	913	921	-	.28**	-.04	.01	.00	Organization affiliation index	
921	921	921	921	921	921	921	918	913	917	895	917	903	913	921	921	-	-.02	.05	.05	Community activity index	
921	921	921	921	921	921	921	918	913	917	895	917	903	913	921	921	921	-	.55**	.21**	Population	
921	921	921	921	921	921	921	918	913	917	895	917	903	913	921	921	921	921	-	.38**	T&I Enrollment	
921	921	921	921	921	921	918	913	917	895	917	903	913	921	921	921	921	921	921	-	Total Enrollment	

5. Total school enrollment. This variable is significantly related to only 8 other variables, i.e. present salary, additional income needed, hours of non-teaching school activities and, inversely, to degree of decision-making influence reported by teachers. Thus, one could say, in the larger enrollment schools, which tend to be located in the larger cities, the teachers earn more money (but also report the need for more money) and have less to say about school decisions related to their work as teachers. The magnitude of the correlation coefficients, however, indicates that would be better not to make too much about these relationships.

Correlation of Teacher Variables with Graduate Occupational Measures

• To what extent do the teacher characteristics correlate with the occupational experiences of their graduates?

To answer the question via correlation analysis, the following procedure was employed: (1) The analysis was limited to the 1962 vocational graduates because this was the class for which the maximum number of former teachers was available. (2) Each teacher was paired with his former students in the class of 1962. Teachers who were not at the schools when the class of 1962 was there were dropped from the analysis. Similarly, graduates whose former teacher was no longer at the school at the time the survey collected teacher data were also dropped from the analysis. (3) The teacher characteristic values were replicated so as to pair each graduate's occupational resource data with his former shop teacher's data. By this technique, the number of cases for the correlation equaled the number of graduates from which former teacher data was available.*

It should be understood that the shop teacher paired with former students was the one they had in the twelfth grade. In the great majority of cases, this was the only shop teacher the graduates had. However, there were some graduates who had more than one shop teacher during their years of vocational training.

Let's now look at the correlation coefficients in Table 72. Because of the large number of correlations, the discussion will be limited to the relatedness criterion measures.

First, a word of explanation. The experiences of the graduate in the world of work are undoubtedly the product of many variables interacting in complex ways. It is very improbable that the characteristics of former teachers will show substantial correlations with such experiences. The analysis is primarily an attempt to identify which, if any, teacher characteristics are related to the vocational outcome variables, particularly to the key criterion measure: relatedness of first job to course studied.

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* An alternative would be to correlate each teacher's characteristics with the mean or median value for his graduates on a particular measure.

The following variables show a significant, albeit very low, relationship with the relatedness of the first job to the course studied:

•Scholastic performance of the teacher	.09*
•Amount of post-high school training	.08*
•Freedom from student problems	.07*

The following variables show a significant, albiet very low, inverse relationship with the relatedness of the first job to the course studied:

•Amount of formal education	-.08*
•Total earned income	-.11**
•Degree of decision-making influence	-.07*

And the following variables are of interest because they show no significant relationship with the relatedness of first job to course studied:

•Professional self-development index	.03
•Years experience in non-teaching	-.02
•Years experience in the "same" trade	.02
•Years experience as a vocational teacher	-.03
•Relatedness of summer and part-time work	.00
•Years in present position	-.02
•Total pupil load	-.02
•Organization affiliation	-.03
•Population of city served by school	-.00

The general conclusion is that the teacher characteristics explained in this study do not impressively explain or account for the differences in the occupational measures found among the graduates. Plainly stated, the teacher as herein described makes little or no difference in the vocational outcomes experienced by his students. Lest this cause a general alarm, a clarification is in order. The teacher is as important to the vocational process as air is to life. Like air, however, his herein described characteristics have no differential effect upon the vocational success of his graduates. That does not mean other teacher variables, yet to be defined and described by other researchers, will prove as sterile as the variables we have explored. After all, it is naive to seriously think that teacher age per se, or experience per se, or salaries per se, or years of formal education per se are variables that influence vocational outcomes. Yet, educators have had such thoughts. The correlations shown in Table 72 simply explode some of the myths about what teacher characteristics are relevant to the effectiveness of vocational education. What probably really matters, and what this study has not described, are the very difficult teacher characteristics to describe, such as the ability to arouse interest and to motivate, the ability to communicate and make oneself understood, the ability to generate respect and admiration, the ability to convey a sense of personal interest and concern for students, and other such highly personal characteristics. These are the things young people need from their teachers, and these are the things that probably make a difference in vocational education effectiveness. Further research in this area will understandably lead to the conclusion that selecting the right kind of person to be a teacher is more important than so-called teacher training. The qualities that await to be related by research to vocational education effectiveness (or, good

TABLE 72. CORRELATION COEFFICIENTS FOR RELATIONSHIPS BETWEEN VOCATIONAL TEACHER VARIABLES AND THE OCCUPATIONAL OUTCOMES EXPERIENCED BY THE 1962 T&I GRADUATES

	VOCATIONAL TEACHER VARIABLES	1962 DIRECT TO WORK VOCATIONAL GRADUATE OUTCOME MEASURES												
		1 PLACEMENT TIME	2 FIRST JOB RELATEDNESS	3 FIRST JOB SATISFACTION	4 STARTING HOURLY RATE	5 PRESENT JOB RELATEDNESS	6 PRESENT JOB SATISFACTION	7 PRESENT HOURLY RATE	8 PERCENTAGE EARNINGS INCREASE	9 EMPLOYMENT SECURITY	10 ATTITUDE TOWARD FORMER SCHOOL	11 ORGANIZATION AFFILIATION	12 AMOUNT OF COLLEGE EDUCATION	13 AMOUNT OF NON-COLLEGE EDUCATION
1	Teacher age	-.01 1065	-.01 1001	.02 1007	.10** 1006	.01 995	.01 998	.05 1007	-.06 956	-.02 991	.00 1064	.06* 1020	.04 1068	.02 1053
2	Number of dependents	-.01 1238	.07* 1168	.04 1174	.05 1174	.08** 1162	.04 1165	.02 1174	-.03 1109	-.01 1156	.04 1235	-.04 1191	-.03 1242	.05 1225
3	Teacher socio-economic orgins	.04 846	.02 798	.01 804	-.02 804	.03 797	.03 799	-.10** 804	-.08* 763	.04 787	.07* 843	-.05 811	-.08* 847	-.02 835
4	Formal education achieved	-.01 1033	-.08* 971	-.05 977	.08* 975	-.08* 965	-.01 968	.09* 976	.06 924	.01 962	.01 1032	-.01 990	.07* 1036	-.01 1022
5	Subject grade performance	.01 929	.09* 870	.08* 876	.06 875	.05 864	.07* 867	.07* 875	-.02 825	-.05 867	.14** 929	-.01 888	.02 932	.07* 920
6	Post-high school training index	-.02 691	.08* 650	-.00 651	.04 649	.05 644	-.00 645	.06 651	-.00 619	.01 642	.04 690	-.04 667	.01 694	-.02 683
7	Professional self-development index	-.02 1070	.03 1005	-.01 1011	-.10** 1010	.00 999	.01 1002	-.00 1011	.07* 959	.02 995	.03 1069	-.05 1025	.02 1073	-.03 1058
8	Years non-teaching job experience	.01 1240	-.02 1171	-.05 1176	.05 1171	.02 1164	-.00 1166	.04 1172	-.01 1106	.03 1156	.02 1236	-.06* 1190	.02 1243	.02 1228
9	Years experience in trade	-.06 790	.02 741	-.02 747	.02 744	.08* 735	.01 739	.04 744	-.01 705	.01 730	-.04 790	.02 761	.02 793	.05 781
10	Years experience vocational teacher	-.01 1028	-.03 967	-.04 973	.08* 970	-.02 961	-.02 964	.04 971	-.01 919	-.08* 955	.02 1028	.08* 986	-.02 1031	.06* 1517
11	Summers worked f-t in past five	-.02 885	-.00 831	-.00 835	.11** 838	.02 828	.00 830	-.07* 838	.03 793	.02 823	-.00 884	-.01 845	-.00 888	-.01 877
12	Number of school years worked p-t in past five	-.05 858	.03 805	-.01 810	-.08* 814	.02 800	.01 803	.01 814	.04 769	-.00 798	.05 856	.01 819	-.04 859	-.02 846
13	Relatedness of S&P-T teaching jobs	-.04 1070	.05 1005	-.03 1011	.01 1010	.02 999	-.04 1002	.05 1011	.03 959	-.00 995	.02 1069	-.02 1025	.03 1073	.00 1058
14	Relatedness of S&P-T non-teaching jobs	-.01 1070	-.00 1005	.05 1011	-.06* 1010	.01 999	.05 1002	-.03 1011	.04 959	.03 995	.02 1069	.05 1025	.01 1073	.00 1058
15	City Population	-.00 1070	-.01 1005	-.02 1011	.07* 1010	-.03 999	-.04 1002	.10** 1011	.03 959	.02 995	.02 1069	-.01 1025	.09** 1073	.02 1058
16	Vocational Enrollment	.02 1689	.01 1583	.02 1591	-.00 1584	.00 1573	.01 1578	.08** 1588	.07* 1575	-.01 1561	.06* 1689	-.03 1689	.05 1689	-.14** 1689
17	Vocational Enrollment	-.00 1689	-.07* 1583	-.01 1591	.05 1584	-.06* 1573	.02 1578	.12** 1588	.08** 1575	-.03 1561	.07* 1689	-.00 1689	.05 1689	-.06* 1689

* Significant at .05 level of confidence

** Significant at .01 level of confidence

TABLE 72 contd. CORRELATION COEFFICIENTS FOR RELATIONSHIPS BETWEEN VOCATIONAL TEACHER VARIABLES AND THE OCCUPATIONAL OUTCOMES EXPERIENCED BY THE 1962 T&I GRADUATES

	VOCATIONAL TEACHER VARIABLES	1962 DIRECT TO WORK VOCATIONAL GRADUATE OUTCOME MEASURES												
		1	2	3	4	5	6	7	8	9	10	11	12	13
		PLACEMENT TIME	FIRST JOB RELATEDNESS	FIRST JOB SATISFACTION	STARTING HOURLY RATE	PRESENT JOB RELATEDNESS	PRESENT JOB SATISFACTION	PRESENT HOURLY RATE	PERCENTAGE EARNINGS INCREASE	EMPLOYMENT SECURITY	ATTITUDE TOWARD FORMER SCHOOL	ORGANIZATION AFFILIATION	AMOUNT OF COLLEGE EDUCATION	AMOUNT OF NON-COLLEGE EDUCATION
18	Years in present position	-.00	-.02	-.02	.06	.00	-.02	.04	-.01	-.06	.02	.10**	-.03	.06*
		1024	965	970	967	959	961	968	916	951	1024	981	1027	1013
19	Present position salary	-.06*	.03	-.05	.18**	.03	.02	.22**	.03	.01	.06*	.01	.08**	.03
		1059	994	1000	999	988	991	1000	948	985	1058	1015	1062	1047
20	Total earned income	.02	-.11**	-.07*	-.11**	-.09**	-.01	-.11**	-.02	-.06*	-.04	.03	-.01	.04
		1187	1178	1180	1178	1178	1179	1180	1168	1175	1188	1177	1188	1185
21	Additional income needed	-.00	.05	.03	.03	.03	.00	.04	.00	.00	.01	.03	-.03	.03
		1211	1140	1145	1143	1134	1135	1146	1080	1132	1209	1162	1215	1201
22	Number of teaching periods per week	.01	.02	.02	-.00	.04	-.03	-.03	-.02	-.00	-.01	-.01	-.00	-.02
		1200	1135	1141	1139	1128	1131	1139	1072	1125	1198	1156	1204	1188
23	Number of pupils in all subjects	-.18**	-.02	-.08**	.05	-.02	-.05	.06*	.03	-.01	-.07*	.12**	.07*	-.01
		1160	1146	1146	1145	1146	1146	1145	1141	1146	1161	1157	1161	1157
24	Hours per month of non-teaching activities	.05	-.04	-.07*	-.06	-.02	-.06	.02	.06	-.03	.02	.05	.11**	.02
		1028	966	971	971	960	962	972	922	957	1028	983	1031	1016
25	Instructional methods use index	.02	.00	-.02	.05	.00	-.02	.01	-.02	.05	.03	.00	.01	.02
		1007	947	952	952	942	944	953	905	938	1007	966	1010	995
26	Instructional equipment use index	.00	.02	-.01	-.00	.02	-.02	-.03	-.05	.03	.02	.02	.06	.02
		969	909	916	915	904	907	915	868	901	969	926	972	958
27	Evaluation methods use index	.04	.02	.01	.09**	-.02	.02	.07*	-.02	.01	.01	.03	.01	-.04
		1009	947	952	952	942	944	953	904	939	1000	966	1012	997
28	Course outline use	-.05	.06	.04	.11**	.05	.04	.12**	.01	-.00	.07*	-.05	-.02	.02
		1006	944	949	948	938	939	949	900	935	1006	962	1009	995
29	Student problem frequency index	-.03	.07*	.07*	.02	.04	.03	.04	.04	.00	.08**	-.03	-.05	.02
		1010	949	954	954	943	945	955	907	940	1008	966	1011	996
30	Decision-making influence index	.07*	-.07*	-.01	.03	-.11**	-.04	.04	.02	.00	.00	-.01	-.02	-.03
		994	933	938	938	927	929	939	891	925	994	953	997	982
31	Leisure activity index	-.05	.02	.04	-.01	.03	.04	-.01	.01	.03	.02	.01	-.06*	.04
		999	937	942	943	931	933	943	896	929	999	956	1002	987
32	Conversational range index	-.01	.06	-.02	.04	.03	.00	.04	.04	.03	.09**	-.10**	.08**	.03
		1013	951	956	955	946	947	956	907	942	1013	970	1016	1001
33	Organization affiliation index	.02	-.03	.06	.04	.03	.06	-.01	-.05	.04	.02	.08*	.02	.05
		992	932	937	938	926	928	938	891	924	992	948	995	980
34	Community activity index	-.01	.00	.02	.02	-.01	.01	-.02	-.05	.00	-.01	.02	.04	-.02
		1048	984	989	988	978	980	989	937	974	1048	1003	1051	1036

* Significant at .05 level of confidence

** Significant at .01 level of confidence

teaching, if you prefer) are not likely to be those that result from a teacher training curriculum, at least not the kind of curriculums that now prevail.

* * * * * * * * * *

It is interesting that the student resource variables were more fruitful than the teacher variables. Shop grades correlated .20 with the relatedness of first job to course studied. The difference between that coefficient and the highest teacher variable coefficient is significant at the one percent level of confidence. Thus, within the limits of the variables explored, the graduate is a more important determiner of his immediate post-school occupational experiences than his former vocational teacher.

GENERAL SUMMARY OF FINDINGS

Socio-economic Origins

1. Male parent education. About 70 percent of vocational teachers have come from families in which the male parent had less than a complete high school education.

2. Male parent occupations. About 55 percent of the vocational teachers had male parents who worked in unskilled, semi-skilled and skilled occupations. The occupational level that had the greatest percentage of vocational teachers represented was skilled occupations (30 percent).

3. Vocational versus academic teachers. About 58 percent of the academic teacher male parents had less than a complete high school education (versus 70 percent for the vocational teachers). Also, 50 percent of the academic teacher male parents worked in skilled, semi-skilled or unskilled occupations (versus 55 percent for the vocationals).

The socio-economic origins of academic teachers are significantly higher than those of vocational teachers, but the gap is not as great as was expected. One can not claim that there is a broad socio-economic origin gap between the two.

4. Vocational versus comprehensive schools. There is no significant difference between the socio-economic origins of vocational teachers in the two types of schools.

5. Teachers versus students. The socio-economic origins of vocational students are more similar to those of vocational teachers than academic teachers. Conversely, the socio-economic origins of academic students are more similar to those of academic teachers than vocational teachers. Differences, however, are not impressive.

Educational Background

1. Secondary school education. About 94 percent of the vocational teachers graduated from high school. The majority took an academic or general program. Only 34 percent followed a vocational program. The average vocational teacher was a B student in high school.

The secondary school educational background of teachers in vocational and comprehensive schools is essentially the same, with the exception that a greater percentage of those in vocational schools followed a vocational program in high school.

2. College level education. About 92 percent of the vocational teachers reported some college studies. However, about 56 percent do not have a college degree. About 77 percent pursued an education major in

college. The average T&I vocational teacher was a B student in college, and last attended a college course about eleven years ago.

T&I vocational teachers in comprehensive schools reveal more college attendance, more college completion and more advanced degrees than their counterparts in vocational schools.

3. Non-college education or training. About 69 percent of the vocational teachers report at least one non-college, post-secondary school course of study. Of these, 30 percent had a post-high school vocational course and 31 percent had some type of military specialist training. Only 8 percent ever served in an apprenticeship program.

The average vocational teacher has had 2.4 non-college courses after high school and completed 2.1 courses. The average months of study involved was 25.7 months. Most such study came soon after leaving high school.

There are no impressive differences between the T&I teachers in vocational and comprehensive high schools in terms of amount and kind of post-high school, non-college courses of study.

Professional Self-development

1. Recent year involvement. Vocational teachers are widely involved in one type or another of professional self-development. About 38 percent reported attending an evening school course, 40 percent attended a school-organized teacher development program and 70 percent reported attending short teacher workshops.

2. Vocational versus comprehensive schools. A greater percentage of comprehensive school T&I teachers are engaged in professional self-development activities than those in vocational schools.

Occupational Background

1. Teaching employment. The T&I teachers surveyed had an average of 18.5 years of employable time, 12.1 years of experience as vocational teachers, 11.3 years of experience with the present vocational subject and 10.4 years at their present school. They have held an average of 1.6 teaching positions in 1.4 cities and 1.1 states.

There are no substantial differences between vocational and comprehensive school T&I teachers on the above variables.

2. Non-teaching employment. The T&I teachers surveyed had an average of 7.3 years in non-teaching employment, 4.6 years in the occupation they are now teaching and 3.3 non-teaching jobs before becoming a teacher. About one-third of their total employed years was spent in the occupation they are now teaching.

The T&I teachers in vocational schools have an average of about one more year of experience in the occupation they are now teaching than those in the comprehensive schools. In other non-teaching employment variables, the two teachers were essentially alike.

Summer and Part-time Employment

1. Summer employment. About 55 percent of the vocational teachers report employment during the summer months. Less than 10 percent are employed in summertime teaching. About 30 percent are employed in the occupation they teach. Those who work, average about 8.5 weeks of summer work at about 37 hours per week for an average weekly (1963) income of one hundred thirty-two dollars. The average summer income amounts to about one thousand seventy-five dollars.

2. Part-time employment. About 53 percent of the vocational teachers hold part-time jobs during the school year. For 38 percent, the part-time job is a teaching job, usually in an evening program. Only 10 percent have a non-teaching job in the occupation they teach. Those who work part-time average about 10 hours per week and add about $1,175 to their annual income (1963).

The Teacher's Present Position

1. Earnings. The average T&I teacher earns $7,200 a year from his regular school position. Individual differences range from four thousand to twelve thousand dollars.

The average T&I teacher earns in addition $424 a year for part-time work and $511 for summertime work for a total annual income of eight thousand seven hundred dollars. About 6.5 percent reported a total employment income above twelve thousand dollars. (The three component means are not additive because of different cases in each component.)

2. Additional income needs. About 72 percent of the T&I teachers claimed their present salary was inadequate. These estimated that they needed an average $1,700 more than their present school salary for an adequate annual income to meet their family needs.

The vocational school teachers earn about $1,000 a year more than the comprehensive school teachers. They also claim they need more additional income than do the comprehensive school teachers. See text for an explanation.

3. Fringe benefits. These vary widely by state and school district. About 82 percent of the schools surveyed had some type of pension program, 46 percent had sabbaticals, 39 percent had a medical-surgical insurance program, 30 percent had a major medical insurance program and 25 percent had a life insurance program. The percentages are for employer contribution programs. The vocational schools offered more benefits than the comprehensive schools.

4. Subject loads. About 86 percent of the T&I teachers teach only one subject. Less than 2 percent taught a second vocational subject.

5. Period loads. The average T&I teacher teaches 30 periods per week.

6. Pupil loads. The average T&I teacher has 44 pupils versus 135 pupils for the average academic teacher in this survey.

7. Non-teaching activities. The average T&I teacher spends 8.5 hours per month in required non-teaching duties and 3.6 hours per month in voluntary non-teaching activities. About 58 percent claim that these activities do not interfere with their teaching. About 13 percent claim considerable interference. Monitoring duties were reported by 70 percent of the teachers and takes up 90 percent of the average hours spent per month on required non-teaching activities.

8. Decision-making role. Vocational teachers report that they have considerable influence on decision regarding: (1) instructional methods, (2) selection of shop equipment, (3) selection of textbooks, (4) changes in subject content and (5) other matters related to what goes on in their shops.

They have relatively little influence on decisions related to: (1) prerequisites for course admission, (2) class size, (3) scheduling of subjects, (4) non-teaching assignments and (5) other decisions related to school administration. The percentages of teachers who reported that they were disturbed by their lack of influence on decision-making ranged from a low of 4 percent to a high of 23 percent, depending upon the area of decision-making.

There is no significant difference in the overall decision-making role of teachers in vocational and comprehensive schools. Vocational teachers have a far greater decision-making role than do academic teachers.

The Teacher Outside of School

1. Community organization affiliation. The majority of T&I teachers are non-members in all types of community organizations except two; religious and educational organization. Nevertheless, the average T&I instructor is a member of 4.4 organizations and has active membership in 2.9 organizations.

Comprehensive school vocational teachers reflect greater organization affiliation than do vocational teachers in vocational schools.

2. Leisure time activities. The leisure time activities of vocational teachers are the common place activities of people in general, e., reading newspapers, watching television, fixing things around the house, watching sporting events, reading magazines and books, and so on. There is no difference between those in vocational and comprehensive schools.

3. Conversational preferences. The conversational preferences of vocational teachers are not unlike what prevails for adults in general. Mostly, they like to talk about their work. Next come community affairs, world affairs and national problems. The topics they least talk about are cultural matters and labor organization topics.

The conversational preferences of T&I teachers in vocational and comprehensive schools are essentially alike, although the former are more likely to talk about labor union topics. There are substantial differences between academic and vocational teachers in some areas.

SOME TENTATIVE RECOMMENDATIONS

The reader who has not already done so is urged to read the introductory remarks to the recommendations made at the end of Chapter 2, page 2-62, before considering the recommendations that follow.

Improving Placement Effectiveness Through the Vocational Teacher

The school administrator who seeks to improve the percentage of graduates being placed into their field of study will probably do better if he concentrates on direct action related to placement of graduates than by indirect methods such as encouraging teachers to become active in community organizations or to take part-time or summertime jobs in the occupations that they now teach or to use a wider variety of instructional methods or equipment. The data seem to suggest that teacher characteristic that are at the best only indirectly related to the vocational outcomes experienced by the graduates will not be a promising focus for attention when the objective is to change the vocational outcomes experienced by graduates. Intensified teacher education, for example, is about as far remote from the placement problem as we can get unless it deals with what teachers can do to place graduates in their fields of study. If it is recognized that the payoff of vocational education is in the job market place, then administrators will do better by working through vocational teachers directly on the placement problem than by indirect methods of teacher development that may (and may not) influence better placement of graduates.

Developing Vocational Teachers Through Apprenticeship Programs

Two study findings support the generalization that years of experience in the occupation may not be necessary before becoming a T&I vocational teacher. One is the finding that experience in the occupation fails to show a significant correlation with the post-school occupation experiences of the teacher's graduates. The other is the finding that about 9 percent of the teachers have not held full-time jobs in the occupation they now teach. Their graduates fared as well on the vocational outcome measures as did those whose teachers had ten or more years experience in the occupation before becoming a teacher.

This raises the interesting possiblity of developing T&I teachers by other means that do not assume years of experience in the occupation to be taught. The possibility herein recommended for feasibility study is an apprenticeship program for T&I teachers that would work something like this: Potential T&I teachers would be recruited from high school or post-high school level T&I program graduates. Their teachers would be in a position to pass on their qualifications. Selected candidates would work as apprentices to qualified vocational teachers with the status of shop

assistant for a to-be-determined period in which both teaching and occupational skills are further developed. Ideally, such opportunities might be located in communities where a two-year year college level program could be pursued in parallel with the shop apprenticeship program, whereby providing the educational theory and methods background. It would, of course, be necessary to provide an adequate scholarship and living expense stipend to such candidates.

The advantages are many. The opportunity would draw more young people into vocational programs. Potential candidates could be assessed on the basis of one or more years of exposure to vocational and other teachers. They would be known quantities. The benefits of on-the-job training as teachers could be obtained in a closely supervised situation. Teacher training would make use of existing facilities. The status of "teacher candidate" would undoubtedly attract highly capable would-be candidates.

Undoubtedly, there are also some problems with this approach. The basic idea needs proper elaboration by vocational educators. The purpose here is merely to expose the concept to the critical thinking of educators.

5 THE T&I CURRICULUM AND RELATED DATA

INTRODUCTION

The Role of Curriculum

Broadly defined, a T&I vocational curriculum is a two to four-year program of subjects, both vocational and non-vocational, which comprises a vocational education in a given school. The program may be flexible in various degrees, by allowing elective subjects, substitute subjects or subjects that reflect a track program. By definition, then, the curriculum is the starting point of vocational education in the sense that it spells out the contents of vocational education. The question of the role of curriculum in the effectiveness of vocational education is largely a question of to what extent are variations in curriculum characteristics related to variations in effectiveness criteria such as (1) the in-school performance of vocational program students, e.g. subject achievement, drop-out rate, etc. and (2) the post-school occupational experiences of graduates, e.g. their performance in getting jobs in the fields for which trained and other measures of occupational success.

The primary objective of the chapter is to provide a census-type description of the T&I vocational curriculum, as revealed by a survey of 100 secondary schools, in terms of the following:

- General curriculum characteristics
- General course characteristics
- Course offerings, additions and terminations
- Course addition and termination plans
- Course review and revision procedures
- Curriculum supervision and course outlines
- Trade cooperative programs
- Enrollments, graduates and holding power

A second and related objective is to provide comparative data on vocational and comprehensive schools in terms of the variables in each of the preceding classifications. The differences and similarities between these two types of secondary schools remain to be fully explored. The purpose, once again, is to eliminate claims made for or against one or the other type of school that are based upon conjecture rather than data which can be generalized to United States vocational and comprehensive schools.

The third and most interesting objective from the standpoint of vocational education effectiveness is to explore the relations between curriculum and course variables and the vocational outcomes experienced by the program graduates. Do variations in such variables make a difference in what happens to the students and graduates? That's the critical question.

Lastly, there is the objective of exploring the interrelationships among the selected curriculum and course variables, and between such variables and other school characteristics.

Some Basic Questions

The basic questions for which the chapter provides data are as follows:

1. What are the general T&I curriculum characteristics in terms of:

   - subject content and proportions,
   - availability of related mathematics and science,
   - type of shop -- non-shop schedules,
   - availability of track systems,
   - availability of industrial arts,
   - availability of exploratory prevocational programs, and
   - miscellaneous curriculum variables?

2. What are the general T&I course characteristics in terms of:

   - course entry requirements and admission refusals,
   - course durations in years,
   - availability of cooperative programs,
   - course enrollments and graduate outputs,
   - course holding power,
   - course proficiency objectives,
   - course content revision, and
   - miscellaneous course variables?

3. What are the T&I course offering characteristics in terms of:

   - number and type of course offerings,
   - recent course additions,
   - factors influencing course additions,
   - recent course terminations,
   - factors influencing course terminations,
   - trends in course additions and terminations,
   - plans for course additions,
   - plans for course terminations, and
   - restrictions on course offerings?

4. What are the T&I curriculum review and revision characteristics in terms of:

   - methods and frequency of curriculum review,
   - major type of recent course content revisions, and
   - factors that influence course revisions?

5. What are the T&I curriculum development and supervision characteristics in terms of:

   - course content development procedures,
   - availability and use of course outlines,
   - availability of curriculum supervisors, and
   - control over use of course outlines?

6. What are the T&I cooperative program characteristics in terms of:

   - number and type of courses covered,
   - enrollment in cooperative programs,
   - program coordination and supervision,
   - student and employer eligibility requirements, and
   - miscellaneous cooperative program variables?

7. What has been the output of graduates in T&I programs over a five-year period?

About the Sample and the Data

The data presented come from two data instruments, one (G-1) completed by the principals of the 100 schools surveyed and the other (S-1) completed by 691 shop (course) instructors at the schools. (See Appendix Section 1 for exhibits of these instruments.)

Table 1 shows how the 100 schools were distributed by type of school (vocational vs. comprehensive), geographic region (East vs. West) and school vocational enrollment (less than 300 vs. more than 300). An alternate distribution, given in terms of nine geographic regions and three categories of total school enrollment, was shown in Chapter 1, Page 1-9.

Approximately 79 percent of the schools were east of the Mississippi, reflecting the greater proportion of the universe of schools in the East. Approximately half of the schools had vocational program enrollments above 300 students. This is a result of the 50-50 split of vocational and comprehensive schools. Had this been a proportional split, a much larger percentage of the schools would have been in the under 300 program enrollment category. The sample, then, is not proportional in terms of types of school and in T&I program enrollment. It has an over-representation of vocational schools and high program enrollment schools. This will influence the interpretation of sample statistics as population parameter estimates where significant differences are demonstrated between types of schools.

Table 2 shows how the 691 instructors who provided course data were distributed by type of school, region and vocational enrollment. More correctly, one should regard the distribution data in Table 2 as the distribution of courses from which course characteristics data was derived.

The distribution of courses shows that the course sample has an overrepresentation of courses in vocational schools (62 vs. 38 percent) and courses in the above 300 program enrollment schools (64 vs. 36 percent). Thus, where these variables, i.e. type of school and school vocational enrollment, generate significant differences, sample statistics will have to be correctly weighted to obtain population parameter estimates.

TABLE 1. DISTRIBUTIC.. OF SCHOOL SAMPLE BY REGION, TYPE OF SCHOOL AND TOTAL SCHOOL T&I ENROLLMENT

TYPE OF SCHOOL	VOCATIONAL ENROLLMENT	EAST		WEST		U.S.	
		N	%	N	%	N	%
VOCATIONAL	<300	15	15.0	1	1.0	16	16.0
	>300	27	27.0	7	7.0	34	34.0
	TOTAL	42	42.0	8	8.0	50	50.0
COMPREHENSIVE	<300	23	23.0	10	10.0	33	33.0
	>300	14	14.0	3	3.0	17	17.0
	TOTAL	37	37.0	13	13.0	50	50.0
COMBINED	<300	38	38.0	11	11.0	49	49.0
	>300	41	41.0	10	10.0	51	51.0
	TOTAL	79	79.0	21	21.0	100	100.0

TABLE 2. DISTRIBUTION OF T&I COURSES BY REGION, TYPE OF SCHOOL AND TOTAL SCHOOL T&I ENROLLMENT

TYPE OF SCHOOL	VOCATIONAL ENROLLMENT	EAST		WEST		U.S.	
		N	%	N	%	N	%
VOCATIONAL	<300	99	14.3	12	1.7	111	16.1
	>300	251	36.3	69	10.0	320	46.3
	TOTAL	350	50.6	81	11.7	431	62.4
COMPREHENSIVE	<300	101	14.6	34	4.9	135	19.5
	>300	102	14.7	23	3.3	125	18.1
	TOTAL	203	29.4	57	8.2	260	37.6
COMBINED	<300	200	28.9	46	6.6	246	35.6
	>300	353	51.1	92	13.3	445	64.4
	TOTAL	553	80.0	138	20.0	691	100.0

GENERAL T&I CURRICULUM CHARACTERISTICS

The T&I Vocational Curriculum

There is, of course, no such thing as a uniform or standard T&I curriculum in the United States--not even at the level of general subject titles, much less at the level of subject content. Because of the nature of legislative and administrative influences, there are curriculum variations between states. And because of local school district decisions, there are also variations between school districts in the same states. With all the sources of influence on curriculum development, one would imagine more diversity than similarity. That is not so; at least, not at the level of subject titles. What goes on behind the facade of the subject title is another matter, and one about which the present study regrettably has nothing to say. Our discussion of curriculum is limited to subject titles and their period per week requirements.

•What is the median T&I curriculum of subjects in a four-year comprehensive school program? Table 3 provides the data.

Thirty-two of fifty comprehensive schools surveyed were four-year schools. For that reason, the curriculum presented in Table 3 is a four-year program.

TABLE 3. THE MEDIAN T&I SUBJECT CURRICULUM IN A FOUR-YEAR COMPREHENSIVE SCHOOL

COMPREHENSIVE SCHOOL CURRICULUM	9th	10th	11th	12th	TOTAL
	MDN PDS/WK	MDN PDS/WK	MDN PDS/WK	MDN PDS/WK	TOTAL PDS/WK
Industrial Arts	5	5	-	-	10
Vocational Shop	-	-	15	15	30
Shop Theory (Separate subject)	-	-	0	0	0
English	5	5	5	5	20
Mathematics	5	5	0	0	10
Science	5	5	0	0	10
Social Studies	5	0	5	5	15
Other Basic Subjects *	0	5 **	0	0	5
TOTAL	25	25	25	25	100

* Includes both academic and vocationally related subjects such as mechanical drawing, blueprint reading, etc.

** Includes elective subjects

The period per week values shown in Table 3 were obtained by ascertaining the median school for each cell, and adopting the periods per week of that school to describe the median curriculum.

The typical (median) four-year T&I curriculum in a comprehensive school has:

- Industrial arts: 2 years @ 5 periods per week
- Vocational shops: 2 years @ 15 periods per week
- English: 4 years @ 5 periods per week
- Mathematics: 2 years @ 5 periods per week
- Science: 2 years @ 5 periods per week
- Social studies: 3 years @ 5 periods per week
- Other basic subjects: 1 year @ 5 periods per week

The distribution of these subjects by grades for the typical program is shown in Table 3. The first two years are devoted to non-vocational subjects, with mathematics and science being the rule for the ninth and tenth grades. The periods per week values are based upon schools with periods having a duration between 50 and 60 minutes. The per week totals exclude such minor subjects as physical education, hygiene and other partial credit subjects.

• What is the median T&I curriculum of subjects in a four-year vocational school program? Table 4 provides the data.

Thirty-three of the fifty vocational schools surveyed were four-year schools. For that reason, the subject curriculum presented in Table 4 is a four-year program.

TABLE 4. THE MEDIAN T&I SUBJECT CURRICULUM IN A FOUR-YEAR VOCATIONAL SCHOOL

VOCATIONAL SCHOOL CURRICULUM	9th	10th	11th	12th	TOTAL
	MDN PDS/WK	MDN PDS/WK	MDN PDS/WK	MDN PDS/WK	TOTAL PDS/WK
Industrial Arts	0	-	-	-	0
Vocational Shop	0	15	15	15	45
Shop Theory (Separate subject)	-	0	0	0	0
English	5	5	5	5	20
Mathematics	5	5	0	0	10
Science	5	5	0	0	10
Social Studies	5	0	5	5	15
Other Basic Subjects *	5 **	0	5 **	5 **	15
TOTAL	25	30	30	30	115

* Includes both academic and vocationally related subjects such as mechanical drawing, blueprint reading, etc.

** Includes elective subjects

The typical (median) four-year T&I curriculum in a vocational school has:

- No industrial arts
- No exploratory shops
- Vocational shops: 3 years @ 15 periods per week
- English: 4 years @ 5 periods per week
- Mathematics: 2 years @ 5 periods per week
- Science: 2 years @ 5 periods per week
- Social studies: 3 years @ 5 periods per week
- Other basic subjects: 3 years @ 5 periods per week

The distribution of these subjects by grade is shown in Table 4. The first year is devoted to non-vocational subjects. The periods per week values are based upon schools with periods between fifty and sixty minutes and schools whose atypically short periods were converted to that range. The per week totals exclude such minor subjects as physical education, hygiene and other partial credit courses.

- How do vocational and comprehensive schools compare in terms of curriculum subjects in the typical four-year program for T&I students?

Two principal differences emerge. The median comprehensive school provides for industrial arts in the ninth and tenth grades, whereas the median vocational school does not. Also, the median comprehensive school defers vocational training until the eleventh grade, whereas the median vocational school begins vocational training in the tenth grade. The difference means an extra year of vocational shop training in the median vocational school.

Beyond the above, the curriculums are the same in terms of basic subjects and total periods of exposure. Whatever differences exist are to be found in the specific contents of the subjects and subject areas. Thus, for example, related mathematics is more frequently found in the vocational schools.

The reader is reminded that comparing the two schools on the basis of a construction such as the median curriculum has limitations. At the best, it provides a gross comparison that brings out the basic similarities and differences.

Related Mathematics and Science

There is considerable difference of opinion among educators about providing academic subjects, such as mathematics and science, in a form tailored so as to be directly related to the occupational field for which the student is being prepared or in the form normally given to academic students. The study has no data on the merits of either approach. Table 5 indicates the number and percentage of schools that offer mathematics and science in a shop related form of one kind or another.

The percent of schools offering related mathematics and related science to vocational students is respectively 55 and 43 percent. A substantially larger percent of vocational schools offer related mathematics and science than do comprehensive schools.

TABLE 5. AVAILABILITY OF RELATED MATHEMATICS AND SCIENCE IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

RELATED SUBJECTS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Mathematics, related only	10	10.0	9	18.0	1	2.0
Mathematics, both kinds available	45	45.0	25	50.0	20	40.0
Mathematics, non-related	45	45.0	16	32.0	29	58.0
Science, related only	15	15.0	11	22.0	4	8.0
Science, both kinds available	28	28.0	18	36.0	10	20.0
Science, non-related	57	57.0	21	42.0	36	72.0

A check on the mathematics and science grade averages of the 1962 vocational graduates reveals that those who had a related mathematics course had a mean grade of 2.1 versus 1.8 for those who had a non-related course. Those who had a related science course had a mean grade of 2.1 versus 1.8 for those who had non-related science courses. In both cases, the differences are significant at the .01 percent level of confidence (mathematics: t=9.32, science: t=9.91). Such differences can be interpreted either for or against related mathematics or science as one chooses, i.e. the students get higher grades in related mathematics and science because such subjects are watered down versions of the real thing and are therefore easier, or they get higher grades because such versions are more meaningful and therefore stimulate higher achievement. The reader can take his choice. As was mentioned earlier, the present study has no data to resolve the issue.

Type of Shop Schedules

•What type of shop schedule prevails in T&I programs? How do vocational and comprehensive schools compare in terms of their shop schedules? Table 6 provides the data.

By far the most frequent type of schedule is the normal schedule of shop and non-shop subjects daily for five days a week. Eighty-five percent of the schools surveyed has such a schedule. The comprehensive schools operate on such a schedule almost exclusively. Ninety-four percent of the comprehensive schools surveyed operated on the weekly schedule in which shop and non-shop classes occur daily. Scheduling circumstances in vocational schools more often call for some type of week about schedule. The most common of these is the one week about schedule, in which alternate weeks are devoted to vocational subjects (shop and theory) and academic subjects. Twenty-two percent of the vocational schools surveyed reported some type of week about schedule.

TABLE 6. TYPE OF VOCATIONAL SHOP SCHEDULES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPE OF SHOP SCHEDULE	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Normal - weekly	85	85.0	38	76.0	47	94.0
One week about	12	12.0	11	22.0	1	2.0
Two weeks about	2	2.0	1	2.0	1	2.0
Other	1	1.0	0	0.0	1	2.0

• Does the type of schedule employed have any relationship with the grade performance of the students in vocational and academic subjects? Table 7 provides the data.

The question is of considerable interest because of the growth of school situations which require some form of week about schedule. What influence do such schedules have upon the learning process? Is continuous daily exposure to subjects a better learning situation than exposures that are interrupted by one week or larger intervals?

The data in Table 7 suggests tentatively that some type of week about schedule may result in higher grade performance. For every subject, those who had a week about schedule did slightly better than those who had the normal schedule. The difference is both significant and substantial for the overall subject grade average.

TABLE 7. MEAN SUBJECT GRADE AVERAGES FOR STUDENTS WHO EXPERIENCED NORMAL WEEKLY AND WEEK ABOUT SCHEDULES

BASIC SUBJECTS	TYPE OF SHOP SCHEDULE					
	WEEKLY			WEEK ABOUT		
	N	MEAN	S.D.	N	MEAN	S.D.
Vocational shop	1839	2.5	0.73	357	2.7	0.68
English	1819	1.8	0.64	356	2.2	0.70
Mathematics	1835	1.9	0.75	357	2.2	0.75
Science	1778	1.9	0.75	353	2.1	0.67
Social studies	1819	1.9	0.69	356	2.1	0.64
All major subjects	1699	2.1	0.80	266	2.6	0.84

The data is only suggestive. A more controlled research is required before any final conclusions can be reached. It is especially necessary to rule out the inadvertent influence of other unknown variables which may have operated to produce the differences shown in Table 7. Tentatively, the data supports a week about schedule. The outcome is consistent with the finding in laboratory human learning studies that distributed practice is superior to massed practice in a great variety of learning tasks.

Track Systems: Availability and Type

• To what extent are curriculum track systems available to vocational program students, and what general form do they take where available? Table 8 provides the data.

Seventy-nine percent of the schools surveyed had no track system for T&I vocational students. The percentage of vocational and comprehensive schools with no track system was about the same (80 vs. 78 percent). Fourteen percent of the schools had a college preparatory track system available to vocational students. Again, the percentage of vocational and comprehensive schools which claimed to offer this type of track system was the same (14 vs. 14 percent).

Several other types of track systems were reported by a small number of schools. One was a vocational course track in which one standard was applied to students in order to determine the T&I courses for which they were eligible. In a sense, one might regard this as a track system. A second type of track system claimed was one in which capable students could elect to take extra subjects beyond those required and recommended in the T&I curriculum. The study has no data on the extent to which students were involved in any of the claimed track systems. It is quite possible that track systems for vocational students, whatever their form, are more myth than reality when one considers student participation.

About the overall conclusion, there is no doubt. The great majority of schools, both vocational and comprehensive, do not have track systems of any kind to provide for ability differences among vocational students. The statement is descriptive, not accusatory.

TABLE 8. TRACK SYSTEMS AVAILABLE IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TRACK SYSTEM AVAILABLE	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
No track system available	79	79.0	40	80.0	39	78.0
Vocational course system	2	2.0	1	2.0	1	2.0
Additional subjects system	2	2.0	0	0.0	2	4.0
College preparatory system	14	14.0	7	14.0	7	14.0
Other	3	3.0	2	4.0	1	2.0

Industrial Arts and Exploratory Programs

It is generally agreed that the would-be vocational student should have the benefit of exposure to industrial arts as well as prevocational exploratory and informational programs that will help him make an occupational choice. The validity of this viewpoint is not here the issue. The concern is primarily to describe to what extent vocational students have such prevocational experiences.

• What percentage of the schools surveyed (or their feeder schools) provide an industrial arts program opportunity as well as other types of prevocational exploratory or orientation programs? How do vocational and comprehensive schools compare in this respect? Table 9 provides the data.

About 79 percent of the schools provided an industrial arts program, either directly or through the mechanism of a feeder school. A higher percentage of comprehensive than vocational schools provided this opportunity (88 vs. 69 percent).

TABLE 9. DISTRIBUTION OF VOCATIONAL AND COMPREHENSIVE SCHOOLS ON THE TYPES OF PREVOCATIONAL PROGRAMS AVAILABLE

TYPES OF T&I PRE-VOCATIONAL PROGRAMS AND ORIENTATIONS REPORTED BY SCHOOLS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Industrial arts program	75	78.9	31	68.9	44	88.0
Vocational course orientation	33	34.7	14	31.1	19	38.0
Career day program	45	47.4	20	44.4	25	50.0
Occupational information course	31	32.6	18	40.0	13	26.0
Orientation in grade/junior high	51	53.7	22	48.9	29	58.0
Open houses or visit-our-shop	47	49.5	23	51.1	24	48.0
Pre-vocational exploratory shops	36	37.9	15	33.3	21	42.0
Field trip	18	18.9	12	26.7	6	12.0
Special summertime orientation	8	8.4	3	6.7	5	10.0
Part-time work experience	5	5.3	2	4.4	3	6.0
Bring-your-friend-day	5	5.3	3	6.7	2	4.0
Occupational information library	33	34.7	16	35.6	17	34.0
Occupational information classes	39	41.1	14	31.1	25	50.0
Other than above	11	11.6	5	11.1	6	12.0

Ranked according to the percentage of schools that provide such programs, the most frequent types of orientation about vocational education were as follows:

• Orientations in grade or junior high schools	54%
• Visit-our-shops or open house programs	50
• Career day programs	47
• Occupational information classes	41
• Prevocational exploratory shops	38
• Occupational information libraries	35
• Vocational course orientation programs	35
• Occupational information courses	33

Other types of programs occurred in less than a third of the schools. It is interesting that only 5 percent of the schools reported some type of part-time work experience program as a prevocational choice program.

The study has no evaluative data on the adequacy of any of these programs. However, the percentages suggest that a very substantial number of schools are lacking many possible effective methods for (1) getting their vocational message across to potential vocational students and (2) providing orientation information for students to make a proper occupational choice. It is somewhat amazing that only a third of the schools have what may be called an occupational information library. (All comprehensive schools surveyed have a college information library.) Similarly, one wonders about how energetically the schools are trying to get their vocational message across when 50 percent have no form of open [illegible] program for either would-be applicants or their parents, 47 percent have [illegible] form of orientation program for their feeder schools, 53 percent have no form of vocational course orientation and so on down the line of Table 9. These percentages do not add up to the conclusion that vocational educators, in either type of school, are making an adequate effort to both tell the story of vocational education and provide orientation to those already interested.

This is further shown in Table 10. Each school was credited one point for an affirmative to each of the types of prevocational programs listed in Table 10. Seven percent reported they had no such programs. An additional 11 percent reported they had but one or two such programs. An additional 32 percent had three or four such programs. Thus, half of the schools provide four or fewer of the kinds of prevocational orientation or experience programs to their students or potential students.

• How many of the vocational students have had industrial arts? The instructors were asked to estimate what percentage of their students on the average have had industrial arts. Table 11 provides the data.

The distribution of the estimates around multiples of ten indicates the guesstimate nature of the data. The mean percent guessed to have had industrial arts was 64 percent. The range of such estimates, however, was from zero percent to 100 percent. The distribution data suggests that a large percentage of T&I vocational students have not had industrial arts. While there is undoubtedly error in such estimates, the overall picture is probably close to what is actually the case. This is confirmed by an analysis

TABLE 10. NUMBER OF PREVOCATIONAL, EXPLORATORY OR ORIENTATION PROGRAMS AVAILABLE AT VOCATIONAL AND COMPREHENSIVE SCHOOLS

NUMBER OF PRE-VOCATIONAL, EXPLORATORY OR ORIENTATION PROGRAMS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
9 - 10	6	6.4	2	4.3	4	8.5
7 - 8	16	17.1	8	17.0	8	17.0
5 - 6	24	25.5	11	23.4	13	27.7
3 - 4	30	31.9	16	34.1	14	29.8
1 - 2	10	10.7	4	8.5	6	12.8
0	8	8.5	6	12.8	2	4.2
NUMBER	94		47		47	
MEAN	4.7		4.3		5.1	
MEDIAN	4		4		5	
S.D.	2.6		2.6		2.7	

TABLE 11. INSTRUCTOR ESTIMATES OF PERCENTAGES OF STUDENTS WHO HAVE HAD INDUSTRIAL ARTS

PERCENTAGE CLASS INTERVALS	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	%	C%	N	%	C%	N	%	C%
91 - 100	149	30.7	100.0	78	24.5	100.0	71	42.3	100.0
81 - 90	64	13.2	69.3	40	12.6	75.5	24	14.3	57.7
71 - 80	62	12.8	56.1	42	13.2	62.9	20	11.9	43.4
61 - 70	15	3.1	43.3	13	4.1	49.7	2	1.2	31.5
51 - 60	21	4.3	40.2	17	5.3	45.6	4	2.4	30.3
41 - 50	44	9.0	35.9	29	9.1	40.3	15	8.9	27.9
31 - 40	7	1.4	26.9	5	1.6	31.2	2	1.2	19.0
21 - 30	21	4.3	25.5	15	4.7	29.6	6	3.6	17.8
11 - 20	13	2.7	21.2	11	3.5	24.9	2	1.2	14.2
1 - 10	35	7.2	18.5	25	7.9	21.4	10	5.9	13.0
0	55	11.3	11.3	43	13.5	13.5	12	7.1	7.1
NUMBER	486			318			168		
MEAN	63.7			59.2			72.4		
MEDIAN	75			72			85		
S.D.	36.4			36.8			34.0		

of the cumulative school records of approximately 2,400 graduates in the class of 1962. The records indicated that 53 percent of the graduates had industrial arts in the ninth and tenth grades. The actual percentage who had industrial arts is certainly greater because many have had industrial arts in the seventh and eighth grades.

The mean percentage of students estimated to have had industrial arts by comprehensive school T&I instructors was 72.4 versus 59.2 percent estimated for vocational school students by their instructors. This agrees with the earlier finding that a greater percentage of comprehensive schools provided an industrial arts program than vocational schools (88 vs. 69 percent).

The instructors were asked to express an opinion on whether students who had industrial arts did better, about the same or poorer in their vocational course work than those who did not have industrial arts. Table 12 provides the data.

About 60 percent of the T&I instructors felt that students with industrial arts experience did better in their vocational course work. About 40 percent claimed there was no real difference between the two types of students. It is interesting to notice that more of the T&I instructors from comprehensive schools thought students with industrial arts experience performed better in their shop work.

TABLE 12. INSTRUCTOR COMPARISONS OF STUDENTS WITH AND WITHOUT INDUSTRIAL ARTS IN TERMS OF T&I COURSE PERFORMANCE

RESPONSE CATEGORIES CHECKED BY INSTRUCTORS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Those with IA backgrounds do better	218	59.2	130	53.7	88	69.8
No real difference between the two groups	147	39.9	110	45.5	37	29.4
Those with IA backgrounds do worse	3	0.8	2	0.8	1	0.8

COURSE OFFERINGS, ADDITIONS AND TERMINATIONS

Introduction

Much of the criticism that has been leveled at vocational education centers around (1) the alleged failure to offer courses that reflect local manpower requirements and (2) the lack of adequate course choice that confronts the would-be vocational student. Whatever the merits of these criticisms, the problems that they imply are less the fault of vocational education than the school systems which do not raise or provide the resources to remedy the problems of course offerings.

The present section presents data on the number and types of courses offered by the schools surveyed, and also an analysis of number and type of T&I courses added and dropped over a five-year period.

Present (1964) Course Offerings

• What types of T&I courses were offered by the schools surveyed? Are their course offerings an accurate reflection of T&I course offerings in all schools? Table 13 provides the data.

The school sample was based upon a total school enrollment stratification such that 30, 40 and 30 schools respectively were in the enrollment categories of less than 500, between 500 and 1500, and greater than 1500. This type of sample is not a proportional representation of all schools offering T&I programs. Hence, the analysis of course offerings can be generalized only to the population of schools offering three or more T&I courses.

Table 13 indicates the percentage of schools in the 100 school sample that offered each of the listed courses. The ten most frequently offered T&I courses are:

• Auto mechanics	89%
• Machine shop	76
• Drafting	58
• Electricity	55
• Printing	49
• Electronics	47
• Mill and cabinetry	44
• Welding	31
• Sheet metal	29
• Carpentry	25

The "other than above" category in Table 13 included courses offered by less than 5 percent of the schools, e.g. watch repair, appliance repair, dry cleaning and pressing, etc.

TABLE 13. TYPE OF T&I COURSE OFFERINGS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPES OF COURSE OFFERINGS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Auto mechanics	89	89.0	46	92.0	43	86.0
Auto body repair	19	19.0	13	26.0	6	12.0
Aircraft mechanics	11	11.0	11	22.0	0	0.0
Air conditioning/heating	13	13.0	10	20.0	3	6.0
Building trades	12	12.0	3	6.0	9	18.0
Carpentry	25	25.0	13	26.0	12	24.0
Commercial art	20	20.0	16	32.0	4	8.0
Data processing	6	6.0	6	12.0	0	0.0
Drafting	58	58.0	33	66.0	25	50.0
Electricity	55	55.0	36	72.0	19	38.0
Electronics	47	47.0	30	60.0	17	34.0
Food trades	15	15.0	8	16.0	7	14.0
Foundry	5	5.0	5	10.0	0	0.0
Machine shop	76	76.0	42	84.0	34	68.0
Masonry	13	13.0	6	12.0	7	14.0
Mill/cabinetry	44	44.0	25	50.0	19	38.0
Metal trades	12	12.0	4	8.0	8	16.0
Painting/decorating	8	8.0	7	14.0	1	2.0
Plumbing	13	13.0	12	24.0	1	2.0
Printing	49	49.0	25	50.0	24	48.0
Radio/television	21	21.0	14	28.0	7	14.0
Sheet metal	29	29.0	21	42.0	8	16.0
Shoe repair	5	5.0	4	8.0	1	2.0
Tailoring	10	10.0	6	12.0	4	8.0
Upholstery	4	4.0	3	6.0	1	2.0
Welding	31	31.0	26	52.0	5	10.0
Other than above *	25	25.0	11	22.0	14	28.0

* Appliance repair, building maintenance, dry cleaning, pattern making, photography, tool and die, typewriter repair, watch repair

Several things can be said about the ten most frequently offered courses: One, they are all two-year or longer courses which, except possibly one, represent highly skilled occupations. They are not the kinds of courses that would normally be considered suitable for students with low level capabilities. A school policy of influencing low capability-low achievers into such courses is highly questionable from the standpoint of both course-holding power and output of graduates qualified to enter the occupations for which trained. Data will be presented later on both of these points which suggest that a large percentage of schools are doing a poor job of fitting the student resource to occupational requirements. The lack of course offerings compatible with the entire range of talents and interests found among the students is perhaps the primary reason for mismatching students with occupations.

Two, if one excludes electronics, the most frequently offered courses represent the traditional T&I pattern of course offerings. This is not inherently wrong, providing the local labor markets served by the schools have a need for the occupations represented. Unquestionably, some of the occupations represented are in continued demand in almost all communities served. About others, there may be a question. The point is that new occupations have not as yet broken the pattern of traditional course offerings to any great extent.

Three, the infrequent offering of certain courses, notably plumbing and masonry, suggests the operation of restrictive factors in many communities which have been tacitly recognized by the schools. The fault, of course, is not with the schools; there is little point in offering courses when the graduates will not be accepted in local apprenticeship programs.

•How do vocational and comprehensive schools compare in terms of type of course offerings? Table 13 presents the comparative data.

The vocational schools, while still solidly entrenched in traditional T&I courses, seem more responsive to going beyond the pattern. Notice, for example, the percentage differences in such course offerings as auto body repair, air conditioning and heating, commercial art, data processing, electronics, plumbing and welding. The differences are partly the result of vocational schools offering a greater number of courses and partly because they are more heavily concentrated in or near major city locations. In any case, it is clear that vocational schools have a greater variety of course offerings than do comprehensive schools.

•How many T&I courses do the individual schools offer? How do vocational and comprehensive schools compare in terms of number of course offerings? Table 14 provides the data.

The mean and median number of T&I courses offered is respectively 7.4 and 6 courses. These are not correct United States parameter estimates because the survey excluded the 68 percent of schools offering T&I courses which offered less than three courses. Had these schools been included, the median number of courses offered would have been two instead of six. That figure is indicative of the paucity of choice in most United States

TABLE 14. DISTRIBUTION OF NUMBER OF T&I COURSES OFFERED IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

NUMBER OF COURSE OFFERINGS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
17 - 18	1	1.0	1	2.0	0	0.0
15 - 16	3	3.0	3	6.0	0	0.0
13 - 14	9	9.0	8	16.0	1	2.0
11 - 12	5	5.0	5	10.0	0	0.0
9 - 10	13	13.0	7	14.0	6	12.0
7 - 8	19	19.0	10	20.0	9	18.0
5 - 6	31	31.0	15	30.0	16	32.0
3 - 4	19	19.0	1	2.0	18	36.0
NUMBER	100		50		50	
MEAN	7.4		9.1		5.7	
MEDIAN	6		8		5	
S.D.	3.5		3.6		2.4	

schools. And when we say that, we are talking about comprehensive schools because these are the schools that comprise almost all of the schools offering fewer than three T&I courses.

It is small wonder that so many T&I graduates do not enter occupations related to their course of study. Undoubtedly, many are forced to choose the most preferred of two or three courses, none of which strike a responsive chord in terms of an occupational choice. In most one-course schools, the choice is either auto mechanics or to continue in the academic program. In most two-course schools, the choice is auto mechanics or machine shop or to continue in the academic program.

The vocational schools clearly offer a greater number of T&I courses than the comprehensive schools. Only one vocational school offered fewer than five courses, whereas 18 (36 percent) of the comprehensive schools offered fewer than five courses. At the other extreme, 34 percent of the vocational schools surveyed offered more than ten T&I courses, whereas only 2 percent (one school) of the comprehensive schools offered more than ten courses. The comprehensive schools are not comprehensive in the true sense of the concept. Course choice in these schools is extremely limited.

Such limitations of course offerings have implications beyond the matter of choice itself. One can seriously question the quality of vocational education in schools that offer but one or two T&I courses.

It is not only that the main thrust of these schools is non-vocational--that is true for most comprehensive schools--but there can be little steam left above the instructor level to assure the essentials of a good vocational education. One cannot help but wonder about just what is the function of the T&I course in the one or two-course schools. Is it to provide vocational education or to provide a place in the school for those who cannot or will not adjust to the academic or general curriculum? There is a difference.

• What is the product mix of courses offered? How do vocational and comprehensive schools compare in terms of product mix? Table 15 provides the data.

For purposes of qualitative choice analysis, courses were grouped into eight categories:

- Mechanics courses, e.g. auto mechanics, airplane mechanics, small engine mechanics, air conditioning, auto body repair and other mechanics courses.

- Metals courses, e.g. machinist, welding, sheet metal, foundry and other metals courses.

- Construction courses, e.g. trowel trades, carpentry, plumbing, building trades and other construction occupations.

- Electrical courses, e.g. electronics, T.V. and radio repair, industrial electricity, instrumentation and other non-construction electrical courses.

- Wood courses, e.g. mill and cabinetry and other non-construction wood courses.

- Printing and graphic arts, e.g. commercial art, printing, commercial photography and other courses related to the graphic arts industry.

- Home or personal services, e.g. tailoring, power sewing, shoe repairing, upholstering and other personal or home service related courses.

- Miscellaneous, i.e. all courses that did not fit into the previous classifications.

Schools were given one point for each category represented in their course offerings. This provided an admittedly crude basis for comparing the qualitative choice. Obviously, where there is no quantitative choice there is also no qualitative choice. Table 15 provides the data.

The mean course mix, as previously described, is five. With the mean number of courses offered being 7.4, one can conclude that when schools do offer a number of courses they tend to offer them in qualitatively different fields. This is desirable because it provides a more adequate range of choice to the would-be vocational student.

TABLE 15. DISTRIBUTION OF COURSE MIX IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

COURSE PRODUCT MIX	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
8	3	3.0	3	6.0	0	0.0
7	16	16.0	11	22.0	5	10.0
6	22	22.0	15	30.0	7	14.0
5	28	28.0	15	30.0	13	26.0
4	17	17.0	4	8.0	13	26.0
3	8	8.0	1	2.0	7	14.0
2	5	5.0	0	0.0	5	10.0
1	0	0.0	0	0.0	0	0.0
NUMBER	100		50		50	
MEAN	5.1		5.7		4.5	
MEDIAN	5		6		4	
S.D.	5.3		5.9		4.8	

Because of the small number of course offerings in some schools, the qualitative choice is necessarily small. In about 30 percent of the schools, the qualitative choice was four fields or less. Considering the paucity of choice within each field, this may be an inadequate choice for many would-be vocational students.

The course offerings in vocational schools represent a greater number of qualitatively different fields than do those of comprehensive schools. This virtually follows from the fact that the former schools offer a greater number of courses.

In terms of the previously defined categories, the 100 schools surveyed offered courses in the following groups:

- Mechanics 91%
- Metals 9%
- Construction 85
- Electrical 59
- Wood 45
- Printing and graphic arts 57
- Home or personal services 14
- Miscellaneous 71

Recent Course Additions

•How many T&I courses did the schools add in the 1959-1963 year period? How do the two types of schools compare in terms of adding new T&I courses to their program of offerings? Table 16 provides the data.

The mean and median number of T&I courses added in the five-year period were 0.7 and zero respectively. The 100 schools surveyed increased their course offerings by 8.9 percent over a five-year period or on an average of 1.8 percent per year. Sixty percent of the schools surveyed did not add a single course offering in the 1959-1963 five-year period. Another 28 percent added but one T&I course. Clearly, this is not a picture of impressive growth of course offerings. (The reader is reminded that the data do not reflect the influences of the 1963 Vocational Education Act.)

The mean number of courses added by the vocational schools is significantly greater than the number added by the comprehensive schools. This too illuminates the problem. At the time, about 56 percent of the schools offering T&I programs were comprehensive schools. Correctly weighted for the different proportions of the two types of schools, the

TABLE 16. DISTRIBUTION OF NUMBER OF T&I COURSES ADDED PER SCHOOL IN A FIVE-YEAR PERIOD IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

NUMBER OF T&I COURSES ADDED (1959-1963 PERIOD)	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
8	1	1.0	1	2.0	0	0.0
7	0	0.0	0	0.0	0	0.0
6	0	0.0	0	0.0	0	0.0
5	1	1.0	1	2.0	0	0.0
4	1	1.0	1	2.0	0	0.0
3	5	5.0	5	10.0	0	0.0
2	5	5.0	2	4.0	3	6.0
1	28	28.0	12	24.0	16	32.0
0	59	59.0	28	56.0	31	62.0
NUMBER OF COURSES	70	100.0	48	68.6	22	31.4
NUMBER OF SCHOOLS	100		50		50	
MEAN	0.7		0.9		0.4	
MEDIAN	0		0		0	
S.D.	1.2		1.6		0.6	

estimated mean number of courses added in the 1959-1963 period for all United States schools offering three or more T&I courses would be 0.7 courses.

It is also clear that neither type of school can be described as reflecting an impressive growth of course offerings. It may well be that this situation has changed since the 1963 Vo-ed Act monies have become available. Unfortunately, there is no published national data on this point. One does not know whether the bulk of the expansion effort has gone into new school construction or the expansion of T&I programs in existing schools. It would be interesting to know, for example, how much growth benefit has accrued to the present sample of schools in the four years that have elapsed.

• What kinds of courses were added in the five-year period from 1959 to 1963? How do the two types of schools compare in type of courses added? Table 17 shows the number and percent of schools that added each of the types of courses. It also shows which presently offered T&I courses were not added by any schools.

Electronics stands out as the most popular recent T&I course addition. Electronics constituted 27 percent of the courses added in the five-year period. It was added by 19 percent of the schools.

If one excludes electronics and data processing, it cannot be said that a qualitatively new pattern of course offerings emerged during these five years. Of the seventy new courses offered, 89 percent were T&I courses that have long been associated with vocational education. This should not be construed as a criticism of any particular new course addition. There is nothing in the data that says the schools were not reflecting local labor market needs when they added the courses shown in Table 17. (There is also nothing in the data that reflects any great innovative approaches to course offerings, if one excludes data processing and electronics.)

The vocational schools have added more non-traditional courses than the comprehensive schools. The four schools that added a data processing course were vocational schools. Similarly, 24 percent of the vocational schools added electronics versus 14 percent of the comprehensive schools. The four schools that added air conditioning were vocational schools. Thus, it appears that vocational schools are somewhat more likely to break away from traditional T&I courses when they add courses than are the comprehensive schools.

• What is the trend in numbers of T&I courses added over the five-year period (1959-1963)? Table 18 provides the data.

Of the total seventy courses added by the 100 schools in the five-year period, the percentage added per year ranged from a low 17 percent in 1959 to a high of 24 in 1963. Thus, there is an indication of a slight increase in the percentage of new courses added each school year. However, the increase is primarily attributable to the addition of courses in the vocational schools, which added 69 percent of the new courses in the five-year period. The comprehensive schools reflect no increasing trend in number of courses added per year, yet they comprise 56 percent of the T&I program offering schools.

TABLE 17. TYPES OF COURSES RECENTLY ADDED IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPES OF T&I COURSES ADDED (1959-1963)	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Auto mechanics	4	5.7	1	2.1	3	13.6
Auto body repair	4	5.7	4	8.3	0	0.0
Aircraft mechanics	0	0.0	0	0.0	0	0.0
Air conditioning/heating	4	5.7	4	8.3	0	0.0
[illegible]ding trades	1	1.4	0	0.0	1	4.5
Carpentry	2	2.8	1	2.1	1	4.5
Commercial art	0	0.0	0	0.0	0	0.0
Data processing	4	5.7	4	8.3	0	0.0
Drafting	6	8.6	4	8.3	2	9.1
Electricity	5	7.1	3	6.2	2	9.1
Electronics	19	27.1	12	25.0	7	31.8
Food trades	0	0.0	0	0.0	0	0.0
Foundry	0	0.0	0	0.0	0	0.0
Machine shop	2	2.8	1	2.1	1	4.5
Masonry	2	2.8	1	2.1	1	4.5
Mill/cabinetry	2	2.8	1	2.1	1	4.5
Metal trades	1	1.4	1	2.1	0	0.0
Painting/decorating	0	0.0	0	0.0	0	0.0
Plumbing	1	1.4	1	2.1	0	0.0
Printing	0	0.0	0	0.0	0	0.0
Radio/television	1	1.4	1	2.1	0	0.0
Sheet metal	3	4.3	3	6.2	0	0.0
Shoe repair	0	0.0	0	0.0	0	0.0
Tailoring	0	0.0	0	0.0	0	0.0
Upholstery	0	0.0	0	0.0	0	0.0
Welding	3	4.3	2	4.2	1	4.5
Other than above *	6	8.6	4	8.3	2	9.1
TOTAL	70	100.0	48	68.6	22	31.4

* Appliance repair, building maintenance, dry cleaning, pattern making, photography, tool and die, typewriter repair, watch repair

TABLE 18. DISTRIBUTION OF NUMBER OF T&I COURSES ADDED IN A FIVE-YEAR PERIOD IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

T&I COURSES ADDED IN FIVE-YEAR PERIOD	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
1959	12	17.1	10	20.8	2	9.1
1960	13	18.6	10	20.8	3	13.6
1961	14	20.0	7	14.7	7	31.8
1962	14	20.0	10	20.8	4	18.2
1963	17	24.3	11	22.9	6	27.3
TOTAL	70	100.	48	68.6	22	31.4

The failure of the comprehensive schools to show a trend of increasing number of course additions has serious implications for the problem of insufficient choice (of courses) for the would-be vocational students in these schools. If the same static trend continues in the post-1963 Vocational Education Act years, then comprehensive schools, which comprise the great majority of secondary schools offering T&I programs, will provide no better choice in the coming years than they have in the past. Generally, the vocational schools have provided an adequate number of courses from which to choose. It is the comprehensive schools that have been a problem on the matter of adequacy of choice. Hence, it is all the more essential that they show an increasing trend of course offerings unless, of course, area vocational schools are established in the areas now serviced by comprehensive schools.

• What factors were acknowledged as reasons for adding T&I courses during the five-year period? Table 19 indicates the number and percentage of times each of the list factors was acknowledged as a reason for adding a T&I course. More than one such reason may have been acknowledged by the school principal for any given course.

The five most frequently cited reasons for adding a T&I course were:

- Result of special study by school board 44%
- Result of employment opportunity survey 38
- Requested by community employers 33
- Requested by student body 30
- Requested by general advisory committee 23

TABLE 19. FACTORS CLAIMED TO HAVE INFLUENCED COURSE ADDITIONS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

FACTORS ACKNOWLEDGED TO HAVE INFLUENCED COURSE ADDITIONS (1959-1963)	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Requested by community employers	23	32.8	18	37.5	5	22.7
Requested by general advisory committee	16	22.8	11	22.9	5	22.7
Requested by student body	21	30.0	16	33.3	5	22.7
Requested by state or Federal office	6	8.6	4	8.3	2	9.1
Requested by labor organization	5	7.1	3	6.2	2	9.1
Requested by craft advisory committee	9	12.8	7	14.6	2	9.1
Result of local employment opportunity survey	27	38.6	17	35.4	10	45.4
Result of special study by school board	31	44.3	22	45.8	9	41.0
Requested by local school board	10	14.3	7	14.6	3	13.6
Other than above	11	15.7	10	20.8	1	4.5

Several reasons were often cited for the same course, so one cannot think of the listed reasons as the sole source of influence. A total of 159 reason citations were made for the 70 courses added. Thus, there were multiple reasons cited for influencing the addition of most courses. Nevertheless, on the face of the data, it would appear that more than 60 percent of the course additions were made without the benefit of a local employment opportunity survey. Of course, requests by an employer may be considered a partial substitute for such survey. At least, the employment opportunity has been established to some degree.

Also, only 30 percent of the new course additions were preceded by a survey of the student body to determine what interest there might be in such a course. Perhaps the omission of such surveys is not serious. Schools have a way of filling new courses. If they didn't, such courses would soon be dropped. However, considering the relatively small amount of effort involved, it seems odd that the majority of schools fail to take the interest pulse of the student body before adding a course.

The low frequency with which general and craft advisory committees were acknowledged as factors that influenced course additions is because such committees existed at only 35 and 54 percent respectively of the schools surveyed. Even so, the percentages for craft and general advisory committees shown in Table 19 suggest that many schools who have such committees do not use them as a reason for planning new curriculums.

Labor organizations and state-level offices are a relatively minor source of influence on course additions.

Recent Course Terminations

•How many T&I courses did the schools terminate in the 1959-1963 period? How do the two types of schools compare in terms of terminating courses? Table 20 provides the data.

Seventy-eight percent of the schools terminated no courses during the five-year period. Another 20 percent terminated one course. Only 2 percent terminated two or more courses. Clearly, course terminations are relatively infrequent occurrences. The data does not permit the unequivocal conclusion that schools are failing to terminate courses for which there is insufficient local demand. One would have to know what happens to the graduates of each course to come to such a conclusion.

TABLE 20. DISTRIBUTION OF THE NUMBER OF T&I COURSES TERMINATED PER SCHOOL IN A FIVE-YEAR PERIOD IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

NUMBER OF T&I COURSES TERMINATED (1959-1963 PERIOD)	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
3	1	1.0	1	2.0	0	0.0
2	1	1.0	1	2.0	0	0.0
1	20	20.0	7	14.0	13	26.0
0	78	78.0	41	82.0	37	74.0
NUMBER OF COURSES	25	100.0	12	48.0	13	52.0
NUMBER OF SCHOOLS	100		50		50	
MEAN	0.3		0.4		0.3	
MEDIAN	0		0		0	
S.D.	0.7		0.7		0.6	

However, it does suggest that schools find it extremely difficult to come to a decision to terminate a course. Conversations at some of the schools suggested that courses are occasionally kept "alive" by influencing students to enroll in them in order to achieve an enrollment necessary to justify the course. The desire to try to achieve a minimum enrollment requirement is understandable. One wonders what the effect such practices may have on dropout rates and vocational outcomes after graduation.

There is no significant difference in the number of courses dropped by the vocational and comprehensive schools surveyed.

• What kinds of courses were terminated? The courses dropped are presented below in the order of frequency of schools terminating them.

•Electricity	5%
•Mill and cabinetry	3
•Radio and television	3
•Drafting	2
•Painting and decorating	2
•Airplane mechanics	1
•Commercial art	1
•Electronics	1
•Metal trades	1
•Other than above	5

The number of courses dropped is too small to reveal a convincing pattern. Moreover, some of the courses dropped were added by other schools. For example, five schools dropped electricity and five schools added electricity. Three schools dropped mill and cabinetry and two schools added mill and cabinetry. Three schools dropped radio and television repair and two schools added radio and television repair. Presumably, local needs are being reflected by the adding and dropping of courses.

• What reasons were acknowledged for terminating T&I courses during the five-year period? Table 21 gives the number and percentage of times each reason was cited. The percentage is based upon the total number of courses dropped during the five-year period.

The most frequently cited reason for dropping a course was insufficient local employment opportunity. This reason was cited for 56 percent of the twenty-five course terminations. The second most frequently cited reason was a continual decline in enrollment. These two reasons tended to be cited in combination.

Four of the twenty-five courses were dropped, in part, because of too few students of sufficient ability. Another four (16 percent) were dropped because of inability to get a replacement instructor.

• Is there a trend in the number of T&I courses dropped over the five-year period? Table 22 presents the data.

One cannot conclude from the data that there is anything but a static trend. The increase of courses dropped in the 1963 school year may be the beginning of an increasing trend. The data is inconclusive.

TABLE 21. FACTORS CLAIMED TO HAVE INFLUENCED COURSE TERMINATIONS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

FACTORS ACKNOWLEDGED TO HAVE INFLUENCED COURSE TERMINATIONS (1959-1963)	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Little or no local employment opportunity	14	56.0	9	75.0	5	38.5
Continual decline in enrollment	12	48.0	8	66.7	4	30.8
Too few students of sufficient ability	4	16.0	4	33.3	0	0.0
Inability to get replacement for departing instructor	4	16.0	3	25.0	1	7.7
Course transferred to other school	3	12.0	2	16.7	1	7.7
Restrictions by local labor organization	1	4.0	0	0.0	1	7.7
Requested by school board or other officials	1	4.0	1	8.3	0	0.0
Other than above	4	16.0	3	25.0	1	7.7

TABLE 22. DISTRIBUTION OF NUMBER OF T&I COURSES TERMINATED IN A FIVE-YEAR PERIOD IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

T&I COURSES TERMINATED IN FIVE-YEAR PERIOD	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
1959	5	20.0	3	25.0	2	15.4
1960	3	12.0	1	8.3	2	15.4
1961	5	20.0	4	33.4	1	7.7
1962	4	16.0	1	8.3	3	23.1
1963	8	32.0	3	25.0	5	38.4
TOTAL	25	100.0	12	48.0	13	52.0

COURSE ADDITION AND TERMINATION PLANS

The school principals were asked what type of courses they planned to add and drop in the next school year. A planned add or drop was not counted unless the principal indicated that the change was budgeted or authorized. The principals were also asked what type of courses they would like to see added or dropped in addition to budgeted new offerings or authorized terminations. Lastly, they were asked if there were any courses they might like to add that could not be added because of legal or other types of local restrictions.

Course Addition Plans and Preferences

• How many schools planned to add a course in the next school year? What kinds of courses were authorized or budgeted? How do vocational and comprehensive schools compare in terms of such plans? Table 23 provides the data.

Seventy-three percent of the schools had no authorized plans for adding a T&I course in the next school year. Another 14 percent had plans for adding one course.

The total number of courses the principals claimed were planned for the next school year (1964-65) came to forty-three. That is about 60 percent of the number of courses that the schools added in the previous five years. That suggests the schools either came upon an unusually large amount of resources for expanding their course offerings or that some principals confused authorized plans for unauthorized hopes. The writer is inclined to regard the "plans" as inflated by wishful thinking to an unknown degree.

The six most frequently "planned" additions were:

	N	Percent
•Electronics	8	18.6
•Drafting	4	9.4
•Food trades	4	9.4
•Auto mechanics	3	7.0
•Printing	3	7.0
•Welding	3	7.0

Only electronics and food trades show signs of a "new look" emerging in course offerings. The balance of the planned additions (about 75 percent) reflected well-established T&I course offerings. And there is nothing wrong with that providing there are both student interests and local labor market needs supporting the more traditional courses.

TABLE 23. TYPES OF COURSES SCHOOLS PLAN TO ADD IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

COURSES SCHOOLS PLAN TO ADD IN NEXT SCHOOL YEAR (1964-1965)	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Auto mechanics	3	7.0	1	5.5	2	8.0
Auto body repair	2	4.6	0	0.0	2	8.0
Aircraft mechanics	0	0.0	0	0.0	0	0.0
Air conditioning/heating	1	2.3	1	5.5	0	0.0
Building trades	2	4.6	0	0.0	2	8.0
Carpentry	1	2.3	1	5.5	0	0.0
Commercial art	0	0.0	0	0.0	0	0.0
Data processing	1	2.3	1	5.5	0	0.0
Drafting	4	9.4	1	5.5	3	12.0
Electricity	1	2.3	0	0.0	1	4.0
Electronics	8	18.6	3	16.8	5	20.0
Food trades	4	9.4	3	16.8	1	4.0
Foundry	0	0.0	0	0.0	0	0.0
Machine shop	0	0.0	0	0.0	0	0.0
Masonry	1	2.3	0	0.0	1	4.0
Mill/cabinetry	0	0.0	0	0.0	0	0.0
Metal trades	0	0.0	0	0.0	0	0.0
Painting/decorating	0	0.0	0	0.0	0	0.0
Plumbing	1	2.3	0	0.0	1	4.0
Printing	3	7.0	1	5.5	2	8.0
Radio/television	1	2.3	1	5.5	0	0.0
Sheet metal	1	2.3	0	0.0	1	4.0
Shoe repair	0	0.0	0	0.0	0	0.0
Tailoring	2	4.6	1	5.5	1	4.0
Upholstery	0	0.0	0	0.0	0	0.0
Welding	3	7.0	1	5.5	2	8.0
Other than above *	4	9.4	3	16.8	1	4.0
TOTAL	43	100.0	18	41.9	25	58.1

* Appliance repair, building maintenance, dry cleaning, pattern making, photography, tool and die, typewriter repair, watch repair

It is also interesting to see that some schools are adding what others have dropped. Presumably, local labor market needs are being reflected. Or, at least one hopes so.

• What courses would the principals like to see added? Table 24 provides the data.

The percentages shown on the table are based upon the total number of courses that principals reported that they would like to add. (The percentage of schools wanting to add a particular course is the same as the number of schools wanting to add the course as shown in the table.)

The courses most frequently mentioned as like-to-add candidates (and their percentages based on number of schools and total number of courses preferred) were:

	Schools	Courses
• Data processing	18.0%	11.0%
• Electronics	16.0	9.8
• Air conditioning/heating	15.0	9.2
• Food trades	13.0	8.0
• Drafting	11.0	6.7
• Auto body repair	9.0	5.5
• Electricity	6.0	3.7
• Metal trades	6.0	3.7

All other courses were mentioned by 5 or less percent of the schools, and comprised less than 5 percent of the total number of T&I courses that principals would like to see added.

Table 24 data makes two things evident. First, in terms of what schools (principals) would like to add in the coming years, there are the beginnings of a new look, e.g. data processing, electronics, air conditioning and heating, and food trades. These comprise about 38 percent of the courses principals would like to add. Second, the majority of courses that principals would like to add still have the old look. (Once again, the reader must realize that this is not necessarily an indictment of the schools; there may be good local labor market reasons for wanting to add the more traditional T&I courses.)

The nineteen "other than above" T&I courses also included a number of newcomers: appliance repair, instrumentation, gasoline or diesel engine repair, business machine repair and plastics.

Table 24 also indicates the differences in the courses that vocational and comprehensive schools would like to see added. Of the new look courses, the vocational schools wanted to add food trades and air conditioning more frequently, whereas the comprehensive schools wanted to add electronics and data processing more frequently. Beyond these courses, the comparative data is more impressive for the similarity between the two schools than the differences.

• How do the vocational and comprehensive schools compare in terms of the number of courses they would like to add? Table 25 provides the data.

The mean and median number of additional courses that the schools would like to add in the next school year is 1.7 and 1 respectively. About

TABLE 24. TYPES OF COURSES PRINCIPALS WOULD LIKE TO SEE ADDED IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

COURSES PRINCIPALS WOULD LIKE TO ADD IN COMING YEARS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Auto mechanics	4	2.4	1	1.1	3	4.0
Auto body repair	9	5.5	4	4.5	5	6.7
Aircraft mechanics	0	0.0	0	0.0	0	0.0
Air conditioning/heating	15	9.2	10	11.2	5	6.7
Building trades	4	2.4	2	2.2	2	2.7
Carpentry	2	1.2	2	2.2	0	0.0
Commercial art	4	2.4	4	4.5	0	0.0
Data processing	18	11.0	8	9.0	10	13.5
Drafting	11	6.7	5	5.6	6	8.1
Electricity	6	3.7	1	1.1	5	6.7
Electronics	16	9.8	5	5.6	11	14.9
Food trades	13	8.0	9	10.1	4	5.4
Foundry	0	0.0	0	0.0	0	0.0
Machine shop	1	0.6	0	0.0	1	1.3
Masonry	3	1.8	2	2.2	1	1.3
Mill/cabinetry	0	0.0	0	0.0	0	0.0
Metal trades	6	3.7	4	4.5	2	2.7
Painting/decorating	5	3.1	4	4.5	1	1.3
Plumbing	2	1.2	0	0.0	2	2.7
Printing	5	3.1	2	2.2	3	4.0
Radio/television	4	2.4	2	2.2	2	2.7
Sheet metal	2	1.2	2	2.2	0	0.0
Shoe repair	1	0.6	1	1.1	0	0.0
Tailoring	3	1.8	1	1.1	2	2.7
Upholstery	2	1.2	2	2.2	0	0.0
Welding	8	4.9	3	3.4	5	6.7
Other than above *	19	11.6	15	16.8	4	5.4
TOTAL	163	99.5	89	99.5	74	99.5

* Appliance repair, building maintenance, dry cleaning, pattern making, photography, tool and die, typewriter repair, watch repair

TABLE 25. DISTRIBUTION OF NUMBER OF COURSES PRINCIPALS WOULD LIKE TO SEE ADDED IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

NUMBER OF COURSES PRINCIPALS WOULD LIKE TO ADD IN COMING YEARS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
7	2	2.0	1	2.0	1	2.0
6	0	0.0	0	0.0	0	0.0
5	3	3.0	2	4.0	1	2.0
4	4	4.0	3	6.0	1	2.0
3	13	13.0	7	14.0	6	12.0
2	26	26.0	11	22.0	15	30.0
1	27	27.0	17	34.0	10	20.0
0	25	25.0	9	18.0	16	32.0
NUMBER OF COURSES	163	100.0	89	54.6	74	45.4
NUMBER OF SCHOOLS	100		50		50	
MEAN	1.7		1.9		1.4	
MEDIAN	1		1		1	
S.D.	1.6		1.7		1.5	

25 percent of the schools (principals) reported they did <u>not</u> want to add any courses. This would not be significant if these were the schools that offered a large number of courses already. These are the number of courses that these schools presently offer:

Courses	Schools	Courses	Schools
3	2	6	0
4	3	7	3
5	3	≥8	14 (all voc. schools)

The comprehensive schools which offer fewer courses than the vocational schools (2.8 vs. 4.4 courses) also would like to add fewer courses (1.4 vs. 1.9 courses per school). In view of the central problem of a greater choice for would-be vocational students, the difference does not do credit to the comprehensive school principals. Along the same lines, it may be noted that almost one-third of the comprehensive schools (principals) surveyed did not wish to add a single course. If one generalizes this percentage to the population of comprehensive schools, it does not augur well for within school pressure to increase course offerings. Again, one can only wonder about how the principals of these schools conceive their vocational programs. (To be fair to those who indicated they would not like to add a course, one would have to establish the reasons. This the present study failed to do. It is entirely possible that these principals had good reasons for not wanting to add another T&I course. One can only wonder what such reasons might be.)

Course Termination Plans and Preferences

• How many schools plan to terminate a T&I course in the next school year? What types of courses have been authorized for termination?

Ninety-seven percent of the schools did not plan to terminate a course in the next school year. Those that did plan a course termination planned to drop airplane mechanics, drafting, and radio and television repair.

It is clear that plans for terminating T&I courses are as infrequent as actual terminations.

• How many schools would like to drop a course in the next school year? What types of courses would they like to drop?

Only seven of the 100 schools (principals) indicated they would like to drop a particular T&I course. Six of these schools were vocational schools. The courses that the schools would like to drop were:

• Mill and cabinetry	4
• Electronics	1
• Radio and television	1
• Other than above	1

• What courses will the schools not offer because of a restrictive factor in the community, such as licensing restrictions, labor organization opposition or other restrictive factors?

The following courses were most frequently cited in response to the open-end question:

• Plumbing	8
• Building trades	3
• Masonry	3
• Data processing	3
• Printing	3
• Electricity	2
• Electronics	2

About 29 percent of the principals cited a course which they claimed they would not or could not offer due to some restricting factor. Of the 34 courses so cited, 52 percent were cited because of local labor organization opposition, 35 percent were cited because the course was being offered by another public school in the area, and the balance for unspecified reasons. Labor opposition was confined almost exclusively to building trade occupations.

One such opposition episode was explained in connection with a course being offered by one of the schools. The head of the local plumbers

union, himself a graduate of the school's plumbing course many years earlier, refused to accept any of the course graduates into the local's apprenticeship program, with the result that the school was seriously considering dropping the course. Apparently, labor opposition to certain vocational courses is not uncommon. In Volume I, it was reported that 10 percent of the graduates who could not get into the occupation for which trained claimed they could not gain admission to a local apprenticeship program. Negro graduates in particular had difficulty.

GENERAL T&I COURSE CHARACTERISTICS

Introduction

As used herein, the term course has reference to the specific T&I shop and theory subjects that comprise an occupational course of instruction, such as auto mechanics, industrial electricity or sheet metal. The section is concerned with the characteristics of all T&I courses surveyed, not any specific type of T&I course.

Course Entry Requirements

Course entry requirements are the basis for controlling and influencing the quality of the student human resource admitted to vocational courses. Where there are no such requirements, it is a reasonable assumption that the course will take indiscriminately all who apply up to the maximum course enrollment.

•What type of course admission requirements do T&I courses have? How do vocational and comprehensive schools compare in terms of course admission requirements? Table 26 provides the data.

Of the 682 shop instructors who responded in terms of their course, about 60 percent reported there were no course admission requirements other than completion of the preceding grade. Since a negligible percentage of students are not advanced in grade from year to year, there are, in effect, no admission requirements for about 60 percent of the T&I courses. Anyone who applies is accepted, providing the class capacity permits.

The balance of the percentages shown in Table 26 are not mutually exclusive. A course may have more than one type of admission requirement. Also, admission standards are rarely mechanically applied. The individual circumstances are usually appraised by an instructor or counselor.

About 26 percent of the instructors reported an aptitude test standard; 17 percent reported an overall grade average standard; and 16 percent reported an achievement test standard. No data was obtained on the exact nature of the standard, so no conclusion can be drawn about whether the admission standards are high or low. However, such standards are rarely mechanically applied. The individual circumstances are usually appraised by an instructor or counselor. It is doubtful that any significant percentage of would-be vocational students are rejected because of failing to meet a quantitative standard.

The "requirements other than above" in Table 26 refer mainly to cases in which permission of the instructor was the entry standard. About 16 percent of the instructors reported that as a standard.

TABLE 26. PRESENT COURSE ADMISSION REQUIREMENTS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

COURSE REQUIREMENTS FOR ADMISSION	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
No requirements other than successful completion of prior grades	408	59.8	249	58.6	159	61.9
Must meet specified standard of all grades	113	16.6	72	16.9	41	16.0
Must meet specified standard of special grades	73	10.7	41	9.6	32	12.5
Must meet specified standard on aptitude tests	180	26.4	139	32.7	41	16.0
Must meet specified standard on achievement tests	109	16.0	85	20.0	24	9.3
Other requirements	111	16.3	71	16.7	40	15.6

The vocational schools, when they do have an admission standard other than successful completion of the prior grade (the functional equivalent of no standard), place greater emphasis on aptitude and achievement test standards than do comprehensive schools. Almost a third of the courses in vocational schools reported the use of an aptitude test standard; only 16 percent of the comprehensive school courses claimed the use of an aptitude test standard. Similarly, twice as many of the vocational school courses reported use of an achievement test entry standard than was the case for comprehensive school courses.

Another picture of the use of course entry requirements is given by Table 27. It shows a distribution of courses and schools in terms of the number of combined requirements applied, of all those listed in Table 26.

About 68 percent of the courses had only one type of entry requirement. That was mainly no entry requirement other than completion of the prior grade. Another 20 percent had a combination of two requirement standards. Thus, the general conclusion, supported by personal interview findings, is that schools are not strong in terms of course admission requirements. Even where standards exist, they tend to be low. Indeed, a frequent complaint of the instructors concerned either the lack of admission requirements or requirements which excluded no one. It may be recalled also that 84 percent of the teachers reported little or no decision-making influence on course admission standards. About 23 percent of the teachers who so reported also indicated that they were disturbed by their lack of influence on policy concerning course admission requirements. That brings us to the next question.

TABLE 27. PRESENT COURSE ENTRY REQUIREMENTS. SCHOOL AND COURSE DISTRIBUTION IN TERMS OF NUMBER OF DIFFERENT REQUIREMENTS

NUMBER OF REQUIREMENTS	COURSE ENTRY REQUIREMENTS						MEAN REQUIREMENTS CLASS INTERVALS
	COURSES			SCHOOLS			
	N	%	C%	N	%	C%	
6	0	0.0	-	1	1.0	100.0	3.5
5	5	0.7	100.0	2	2.0	99.0	3.0 - 3.4
4	23	3.5	99.3	4	4.0	97.0	2.5 - 2.9
3	55	8.3	95.8	13	13.0	93.0	2.0 - 2.4
2	130	19.5	87.5	10	10.0	80.0	1.5 - 1.9
1	452	68.0	68.0	70	70.0	70.0	1.0 - 1.4
NUMBER	665			100			NUMBER
MEAN	1.49			1.44			MEAN
MEDIAN	1			1			MEDIAN
S.D.	0.85			0.59			S.D.

• What course admission requirements do T&I teachers recommend? Table 28 provides the data.

Only 13 percent of the 505 teachers who spoke for their courses were satisfied with "no requirements other than successful completion of the prior grade." In view of the finding that almost 60 percent of the courses presently have no other requirement, the 13 percent represents an overwhelming rejection of the present lack of course admission requirements. The teachers are undoubtedly reflecting their experiences with students who are basically unqualified, in their opinions, to pursue the course.

About 55 percent of the teachers indicated the need for an aptitude test standard. Whether such tests have any validity for predicting vocational course performance is not here the issue. The point is that more than half of the teachers indicated that such tests should be used to screen would-be vocational students.

About 36 percent (the percentages are not mutually exclusive) want a specified grade point average as a standard, presumably one that will screen out the very low achievers. About 25 percent feel that a specified grade point standard in special subjects, such as mathematics and science, would be a useful admission standard.

About 31 percent indicated an achievement test standard should be used. Presumably, they feel that a grade is not a sufficient indicator of achievement in the basic subjects.

TABLE 28. RECOMMENDED COURSE ADMISSION REQUIREMENTS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

RECOMMENDED COURSE ADMISSION REQUIREMENTS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
No requirement other than successful completion of prior grades	69	13.7	55	16.3	14	8.4
Must meet specified standard of all grades	181	35.8	118	34.9	63	37.7
Must meet specified standard of special grades	127	25.1	92	27.2	35	21.0
Must meet specified standard on aptitude tests	280	55.4	195	57.7	85	50.9
Must meet specified standard on achievement tests	159	31.5	119	35.2	40	24.0
Other recommended requirements	76	15.0	40	11.8	36	21.6

There is considerable discrepancy between what teachers recommend and what are the present practices. For example, 17 percent reported the use of an overall grade point standard, whereas 35 percent recommended such a standard. Similarly, 11 percent reported a specific subject grade point average, whereas 25 percent recommended this type of standard. Twice as many (55 percent) recommended an aptitude standard as opposed to those who reported this type of standard (26 percent). These discrepancies support the contention of teachers that they have little to say about who enters their courses. Very clearly, the teachers feel the need for higher admission standards.

The vocational educator would do well to reflect on what influence the absence of course admission standards has upon such factors as course and school holding power, proficiency levels achieved by course graduates, and in the final analysis, the vocational outcomes experienced by graduates. The real problem is not to raise admission standards so high as to exclude would-be vocational students, but to develop validated standards for a comprehensive program of vocational courses designed to accommodate the total range of talents. Excluding a student from an electronics course because he lacks the prerequisites for success must not mean there is no place in the vocational program for him. There should be a course offering compatible with his level of capability.

- What number of students have been refused course admission?

Table 29 provides the data.

TABLE 29. NUMBER OF STUDENTS REFUSED ADMISSION TO T&I COURSES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

NUMBER OF STUDENTS REFUSED COURSE ADMITTANCE	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
>45	16	3.6	13	4.3	3	2.0
41 - 45	1	0.2	1	0.3	0	0.0
36 - 40	4	0.9	3	1.0	1	0.7
31 - 35	3	0.7	3	1.0	0	0.0
26 - 30	10	2.2	7	2.3	3	2.0
21 - 25	6	1.3	4	1.3	2	1.4
16 - 20	19	4.2	12	4.0	7	4.8
11 - 15	25	5.6	19	6.3	6	4.0
6 - 10	46	10.3	31	10.3	15	10.1
1 - 5	41	9.2	29	10.0	12	8.1
0	277	61.8	178	59.3	99	66.9
NUMBER	448		300		148	
MEAN	7.5		8.5		5.6	
MEDIAN	0		0		0	
S.D.	19.3		21.0		15.3	

The principal reason for turning students away from a course was inability to exceed a maximum enrollment capacity.

About 62 percent of the courses turned no one away. All that applied were accepted. Another 20 percent turned away from one to ten students. It can be seen in Table 29 that some courses turned away very large numbers of applicants. Whether these were accepted into other vocational courses (in the comprehensive schools) is not known. Lack of space was invariably the reason for a large number of applicants being turned down.

The vocational schools turn away more students than do the comprehensive schools. The former turned away an average of 8.5 applicants per course versus 5.6 for the comprehensive schools. The majority of courses in both schools, however, accepted all applicants. About 59 percent of the vocational school courses accepted all applicants, whereas 67 percent of the comprehensive school T&I courses accepted all applicants. These data support the teacher complaint of a lack of course admission standards. They also indicate that many students are not being accepted into the course of their choice because of already overcrowded courses. (The latter reason was established informally during interviews with the teachers and school principals.) For the average number of students turned away by the ten most frequently offered T&I courses, consult Appendix Section 5.

Course Durations and Grades in Which First Offered

• How many four, three, two and one-year T&I courses were offered in the schools surveyed? How do vocational and comprehensive schools differ in terms of course durations? Table 30 provides the data.

The most frequent course duration is three years. About 49 percent of the 731 courses for which duration data was available were three-year courses. About 38 percent were two-year courses and 12 percent were four-year courses. Less than 1 percent were one-year courses.

The four-year courses required students to elect their course at the end of the eighth grade or at the beginning of the ninth grade. Perhaps this is too early in life to make an occupational decision. Possibly course holding power, grade achievements and post-school vocational outcomes are adversely influenced by forcing early decisions.

The course duration pattern differs for vocational and comprehensive schools. Whereas 16 percent of the vocational school courses were four-year courses, only 6.5 percent of the comprehensive school courses were four-year courses. The vocational schools also had a slightly higher percentage of three-year courses (50 vs. 47 percent). The comprehensive schools, in turn, have a higher percentage of two-year courses (47 vs. 33 percent), but do not have any one-year T&I courses. The latter is significant because 56 percent of the T&I program schools in the United States are comprehensive schools. This means that short duration T&I courses are virtually non-existent in the great majority of United States secondary schools offering T&I courses.

TABLE 30. DISTRIBUTION OF THE DURATIONS OF T&I COURSES OFFERED IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

COURSE DURATION	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Four years	90	12.3	72	15.9	18	6.5
Three years	357	48.8	228	50.2	129	46.6
Two years	279	38.2	149	32.8	130	46.9
One year	5	0.7	5	1.i	0	0.0

• In what grades are the T&I courses first offered? In what grades do T&I teachers think their course should be first offered? Table 31 provides the data.

The data source is the T&I teachers who were surveyed for information about their courses. About 41 percent of the teachers of courses beginning in the ninth grade felt their courses should begin in the ninth grade. About 59 percent, then, disagreed. The breakdown indicates that 39 percent thought the tenth grade was where the course should be first offered, 15 percent favored the eleventh grade and almost 6 percent favored a post-high school course. The interview impression obtained from these teachers was that most felt the students were too immature in the ninth grade to apply themselves seriously to the shop work. Several teachers indicated that the safety of the ninth graders was a continuous source of anxiety because of shop shenanigans around hazardous machinery.

Of the teachers whose course began in the tenth grade, about 60 percent indicated that is where the course should start. Twelve percent thought their course should start a year earlier.

However, the pattern of deferring the course to a later grade emerges again. About 22 percent of these teachers felt their course should begin in the eleventh instead of the tenth grade. Again, a small percentage felt their course should begin at a post-high school level.

Of the teachers whose course began in the eleventh grade (about 38 percent), about 54 percent felt that was where their course should begin, 24 percent favored the tenth grade, 18 percent favored the ninth grade and about 5 percent favored the twelfth or thirteenth grade.

TABLE 31. COMPARISON OF GRADE COURSE FIRST OFFERED VERSUS GRADE COURSE SHOULD BE FIRST OFFERED

GRADE FIRST OFFERED	GRADE SHOULD FIRST OFFER									
	9th		10th		11th		12th		13th *	
	N	%	N	%	N	%	N	%	N	%
9th	22	40.7	21	38.9	8	14.8	0	0.0	3	5.6
10th	32	12.5	155	60.5	56	21.9	3	1.2	10	3.9
11th	34	17.5	46	23.7	104	53.6	5	2.6	5	2.6
12th	0	0.0	2	40.0	2	40.0	1	20.0	0	0.0

* And into post-high school

The data appears to be contradictory until one realizes that the great majority of the teachers have taught only one course in one school, and that course was and is being taught under the grade-first-offered condition shown in Table 31. Thus, those whose course begins in the ninth grade have, with few exceptions, always had it that way. Their thinking reflects the disadvantages that they have experienced when a course starts in the ninth grade. At the other extreme, those whose course starts in the eleventh grade (and with few exceptions that has been their only experience) are reflecting the awareness that two years seems to be a short time to develop occupational skills, and therefore about 41 percent want their courses to start earlier.

Thus, those whose course begins in the ninth or tenth grade are either satisfied with the grade in which their course does begin or they wish to defer the course to a later grade. Those whose course begins in the eleventh or twelfth grade are either satisfied with where the course begins or wish to begin in an earlier grade. It is noteworthy that only a very small percentage of T&I instructors claimed their courses should begin at or overlap with a post-high school grade. The basic pattern described holds for both vocational and comprehensive schools. The data reflects, perhaps, some thinking which can be best described as a feeling that the grass will be greener if the course is offered at an earlier or a later grade depending upon the grade in which the course is presently offered.

- What are the durations of the ten most frequently offered T&I courses? Table 32 provides the data.

TABLE 32. GRADE COURSE FIRST OFFERED FOR SELECTED T&I VOCATIONAL COURSES

TEN MOST FREQUENTLY OFFERED T&I COURSES	NUMBER SCHOOLS OFFERING COURSE	GRADE COURSE FIRST OFFERED							
		9th		10th		11th		12th	
		N	%	N	%	N	%	N	%
Auto mechanics	(89)	9	10.1	40	44.9	40	44.9	0	0.0
Machine shop	(76)	9	11.9	34	44.7	33	43.4	0	0.0
Drafting	(58)	8	13.8	24	41.4	26	44.8	0	0.0
Electricity	(55)	6	10.9	29	52.7	20	36.4	0	0.0
Printing	(49)	5	10.2	24	49.0	20	40.8	0	0.0
Electronics	(47)	5	10.6	20	42.6	22	46.8	0	0.0
Mill/cabinetry	(44)	8	18.2	21	47.7	15	34.1	0	0.0
Welding	(31)	3	9.7	16	51.6	12	38.7	0	0.0
Sheet metal	(29)	6	20.7	15	51.7	8	27.6	0	0.0
Carpentry	(25)	5	20.0	12	48.0	8	32.0	0	0.0

The course durations can be inferred, with a few exceptions, from the grade in which the course was first offered. The ten most frequently offered T&I courses ranged in duration from two to four years. The study has no data on how two, three and four-year courses on the same T&I occupations differ in subject content. However, it is a reasonable assumption that the four-year courses are not merely stretched out versions of the two-year courses.

The data suggests two further questions: (1) What is the minimum duration necessary to develop adequate entry level occupational skills? (2) Does the duration of the course influence the relatedness of the first job held to the course studied?

The study does not have an answer for the first question. However, it needs to be raised. In most cases, the stated objective of vocational courses is to develop entry level skills. If these can be developed to the satisfaction of potential employers in two years instead of four years, a shorter duration course would have many advantages, e.g. greater total holding power, lower cost per graduate, more opportunity for pre-occupational choice exploratory experiences, more opportunity for non-vocational or even related subjects and increased availability of teacher resources.

The second question is answered in the section on correlational analysis.

Course and Class Enrollments

•For the 100 school sample, how was the total T&I program enrollment distributed among the different T&I courses? How do vocational and comprehensive schools compare in terms of how their total T&I enrollment is distributed among the courses? Table 33 provides the data.

The 100 schools surveyed had a total T&I enrollment of 28,532 students. At the time, there were 667 schools in the United States offering three or more T&I courses. On that basis, the universe of such schools can be estimated to have had an enrollment of about 190,000 students in T&I courses.

Ranked in the order of their enrollments, the ten most popular T&I courses and their percentage contributions to the total enrollment are:

•Auto mechanics	17.6%
•Machine shop	13.3
•Electricity	9.6
•Printing	7.3
•Drafting	6.8
•Electronics	5.6
•Mill and cabinetry	4.8
•Carpentry	3.6
•Sheet metal	3.4
•Welding	3.4

A look at these, and the other enrollment percentages, makes one wonder how accurately the differences reflect differences in local skilled manpower requirements. Are draftsmen needed at a rate of more than three times the number of auto body repair specialists, food trades employees, radio and television repairmen, plumbers and so on?

The comparative data on vocational and comprehensive schools reveals some interesting differences. The 50 vocational schools had a total enrollment of about 20,000 T&I students, whereas the 50 comprehensive schools had a total T&I enrollment of about 8,500 students.

About 23 percent of the total comprehensive school enrollment is in auto mechanics (versus 15 percent for the vocational schools). On the other hand, the vocational schools have a greater percentage enrollment in such courses as electricity (10.7 vs. 7.4 percent), electronics (6.7 vs. 3.2 percent), sheet metal (4.0 vs. 1.9 percent), welding (4.1 vs. 1.8 percent) and plumbing (2.5 vs. 0.0 percent). The other differences are negligible. Excluding auto mechanics, the similarities in the enrollment percentages are more impressive than the differences.

For data on the mean enrollment per type of course, consult Appendix Section 5. The mean enrollments range from a low of 20 students per course in air conditioning and heating to a high of 68 per course in auto mechanics. There are course enrollments in all grades, not in a particular grade or class.

•What are the normal and largest class enrollments per class for the ten most frequently offered T&I courses? How do vocational and comprehensive schools compare in terms of class size? Table 34 provides the data.

TABLE 33. T&I COURSE ENROLLMENTS AS A PERCENTAGE OF TOTAL T&I COURSE ENROLLMENT IN THE VOCATIONAL AND COMPREHENSIVE SCHOOLS SURVEYED

T&I COURSES	THE U. S. PARAMETER ESTIMATES		COURSE ENROLLMENTS AS PERCENTAGES OF TOTAL T&I ENROLLMENTS			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Auto mechanics	5011	17.6	3023	15.1	1988	23.3
Auto body repair	576	2.0	413	2.1	163	1.9
Airplane mechanics	310	1.1	288	1.4	22	0.3
Air conditioning/heating	246	0.9	140	0.7	106	1.2
Building trades	418	1.5	264	1.3	154	1.8
Carpentry	1031	3.6	650	3.2	381	4.5
Commercial art	655	2.3	472	2.4	183	2.1
Data processing	46	0.2	46	0.3	0	0.0
Drafting	1953	6.8	1319	6.6	634	7.4
Electricity	2777	9.7	2142	10.7	635	7.4
Electronics	1611	5.6	1334	6.7	277	3.2
Food trades	392	1.4	206	1.0	186	2.2
Foundry	190	0.7	190	0.9	0	0.0
Machine shop	3809	13.3	2677	13.4	1132	13.3
Masonry	438	1.5	176	0.9	262	3.1
Mill/cabinetry	1357	4.8	933	4.7	424	5.0
Metal trades	241	0.8	103	0.5	138	1.6
Painting/decorating	597	2.1	544	2.7	53	0.6
Plumbing	507	1.8	507	2.5	0	0.0
Printing	2096	7.3	1537	7.7	559	6.6
Radio/television	598	2.1	445	2.2	153	1.8
Sheet metal	961	3.4	799	.0	162	1.9
Shoe repair	158	0.6	113	0.6	45	0.5
Tailoring	404	1.4	210	1.0	194	2.3
Upholstery	126	0.4	91	0.5	35	0.4
Welding	977	3.4	820	4.1	157	1.8
Other T&I courses	1047	3.7	562	2.8	485	5.7
All T&I courses	28,532	100.0	20,004	100.0	8,528	99.9

TABLE 34. COMPARATIVE DATA ON PUPILS PER SHOP CLASS IN THE AVERAGE CLASS AND THE LARGEST CLASS AS REPORTED BY T&I INSTRUCTORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPE OF COURSE	*	UNITED STATES SAMPLE			TYPE OF SCHOOL					
					VOCATIONAL			COMPREHENSIVE		
		N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
Auto mechanics	A	92	19.9	5.7	51	19.9	6.2	41	19.8	5.1
	L	90	22.3	6.6	50	23.1	7.2	40	21.4	5.8
Machine shop	A	90	19.8	8.2	49	21.6	9.6	41	17.7	5.4
	L	90	23.0	11.2	49	23.5	8.9	41	22.5	13.5
Printing	A	54	17.7	7.4	31	19.7	8.2	23	15.0	5.4
	L	54	19.9	8.6	31	21.9	9.2	23	17.3	7.1
Electricity	A	54	20.3	8.1	36	20.5	6.6	18	19.9	10.7
	L	55	22.1	8.3	37	23.8	9.0	18	18.7	5.5
Electronics	A	49	16.7	6.2	33	17.3	6.7	16	15.3	4.9
	L	50	18.2	6.6	34	18.4	7.0	16	17.8	6.0
Mill/cabinetry	A	39	19.9	5.2	27	20.6	4.8	12	18.5	5.9
	L	39	22.9	6.9	27	23.3	7.1	12	22.0	6.6
Welding	A	32	18.5	8.0	26	18.6	8.7	6	18.0	4.0
	L	32	19.5	7.1	26	19.5	7.5	6	19.2	5.8
Sheet metal	A	31	17.5	5.0	23	18.2	4.8	8	15.4	5.4
	L	32	19.8	5.8	23	20.5	5.7	9	17.9	5.9
Carpentry	A	30	18.6	4.7	15	18.9	5.4	15	18.3	4.0
	L	30	20.3	5.3	15	20.1	7.1	15	20.5	2.8
Radio/television	A	21	18.4	9.4	16	18.8	10.5	5	17.4	5.2
	L	21	18.9	7.1	16	18.9	7.6	5	18.8	5.9
All T&I courses	A	721	18.9	6.8	454	19.4	7.2	267	18.0	6.0
	L	718	21.2	7.8	452	21.7	7.9	266	20.5	7.7

* A-Average class, L-Largest class

The data was obtained from class enrollments provided by shop instructors who indicated (1) the average number of students per class in their shop course and (2) the number of students in the largest class.

For all T&I courses, the average shop class size is 18.9 students and the average number in the largest classes is 21.2 students. Thus, the pupil per class load of T&I teachers generally does not appear to be excessive, although one must know individual shop circumstances to draw this conclusion for particular shops.

For individual types of courses, the average pupils per class ranged from a low of 16.7 in electronics to a high of 20.3 in electricity. The range is narrow. One cannot make much of the average pupil per class differences between types of T&I courses.

The values for the mean pupils per class in the largest classes are generally less than two pupils per class higher than their corresponding mean pupils per class in the average class. This too confirms the conclusion that the pupil per class load is not unreasonable in T&I courses generally.

The comparative data for the two types of schools reveals that shop classes tend to be slightly larger in the vocational schools. The differences are not substantial in any practical sense as may be related to teacher effectiveness. For all T&I courses, the mean pupils per shop class in vocational schools is 19.4 versus 18.0 in comprehensive schools.

Cooperative Program Availability

• What percent of the T&I courses included provision for industrial cooperative training in any form? How do vocational and comprehensive schools compare in terms of cooperative programs? Table 35 provides the data.

Only 40 out of the 100 schools surveyed had any provision for industrial cooperative training in any of their T&I courses. About 46 percent of the comprehensive schools had such cooperative programs for one or more of their T&I courses, in contrast to 34 percent of the vocational schools.

According to data provided by principals, 30 percent of the T&I courses had a provision for cooperative program training. The percentage of courses with a cooperative provision was about the same in vocational and comprehensive schools (30 vs. 31 percent), even though a greater percentage of the latter schools offered cooperative programs.

Table 35 provides for each of the ten most frequently offered courses the percentage that had a provision for cooperative training with a local employer. The percentages range from a low of 12 (electronics) to a high of 43 (printing). The reader is reminded that the availability of a cooperative program does not necessarily mean that a sizable percentage of the total T&I enrollment is involved in such programs. Usually, only a small number of students in their last year are involved in the cooperative program. Of the total 8,064 students enrolled in the 187 T&I courses offering a cooperative program, and for which data was available, only 872 were in the program at the time of the survey. This number is 9 percent of the total T&I enrollment in the 100 schools surveyed.

A more detailed analysis of the characteristics of cooperative programs occurs later in this chapter.

TABLE 35. DISTRIBUTION OF THE PERCENTAGE OF COURSES WITH A COOPERATIVE PROGRAM OPTION IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

AVAILABILITY OF COOPERATIVE PROGRAMS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Auto mechanics	24	27.0	10	21.7	14	33.0
Carpentry	6	24.0	4	30.8	2	16.7
Drafting	13	22.4	8	24.2	5	20.0
Electricity	17	31.0	12	33.3	5	26.3
Electronics	6	12.8	3	10.0	3	17.6
Machine shop	17	22.4	11	26.2	6	17.6
Mill/cabinetry	13	29.5	7	28.0	6	31.6
Printing	21	42.8	12	48.0	9	37.5
Sheet metal	11	37.9	8	38.0	3	37.5
Welding	10	32.3	5	19.2	5	100.0
All other T&I courses	78	36.8	50	36.0	28	38.4
Total T&I courses	216	30.2	130	29.8	86	30.8
Total schools	40	40.0	17	34.0	23	46.0

Occupational Readiness of Graduates

The vocational instructors were asked to indicate the number of course graduates for the school year 1962-1963. They were also asked to indicate the number that they would have recommended to an employer of the occupation involved. For each course, the number recommended was expressed as a percentage of the number graduated. This was interpreted as a measure of occupational readiness of course graduates.

● What percent of the graduates would have been recommended for entry into the occupation studied? What is the distribution of the percentages recommended for the courses on which the measure could be calculated? Table 36 provides the data.

Based upon 394 T&I vocational courses, the average percentage of graduates that instructors would have recommended to employers of the occupation involved came to about 68 percent. An average 32 percent would not have been recommended. Clearly something is wrong when almost a third of the vocational course graduates would not be recommended for the occupation studied. It could be that the instructors have an excessively high standard of what constitutes minimum occupation entry skills. A further study is needed to determine the reasons why such a very large percentage of graduates would not be recommended by their instructors. There is also a problem of validating such evaluations. For example, what percentage of graduates

TABLE 36. DISTRIBUTION OF PERCENTAGES OF GRADUATES RECOMMENDED BY INSTRUCTORS FOR ENTRY INTO THE TRADE FOR WHICH TRAINED

PERCENT CLASS INTERVALS	GRADUATES RECOMMENDED FOR TRADE					
	COURSES			SCHOOLS		
	N	%	C%	N	%	C%
91 - 100	86	21.8	100.0	5	5.3	100.0
81 - 90	46	11.7	78.2	22	23.4	94.7
71 - 80	62	15.7	66.5	22	23.4	71.3
61 - 70	52	13.2	50.8	12	12.8	47.9
51 - 60	38	9.7	37.6	14	14.9	35.1
41 - 50	43	10.9	27.9	10	10.6	20.2
31 - 40	33	8.4	17.0	8	8.5	9.6
21 - 30	20	5.1	8.6	0	0.0	1.1
11 - 20	8	2.0	3.5	1	1.1	1.1
0 - 10	6	1.5	1.5	0	0.0	-
NUMBER	394			94		
MEAN	67.7			68.5		
MEDIAN	61			75		
S.D.	24.8			17.3		

who would not be recommended by their instructors enter the occupation studied and perform to the satisfaction of their employers?

The distribution of the percentages that instructors would recommend is equally disturbing. Twenty-eight percent of the instructors would recommend less than 50 percent of their graduates. It is now more understandable why only about half of the graduates of T&I courses enter the occupational field for which trained.

A look at the school differences is also revealing. For each school, a calculation was made of the mean percentage of graduates that instructors would recommend for entry into the field of study. The results are shown in the right half of Table 36. The school differences are very pronounced. At the upper end, about 29 percent of the schools had a mean percentage of recommended graduates of 81 percent or better. At the lower end, about 20 percent of the schools had a mean percentage of recommended graduates of 50 percent or less. Thus, it seems the problem is more of a school problem than an individual course problem. A disturbingly large percentage of schools turn out very substantial percentages of graduates that would not be recommended by their instructors for occupations in their field of study.

•How do vocational and comprehensive schools compare in terms of the percentages of course graduates that instructors would recommend? Table 37 provides the data.

The mean and median percent of graduates recommended by vocational school instructors is 69 and 71 percent respectively; the equivalent values for comprehensive school instructors is 64 and 66 percent respectively. The vocational schools, as a group, have a slight edge over the comprehensive schools. This is more apparent at the upper end of the distributions. About 38 percent of the vocational school instructors indicated they would recommend 81 percent or better of their graduates, whereas only 24 percent of the comprehensive school instructors would recommend a percentage that great.

TABLE 37. DISTRIBUTION OF PERCENTAGES OF GRADUATES RECOMMENDED BY INSTRUCTORS FOR ENTRY INTO THE TRADE FOR WHICH TRAINED IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

PERCENTAGE OF GRADUATES RECOMMENDED	TYPE OF SCHOOL					
	VOCATIONAL			COMPREHENSIVE		
	N	%	C%	N	%	C%
91 - 100	66	24.6	100.0	20	15.9	100.0
81 - 90	35	13.1	75.4	11	8.7	84.1
71 - 80	37	13.8	62.3	25	19.8	75.4
61 - 70	35	13.1	48.5	17	13.5	55.6
51 - 60	23	8.6	35.4	15	11.9	42.1
41 - 50	29	10.8	26.8	14	11.1	30.2
31 - 40	23	8.6	16.0	10	7.9	19.1
21 - 30	13	4.8	7.4	7	5.6	11.2
11 - 20	5	1.9	2.6	3	2.4	5.6
0 - 10	2	0.7	0.7	4	3.2	3.2
NUMBER	268			126		
MEAN	69.3			64.3		
MEDIAN	71			66		
S.D.	24.5			25.1		

•Are there significant differences in the percentage of recommended graduates among different types of courses? Table 38 provides comparative data for the ten most frequently offered courses.

The data suggests course differences in the percentage of recommended graduates. The data further emphasizes the differences mentioned earlier between comprehensive and vocational schools. (Means based on fewer than five courses are not regarded as reliable.)

TABLE 38. COMPARATIVE DATA ON PERCENTAGE OF GRADUATES RECOMMENDED FOR SELECTED T&I COURSES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TRADE	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
Welding	17	78.6	19.5	17	78.6	19.5	0	-	-
Machine shop	52	75.3	23.1	34	77.1	21.5	18	71.8	26.1
Electronics	20	73.1	27.7	15	74.7	31.0	5	68.2	15.3
Printing	36	71.1	26.3	20	69.6	20.9	16	72.9	32.5
Carpentry	14	70.8	19.4	5	78.0	30.3	9	66.8	10.2
Electricity	27	66.3	24.6	19	72.5	23.3	8	51.8	22.6
Sheet metal	21	65.7	27.2	16	73.2	19.5	5	41.6	36.6
Auto mechanics	45	64.0	24.7	27	66.8	26.4	18	59.9	21.8
Mill/cabinetry	20	62.1	25.0	17	63.6	24.7	3	53.3	30.6
Radio/television	8	52.1	18.1	6	51.2	21.1	2	55.0	7.1
All trades	394	67.7	24.8	268	69.3	24.5	126	64.3	25.1

Radio and television, mill and cabinetry, and automobile mechanics generate a large percentage of graduates who would not be recommended. Why? One possibility is that these courses attract a larger percentage of non-serious students who look upon a vocational course as a hobby outlet. The point needs further research. What percentage of students take vocational courses with no serious intention of ever seeking employment in their field of study? The implied problem remains to be assessed. The writer recalls auto shops where much of the "live" work consisted of work on the student's own automobile. Is such a policy likely to attract hobbyists rather than careerists?

• What is the occupational proficiency level that is the objective of the T&I courses? Table 39 provides the data.

Aside from the general interest in course objectives, the question has a bearing on the interpretation of the relatively large percentage of graduates who would not be recommended by their instructors for work in their field of training. The question was put to the instructors in an open-ended form, i.e. In your own words, please describe the occupational proficiency that a student is expected to have when he completes this course. The written answers were analyzed and classified as shown in Table 39.

About 52 percent of the instructors indicated that the objective was to establish basic trade entry-level skills. Another 29 percent indicated that the objective was proficiency at the level of a helper or an apprentice. Thus, about 81 percent of the instructors were aiming at a proficiency level at or not much beyond basic entry skills. It cannot be

TABLE 39. COURSE PROFICIENCY LEVEL OBJECTIVES REPORTED BY T&I VOCATIONAL TEACHERS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

OCCUPATIONAL PROFICIENCY LEVEL COURSE OBJECTIVES.	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Capability to obtain license	9	1.4	9	2.2	0	0.0
Journeyman equivalent skills	11	1.7	8	1.9	3	1.2
Advanced apprentice level skills	101	15.3	66	15.9	35	14.3
Helper or apprentice level	189	28.6	115	27.7	74	30.2
Basic trade entry skills	346	52.4	216	52.0	130	53.1
Minimum needed for a job	4	0.6	1	0.2	3	1.2

said, then, that the high percentage of graduates that would not be recommended by their instructors is the result of instructors aiming too high.

There is no significant difference in the course proficiency level objectives indicated by vocational and comprehensive school T&I instructors.

The instructor-stated objectives also raise a question about course durations. Are three and four-year duration courses necessary to establish entry-level knowledge and skills?

Miscellaneous Course Characteristics

•To what extent do the different grades meet in the same shop class? How do vocational and comprehensive schools differ in this respect? Table 40 provides the data.

About 46 percent of the courses reported that all grades meet in one shop class. Thus, a three-year course might have grades 10, 11 and 12 all at work in the same shop class. Another 38 percent of the courses reported that some different grades, but not all, met in the same class. For example, in a four-year course, the grades 9 and 10 might meet as one class and grades 11 and 12 as another class. Only 15 percent of the courses reported that all grades met as a separate class.

A greater percentage of the comprehensive school courses had all grades meet in the same shop class (53 vs. 43 percent of the vocational school courses). The reverse was true for mixing some grades in the same shop class. This is probably attributable to the greater number of four-year courses in vocational schools in which grade mixing occurs as described in the preceding example.

TABLE 40. COMPARATIVE DATA ON GRADE MIXING IN VOCATIONAL AND COMPREHENSIVE SCHOOL T&I SHOPS

CONDITION OF GRADE MIXING IN T&I SHOPS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
All grades meet in one shop class	235	46.4	147	43.2	88	52.7
Some different grades meet in one shop class	193	38.1	138	40.6	55	32.9
Each grade meets in a different shop class	79	15.6	55	16.2	24	14.4

In terms of schools, 44 reported all grades met in one shop class, 39 reported a partial mixing of grades and 14 reported no mixing of grades. A few schools gave a mixed picture.

Does grade mixing have any influence on vocational outcomes? To check this possibility, courses were scored 3, 2 or 1 respectively if they mixed all, some or none of their grades. The scores were correlated with outcome variables. The variable was not significantly related to any of the vocational outcomes. For details, consult the correlation tables.

•To what extent are the courses using a publisher's textbook? Table 41 provides the data by grade. The shop instructor was the data source.

TABLE 41. COMPARATIVE DATA ON T&I SHOP TEXTBOOK USE IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

CONDITION OF T&I SHOP TEXTBOOK USE BY GRADE	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
9th Grade						
No text used	13	13.8	13	17.3	0	0.0
Yes, regular	80	85.1	61	81.3	19	100.0
Yes, school	1	1.1	1	1.3	0	0.0
Yes, both	0	0.0	0	0.0	0	0.0
10th Grade						
No text used	29	7.8	16	6.2	13	11.1
Yes, regular	341	91.2	237	92.2	104	88.9
Yes, school	3	0.8	3	1.2	0	0.0
Yes, both	1	0.3	1	0.4	0	0.0
11th Grade						
No text used	51	8.7	25	6.9	26	11.8
Yes, regular	532	90.9	337	92.6	195	88.2
Yes, school	1	0.2	1	0.3	0	0.0
Yes, both	1	0.2	1	0.3	0	0.0
12th Grade						
No text used	54	9.4	29	8.0	25	11.9
Yes, regular	518	90.4	333	91.7	185	88.1
Yes, school	1	0.2	1	0.3	0	0.0
Yes, both	0	0.0	0	0.0	0	0.0

The question was raised because it had been heard that there was widespread failure to use textbooks as a result of student inability to read adequately. The findings are to the contrary. For all but the ninth grade, 90 percent or more of the courses reported the use of a publisher's textbook. A negligible percent reported the use of a school or school district prepared course textbook.

•What are the examination frequency practices that characterize T&I courses? How do vocational and comprehensive schools compare in this respect? Table 42 provides the data.

About 61 percent of the course instructors reported it was their policy to give final examinations. All other examination frequencies were

TABLE 42. COMPARATIVE DATA ON EXAMINATION FREQUENCY REPORTED BY T&I INSTRUCTORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPE OF EXAMINATION (FREQUENCY)	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Final semester examination	290	60.7	175	55.6	115	70.6
Midterm examination	196	41.0	111	35.2	85	52.1
Monthly examination	127	26.6	87	27.6	40	24.5
Weekly examination	204	42.7	129	41.0	75	46.0
Daily quiz	77	16.1	50	15.9	27	16.6
Other than above *	133	27.8	73	23.2	60	36.8

* Six weeks

reported by a smaller percentage of instructors. Only 41 percent reported a midterm examination policy, about 27 percent reported a policy of monthly examinations, 43 percent reported regular use of weekly examinations and 16 percent reported the use of daily quizzes.

With the exception of monthly examinations, a greater percentage of comprehensive school instructors reported use of each of the different types of examination frequencies. This may be a reflection of greater emphasis on examinations in comprehensive schools and a spillover of this policy from the academic program to the vocational courses.

The percentages in Table 42 make it clear, as one would expect, that instructors use more than one-examination frequency. Table 43 takes a more precise look at the situation.

A course was credited one point for each examination frequency indicated as a regular practice or policy. About 35 percent of the instructors indicate only one-examination frequency as a regular practice. The single most frequently cited examination policy for this group was the final term examination. Another 27 percent of the instructors reported a two-examination frequency policy. Thus, 62 percent of the instructors followed a two or one-examination frequency policy.

There are also considerable differences among the schools. School means were obtained by averaging the total credits for each course, derived as described above. About 48 percent of the schools had a mean of two or less examination frequencies.

The overall picture that presents itself is that examinations are not as widely recognized for the motivational and educational properties that they have when skillfully prepared. Regrettably, the study did not probe into the reasons why many instructors placed little emphasis on examinations. The overall per pupil load of T&I instructors is very favorable

TABLE 43. DISTRIBUTION DATA FOR NUMBER OF DIFFERENT TYPES OF EXAMINATIONS USED BY INSTRUCTORS

NUMBER OF EXAMINATION METHODS USED	EXAMINATION FREQUENCY						SCHOOL MEAN CLASS INTERVALS
	INSTRUCTOR			SCHOOLS			
	N	%	C%	N	%	C%	
6	1	0.2	100.0	1	1.0	100.0	4.0
5	8	1.7	99.8	5	5.2	99.0	3.6 - 4.0
4	35	7.3	98.1	4	4.1	93.8	3.1 - 3.5
3	139	29.1	90.8	25	25.8	89.7	2.6 - 3.0
2	129	27.0	61.7	15	15.5	63.9	2.1 - 2.5
1	166	34.7	34.7	31	31.9	48.4	1.6 - 2.0
				16	16.5	16.5	1.0 - 1.5
NUMBER	478			97			NUMBER
MEAN	2.2			2.3			MEAN
MEDIAN	2			2.2			MEDIAN
S.D.	1.1			0.8			S.D.

when compared with that of academic instructors, and cannot be pushed as a strong argument against greater use of examinations as tools for motivation, evaluation and learning.

Examination policy is only slightly related to the type of course taught. Based upon the previously described method of obtaining the number of examination frequencies that are course policy, an average was obtained for each of the ten most frequently offered T&I courses. The resulting means ranged from a low of 1.9 for printing courses to a high of 2.4 for electronics courses. This suggests examination policy is more influenced by the type of teacher than by what is taught.

Recommended Course Changes

The instructors were given an open-ended question which read as follows: What changes would you recommend to improve the quality of this course? A classification schema was devised for the basic ideas expressed, and answers were tabulated accordingly. Table 44 shows the results. The percentages are based upon the number of instructors who answered the question. About 95 percent did so.

TABLE 44. MOST FREQUENTLY RECOMMENDED COURSE CHANGES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

COURSE CHANGES RECOMMENDED BY T&I COURSE INSTRUCTORS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Higher course entry requirements	194	33.1	100	27.8	94	41.6
Improved shop tools, equipment	187	31.9	123	34.2	64	28.3
Shop rehabilitation	120	20.5	82	22.8	38	16.8
Relationships with industry	55	9.4	32	8.9	23	10.2
Revision of course content	46	7.8	21	5.8	25	11.1
Improved vocational/personal guidance	45	7.7	22	6.1	23	10.2
Smaller class size	44	7.5	31	8.6	13	5.8
Special demonstration approach	43	7.3	21	5.8	22	9.7
Lessen teaching/other duties	42	7.2	24	6.7	18	8.0
Quality of related course instruction	42	7.2	26	7.2	16	7.1
Introduce cooperative management	35	6.0	16	4.4	19	8.4
Length of course (years)	35	6.0	23	6.4	12	5.3
Separate shops by grade	35	6.0	17	4.7	18	8.0
New text/reading materials	28	4.8	12	3.3	16	7.1
Length of shop periods	23	3.9	15	4.2	8	3.5
Improve shop class scheduling	19	3.2	13	3.6	6	2.7
Revise grading standards	15	2.6	8	2.2	7	3.1
Increase salary	8	1.4	2	0.6	6	2.7
All other reasons	62	10.6	36	10.0	26	11.5

The six most frequent suggestions were:

- Higher course entry requirements 33%
- Improved shop equipment and tools 32
- General rehabilitation of shop 20
- Better relationships with industry 9
- Improved vocational/personal guidance 8
- Revision of course content 8

The percentages should not be interpreted as the percent of instructors who endorse a particular change. The true percentages with a closed-end question, that is, one in which the possibilities are reacted to, would undoubtedly be higher. What is impressive is that the recommended changes were not prompted by an array of possible changes in the form of answers to check off.

The data also reveals a telling difference between vocational and comprehensive schools. About 42 percent of the comprehensive school instructors who made a recommendation to improve the quality of their course suggested higher course entry requirements. This contrasts with 28 percent for the vocational school instructors. The difference suggests that the quality of the student resource may be a greater problem in comprehensive schools than vocational schools.

COURSE GRADUATES AND HOLDING POWER

The annual manpower replacement and expansion needs for different T&I occupations represent a mass of trained manpower that the country needs to satisfy the demands of an ever expanding economy. Vocational education must be viewed as a potential major source of such trained manpower if it is to get the funding support for its own expansion. The first step toward assessing the degree to which vocational education contributes to national manpower requirements for skilled persons is to determine the graduate output of T&I vocational education and of specific T&I courses. The present study permits a partial estimate of the T&I course graduate output. The graduate outputs per T&I course in the 100 school sample can be used to estimate the graduate output in the 667 schools in the United States which offered three or more T&I courses. When estimates of total graduate output per type of T&I course are expressed as a percentage of appropriate manpower requirement forecasts, one can assess the contribution of T&I vocational education toward fulfilling manpower requirements.

Another aspect of vocational education's contribution to fulfilling manpower requirements for certain skilled occupations has to do with the holding power of T&I courses. Other things equal, the higher the course holding powers, the more efficient will be the process of converting undeveloped manpower into developed manpower. The present section takes a look at the problem.

Course Graduates and Trends

•Over the five-year period 1959-1963, how many graduates did each of the different types of courses generate? How do the courses compare in terms of the percentage of graduates generated? Table 45 provides the data.

The 100 schools generated about 38,500 T&I graduates in a five-year period. Five types of T&I courses produced almost 60 percent of the graduates. They were:

	Graduates	Percent
•Auto mechanics	6074	15.8
•Machine shop	5637	14.6
•Electricity	4298	11.2
•Printing	3444	8.9
•Drafting	3182	8.3

Only two other courses produced as much as 5 percent of the graduates: electronics (5.2 percent) and mill and cabinetry (5.0 percent). It is clear that the United States turnout of graduates in T&I program courses is dominated by a relatively small number of courses of the traditional T&I

TABLE 45. NUMBER AND PERCENT OF T&I PROGRAM GRADUATES TURNED OUT BY SCHOOLS SURVEYED IN A FIVE-YEAR PERIOD; ALSO, THE MEAN NUMBER OF GRADUATES TURNED OUT PER YEAR, BASED ON ALL COURSES OF A GIVEN TYPE

	TOTAL GRADUATES 1959-1963		GRADUATES PER COURSE 1959-1963
	NUMBER	PERCENT	MEAN
Auto mechanics	6074	15.8	15.4
Auto body repair	669	1.7	8.6
Airplane mechanics	800	2.1	13.4
Air conditioning/heating	302	0.7	7.2
Building trades	568	1.5	11.9
Carpentry	1163	3.0	9.2
Commercial art	763	2.0	9.3
Data processing	0	0.0	0.0
Drafting	3182	8.3	11.7
Electricity	4298	11.2	15.3
Electronics	2000	5.2	13.8
Food trades	458	1.2	6.5
Foundry	120	0.3	4.1
Machine shop	5637	14.6	14.5
Masonry	447	1.2	7.2
Mill/cabinetry	1940	5.0	9.0
Metal trades	326	0.8	8.2
Painting/decorating	714	1.9	13.0
Plumbing	345	0.9	5.8
Printing	3444	8.9	15.3
Radio/television	1072	2.8	11.3
Sheet metal	1113	2.9	7.6
Shoe repair	137	0.3	5.5
Tailoring	420	1.1	9.6
Upholstery	148	0.4	7.4
Welding	1321	3.4	8.8
Other T&I courses	1080	2.8	8.4
All T&I courses	38,541	100.0	9.9

pattern. It is also reasonable to conclude that the percentage outputs do not coincide with the percentage manpower requirements among the occupations represented. The crux of the matter, however, is not the national manpower requirements for these occupations, but the local manpower requirements.

Table 45 also provides the mean number of graduates per type of course. They range from a low of four graduates per course (foundry) to a high of about fifteen graduates per course (auto mechanics). The mean values are based upon the five-year period 1959-1963. Given an estimate of the number of schools offering each of the T&I courses, the mean values are useful for estimating the total United States output of specific types of graduates.

• What are the trends in T&I course graduate outputs over the period 1959-1963? Table 46 provides the data.

Before attempting to examine the table data, the reader should understand the trend symbols at the right of each occupation. The symbols are explained at the bottom of the table.

The number of graduates turned out each year in each course is expressed as a percentage of the total number of graduates in the course over the five-year period. A perfect "no trend" would mean 20 percent of the graduates turned out in each of the five years for any given occupation.

Only three occupations show a consistent increase in graduate output: air conditioning and heating moved from 15.9 percent in 1959 to 25.5 percent in 1963. Despite the increase in output, the total number of graduates in this field is relatively low. It amounts to less than 1 percent of the total T&I graduate output. Construction and industrial electricity moved up from 17.7 percent in 1959 to about 30 percent in 1963. The total output of electrical graduates is about 11 percent of the total T&I output of graduates in the present survey. Electronics is a strong up-trending newcomer. The output of graduates increased from about 9 percent in 1959 to about 50 percent in 1963. While the trend is sharply up, the total output is still relatively small. About 5 percent of the total T&I graduate output in the present survey was in the electronics field.

Several occupational fields showed a substantial downward trend in output of graduates. The group included airplane mechanics, painting and decorating, and auto body repair. Most of the T&I courses showed either a static trend in graduate output or an inconclusive upward or downward trend based upon first and last year comparisons. This static output would indicate that vocational programs are not responding to the trend of increased need for skilled manpower by turning out more graduates. The United States economic expansion was very substantial over the five-year period. The T&I graduate output did not show a comparable expansion. One cannot be too critical, however, because T&I programs, unlike industrial operations, are not organized for expanding to meet the needs of an expanding economy. Nevertheless, the trends do point out a problem. Without a corresponding expansion of vocational graduate output, vocational education's role as a contributor to trained manpower requirements will decrease. Vocational education is more likely to get greater legislative support as it increases its importance as a contributor to skilled manpower requirements.

TABLE 46. NUMBER AND PERCENTAGE OF GRADUATES TURNED OUT PER YEAR, BASED UPON TOTAL FIVE-YEAR OUTPUT

T&I COURSE	TREND	TREND IN COURSE GRADUATES									
		1959		1960		1961		1962		1963	
		N	%	N	%	N	%	N	%	N	%
Auto mechanics	↖	999	16.4	1367	22.5	1264	20.8	1156	19.0	1288	21.2
Auto body repair	↙	130	19.4	163	24.4	139	20.8	158	23.6	79	11.8
Airplane mechanics	↙	170	21.2	178	22.2	166	20.8	156	19.5	130	16.2
Air conditioning/heating	→	48	15.9	54	17.9	55	18.2	68	22.5	77	25.5
Building trades	→	110	19.4	115	20.2	124	21.8	92	16.2	127	22.4
Carpentry	→	230	19.8	221	19.0	234	20.1	239	20.6	239	20.6
Commercial art	→	136	17.8	150	19.7	163	21.4	156	20.4	158	20.7
Data processing	→	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Drafting	→	603	19.0	648	20.4	643	20.1	644	20.2	644	20.2
Electricity	↑	762	17.7	792	18.4	767	17.8	683	15.9	1294	30.1
Electronics	↑	187	9.4	223	11.2	281	14.0	303	15.2	1006	50.3
Food trades	→	85	18.6	94	20.5	95	20.7	94	20.5	90	19.6
Foundry	→	19	15.8	28	23.3	20	16.7	31	25.8	22	18.3
Machine shop	→	1029	18.3	1178	20.9	1186	21.0	1106	19.6	1138	20.2
Masonry	→	82	18.3	88	19.7	84	18.8	88	19.7	105	23.5
Mill/cabinetry	→	385	19.8	408	21.0	421	21.7	352	18.1	374	19.3
Metal trades	↖	52	16.0	71	21.8	71	21.8	58	17.8	74	22.7
Painting/decorating	↓	468	65.5	60	8.4	55	7.7	52	7.3	79	11.1
Plumbing	→	61	17.7	64	18.6	84	24.3	68	19.7	68	19.7
Printing	↓	1333	38.7	504	14.6	540	15.7	555	16.1	512	14.9
Radio/television	→	169	15.8	209	19.5	232	21.6	226	21.1	236	22.0
Sheet metal	↓	251	22.6	215	19.3	228	20.5	211	19.0	208	18.7
Shoe repair	→	23	16.8	35	25.5	27	19.7	26	19.0	26	19.0
Tailoring	→	82	19.5	98	23.3	81	19.3	80	19.0	79	18.8
Upholstery	↓	27	18.2	26	17.6	45	30.4	31	20.9	19	12.8
Welding	↙	219	16.6	232	17.6	264	20.0	333	25.2	273	20.7
Other T&I courses	•	177	16.4	229	21.2	224	20.7	211	19.5	239	22.1
All T&I courses	•	7837	20.3	7450	19.3	7493	19.4	7177	18.6	8584	22.3

→ Static trend: neither up nor down
↑ Strong upward trend
↓ Strong downward trend
↙ Inconclusive upward trend
↖ Inconclusive downward trend

•To what degree are T&I courses contributing to national manpower requirements? Table 47 provides the data of a selected number of T&I courses on which manpower requirement data was available.

The calculation of secondary school vocational education's contribution to the estimated annual manpower requirement is based upon data from the several sources at the bottom of the table. Estimates based upon the median graduates per course are probably better than those based upon mean graduates per course because of the skewed nature of distribution of graduates per course.

The auto mechanics output tells the story. Based upon a median number of 11 graduates per course, the total output is about 9,200 auto mechanics graduates per year. The present study indicated that about 49 percent of the auto mechanics graduates go into the occupation for which trained or a highly related occupation. Using this figure, we can estimate that about 4,500 to 6,300 enter their field. Bureau of Labor Statistics data indicated a need for about 315,800 new auto mechanics per year (1965). On that basis, secondary school vocational education provides about 1.4 to 2.1 percent of the estimated annual need. The reader can decide for himself whether that is a primary source contribution.

Undoubtedly, vocational education would get more support if it made a more substantial contribution to national skilled manpower requirements. Two ways to increase its percentage contribution to national manpower requirements, without any basic expansion, is to (1) increase course holding powers and (2) increase the percentage of graduates placed into the fields for which trained.

Course Holding Powers

Course holding power is defined herein as the number of pupils still in their elected vocational course at the end of the school year expressed as a percentage of those enrolled in the course at the start of the school year. The measure was calculated for each T&I course from data obtained as follows: Each instructor indicated the number of students enrolled by grade in his course at the start of the school year. He also indicated the number that dropped out of his course, though not necessarily out of the school, during the school year. The two sets of values permitted the calculation of an annual course holding power over all grades.

The number of pupils that dropped the course represents a conglomerate of all reasons, such as switching to another course, leaving the school district, dropping out of school and other reasons.

•What is the average vocational course holding power? How are vocational course holding powers distributed over the range of holding power revealed by the analysis? Are there substantial school differences in mean vocational course holding power? Table 48 provides the data for the three questions.

Based upon 648 vocational courses for which holding power could be calculated, the mean and median vocational course holding powers were

TABLE 47. SELECTED T&I COURSE GRADUATE CONTRIBUTIONS TO NATIONAL MANPOWER REQUIREMENTS

	1	2	3		4		5		6	7
TYPE OF COURSE	% SCHOOLS OFFERING COURSE	NO. SCHOOLS OFFERING COURSE	GRADUATES PER COURSE		ESTIMATED GRAD. OUTPUT BASED ON		ESTD. NO. THAT GO INTO THEIR FIELD		ESTD. ANNUAL MANPOWER REQUIREMENT	HIGH SCHOOL VO-ED % CONTRIBUTION
			MEDIAN	MEAN	MEDIAN	MEAN	MEDIAN	MEAN		
Auto mechanics	38	837	11	15.4	9,207	12,890	4,511	6,316	308,000	1.8
Machine shop	30	632	12	14.5	7,584	9,164	4,778	5,773	1,606,000	3.3
Printing	11	232	9	15.3	2,088	3,550	1,044	1,775	951,000	1.5

KEY TO COLUMN DATA INTERPRETATION

1. Based upon King Directory
2. Based upon Col. 1 plus 1965 O.E. data indicating about 2,250 schools with T&I programs
3. Based upon present study data
4. Obtained by multiplying Col. 2 values with appropriate Col. 3 values
5. Based upon present study data
6. America's Industrial and Occupational Manpower Requirements (1964)
7. Based upon present study data

INCORRECT SEE APPENDIX

TABLE 48. DISTRIBUTION OF T&I COURSE HOLDING POWERS, BASED ON DATA PROVIDED BY T&I INSTRUCTORS

PERCENT CLASS INTERVALS	COURSE HOLDING POWER					
	COURSES			SCHOOLS		
	N	%	C%	N	%	C%
96 - 100	164	25.3	100.0	4	4.1	100.0
91 - 95	176	27.2	74.7	37	37.8	95.9
86 - 90	119	18.4	47.5	31	31.6	58.1
81 - 85	67	10.3	29.1	14	14.3	26.5
76 - 80	53	8.2	18.8	6	6.1	12.2
71 - 75	21	3.2	10.6	4	4.1	6.1
66 - 70	17	2.6	7.4	1	1.0	2.0
61 - 65	14	2.2	4.8	0	0.0	1.0
56 - 60	11	1.7	2.6	1	1.0	1.0
55	6	0.9	0.9	0	0.0	-
NUMBER	648			98		
MEAN	88.5			88.3		
MEDIAN	91			88		
S.D.	10.2			6.8		

respectively 88.5 and 91 percent. Thus, there is an attrition rate, from all courses, of about 11 percent per year based upon start-of-the-year course enrollments. In a two-year vocational course, this would mean a loss of about 20 percent of those starting out in the course. At this point, it is well to remind the reader that the course attrition rate is not the same as a school dropout rate. Some of those who dropped a course may have done so because they had obtained school permission to switch to another vocational course.

The distribution of course holding powers is revealing. The range is from 55 to above 96 percent. About 10 percent of the vocational courses have 75 percent or less holding power. At first glance, these may appear to be problem courses. However, some schools do not have exploratory programs. The only way the student can test his interest and aptitude for a given vocational course in such schools is to take the course. If his experiences are negative, his only recourse is to switch to another course. Such course switching is included in Table 48 data.

The average course holding power was calculated for each school to check the magnitude of school differences. The data is shown in the right-hand half of Table 48. About 12 percent of the schools have an average course holding power of 80 percent or less. These schools can be said to have a course holding power problem. In such schools, 60 percent or less of those entering a two-year vocational course would be expected to complete the course.

What does this say . the vocational student resource? Based upon the data presented, the vocational student is persistent. He does not exhibit the severe dropout rate that some sources have imputed. An average of about 90 percent of the vocational students enrolled in vocational courses at the start of the school year complete the school year in the same course.

● How do vocational and comprehensive schools compare in course holding power? Table 49 provides the data.

There is no significant difference in mean course holding power for the two types of schools. The distribution of the course holding powers for the two types of schools are remarkably similar.

TABLE 49. DISTRIBUTION OF COURSE HOLDING POWER IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

COURSE HOLDING POWER	TYPE OF SCHOOL					
	VOCATIONAL			COMPREHENSIVE		
	N	%	C%	N	%	C%
96 - 100	101	25.2	100.0	63	25.5	100.0
91 - 95	111	27.7	74.8	65	26.4	74.5
86 - 90	66	16.5	47.1	53	21.5	48.1
81 - 85	41	10.2	30.6	26	10.5	26.6
76 - 80	36	9.0	20.4	17	6.9	16.1
71 - 75	15	3.7	11.4	6	2.4	9.2
66 - 70	11	2.7	7.7	6	2.4	6.8
61 - 65	10	2.5	5.0	4	1.6	4.4
56 - 60	8	2.0	2.5	3	1.2	2.8
55	2	0.5	0.5	4	1.6	1.6
NUMBER	401			247		
MEAN	88.2			89.0		
MEDIAN	91			91		
S.D.	10.3			10.1		

● Are there significant differences in course holding power among different types of T&I courses? Table 50 provides comparative data for the ten most frequently offered courses.

The mean holding powers for the different types of T&I courses fall into a narrow range from 84 to 91 percent. Welding has the lowest holding power; electricity has the highest. However, the differences are not impressive. One must conclude that the type of course per se is not a major variable influencing course holding power. School and student resource variables, yet to be identified, are the most likely determiners of course holding power.

TABLE 50. COURSE HOLDING POWER OF SELECTED T&I COURSES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

T&I COURSE	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
Auto mechanics	79	87.4	9.0	43	86.8	8.8	36	88.0	9.4
Machine shop	74	88.1	10.8	40	89.4	10.9	34	86.6	10.8
Printing	49	91.0	7.8	27	90.3	9.0	22	91.8	6.0
Electricity	51	91.1	8.3	32	91.5	8.2	19	90.3	8.5
Electronics	38	88.5	12.6	26	87.8	12.8	12	90.0	12.7
Mill/cabinetry	36	86.9	9.8	25	85.7	11.0	11	89.5	5.8
Welding	24	84.2	13.4	21	82.8	13.7	3	94.0	5.6
Sheet metal	31	87.4	12.4	23	88.3	11.5	8	84.9	15.3
Carpentry	30	85.6	11.3	13	87.9	8.9	17	83.8	12.8
Radio/television	15	88.1	8.7	11	89.0	8.3	4	85.5	10.8
All trades	648	88.5	10.2	401	88.2	10.3	247	89.0	10.1

COURSE CONTENT REVISIONS AND REVIEW PROCEDURES

What kinds of content revisions have characterized T&I vocational courses in the recent past years? What are the principal methods by which vocational courses are reviewed and revised? These are the two questions that are the central concern of this section.

Course Content Revisions

Course content which has not been compiled in the form of a course manual, topical outline or other suitable type of content guide is not subject to revision in the usual sense. Therefore, the first question was:

● To what extent do T&I courses have course manuals or topical outlines? How do vocational and comprehensive schools compare?

About 95 percent of the 691 course instructors who provided data on this question indicated a course manual or outline was available as a content guide. The percentage was somewhat higher for courses in vocational schools than for those in comprehensive schools (96 vs. 93 percent).

The availability of a course manual was not the same in all T&I courses. It ranged from a low of 84 percent of the automobile mechanics courses to a high of 100 percent of sheet metal courses. Even those instructors who had no official or approved course outline did, however, have some type of a course guide of their own development. While the study did not--indeed, could not--assess the quality and completeness of such manuals, a superficial examination made clear that they covered the entire range of excellence on any dimension, e.g. topical organization, completeness of detail, selected reading references, illustrations, shop practice assignments and so on. Some appeared to be professional developments in every respect. Others were hardly more than a poor excuse for a course manual. The whole subject of the adequacy of available teacher course manuals needs more qualified assessment than this survey was able to provide.

● Of the T&I courses that were offered five or more years at the time of the survey, how many underwent some type of major revision between 1959 and 1964?

The school principals provided the data by indicating the types of revision their vocational courses had undergone during the five-year period. According to the principals, 58 percent of the 715 courses offered by the 100 schools underwent some type of major revision in the five-year period.

The course instructors were independently asked to indicate in what year the course manual or topical outline was last revised. Table 51 provides the distribution of claimed years since last course content revision.

TABLE 51. DISTRIBUTION DATA ON YEARS SINCE LAST COURSE REVISION FOR COURSES AND SCHOOL MEANS BASED UPON COURSES

YEARS CLASS INTERVALS	YEARS SINCE LAST REVISION					
	COURSES			SCHOOLS		
	N	%	C%	N	%	C%
≧10	10	2.4	100.0	0	0.0	-
9 - 10	11	2.7	97.6	0	0.0	-
7 - 8	8	1.9	94.9	4	4.0	100.0
5 - 6	22	5.3	93.0	8	8.0	96.0
3 - 4	60	14.5	87.7	14	14.0	88.0
1 - 2	185	44.7	73.2	53	53.0	74.0
Present year	118	28.5	28.5	21	21.0	21.0
NUMBER	414			100		
MEAN	2.2			2.1		
MEDIAN	2			2		
S.D.	3.1			1.9		

The mean years since the last major course revision was 2.2 years. (The data is at the mercy of every instructor's interpretation of what constitutes a major course revision.) About 28 percent of the instructors indicated that the course was revised or was in the process of revision in the year of the survey. Another 45 percent responded that the course had undergone major revision between one and two years past. Thus, about 73 percent of the courses, according to instructors, had undergone some type of major content revision within two years of the survey date. About 12 percent had not had a major revision within five years. (The percentage is larger than the comparable percentage obtained from principals.) The mean number of years since last major course revision for <u>all</u> T&I courses was greater than five years in 12 percent of the schools.

The general picture that emerges, from both principals and instructors, is that major course revisions of one type or another are fairly frequent occurrences in most T&I courses. Such data does not, of course, indicate how extensive the claimed course revisions were, but it does suggest a widespread effort to update or improve course content. Supporting this generalization are internal consistencies in the data. For example, one would expect more major revisions in courses highly subject to technological and model changes, such as electronics (1.4) and radio and television repair (1.5), than more stable courses such as machine shop (3.0) and carpentry (3.0). Such was indeed the case. The values in parentheses are the average years per type of course since last major content revision.

● What types of major course revisions do the schools report? How do vocational and comprehensive schools compare in terms of types of revisions? Table 52 provides the data.

The school principal is the direct source of the data, although he may have consulted with the course instructors or the vocational program director where there was such a position in the school.

Principals reported that 44 percent of the courses underwent changes in theory requirements, 32 percent were revised to change manipulative skill requirements, 30 percent were revised to accommodate changes in shop equipment and materials and 29 percent were revised to place greater emphasis on instructional aids. Consult Table 52 for the percentages associated with other types of major changes.

A substantially greater percentage of vocational than comprehensive school course changes occured in:

- Manipulative skill requirements (40 vs. 22 percent)
- Occupational theory requirements (48 vs. 39 percent)
- Curriculum subject requirements (24 vs. 7 percent)
- New equipment or material requirements (34 vs. 25 percent)

TABLE 52. COMPARATIVE DATA ON TYPES OF MAJOR COURSE REVISIONS REPORTED BY VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPES OF MAJOR COURSE REVISION REPORTED	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Occupational or theory requirements	199	44.4	120	48.4	79	39.5
Manipulative skills requirements	144	32.1	100	40.3	44	22.0
Shop equipment and/or materials	134	29.9	85	34.3	49	24.5
More emphasis on instructional aids	131	29.2	74	29.8	57	28.5
Workbooks or study guides	111	24.8	47	19.0	64	32.0
Time ratio of shop to theory	90	20.1	45	18.1	45	22.5
Amount of textbook use	78	17.4	42	16.9	36	18.0
Education requirements	73	16.3	59	23.8	14	7.0
Group to individual instruction	41	9.2	15	6.0	26	13.0
Live work to simulated work	24	5.4	12	4.8	12	6.0
Change from coop to in-school	7	1.6	3	1.2	4	2.0
Other than above	59	13.2	26	10.5	33	16.5

Changes in comprehensive school courses were relatively more frequent in:

- Workbook or study guide changes (32 vs. 19 percent)
- Shift from group to individual instruction (13 vs. 6 percent)

The data supports the generalization that major course changes are more prevalent in vocational than comprehensive school T&I courses. Also, it is clear that a variety of types of course changes characterize the course revisions. There is apparently considerable experimentation going on, judging from the nature of the changes reported.

The course instructors were also asked directly to indicate the type of course revisions their courses had undergone within the past ten years or during their period as instructor, whichever was shorter. Table 53 provides the data.

Manipulative skill requirements were increased by 62 percent of the courses. About 31 percent reported no change. The reader will note that the percentage of courses that underwent a change in manipulative skill requirements, according to instructors, is 69 percent, whereas the equivalent percent according to principals is 32 percent. The writer is inclined to accept the instructors as a superior source of information on this type of data for two reasons: (1) The instructors are closer to the everyday shop situation and should be better informed of the changes since they are the ones who have implemented the changes. (2) The missing data problem was much greater with the principals who apparently suffered from pencil inertia on this particular item. The discrepancy is not without interest. It suggests that principals are less aware of the changes in course contents and procedures than one would anticipate.

Other predominant changes include:

• Increase in course theory content	73%
• Increase in academic subjects	35
• Approved revision in course outline	59
• Increase in use of reading materials	62
• Increase in group instruction	41
• Increase in individual instruction	52
• Change to live shop work	33
• Change of major shop equipment	42

Interesting also are the items for which the majority of instructors reported no course changes:

• No change in hours of academic subjects	62%
• No change in hours of shop work	79
• No change in availability of cooperative feature	83
• No change in type of shop work	68
• No change in major shop equipment	58

There are no impressive differences between the percentages in each category obtained from vocational and comprehensive school shop instructors. This would suggest the two schools are essentially alike

TABLE 53. COMPARATIVE DATA ON TYPES OF T&I COURSE REVISIONS REPORTED BY VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPE OF COURSE REVIEW	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Manipulative Skill Requirements						
Increased	269	62.0	176	60.5	93	65.0
Decreased	31	7.1	18	6.2	13	9.1
No change	134	30.9	97	33.3	37	25.9
Related Theory						
Increased	318	73.1	212	72.6	106	74.1
Decreased	27	6.2	20	6.8	7	4.9
No change	90	20.7	60	20.5	30	21.0
General Education Subjects						
Increased	154	35.1	107	36.1	47	32.9
Decreased	14	3.2	8	2.7	6	4.2
No change	271	61.7	181	61.1	90	62.9
Amount of Shop Time						
Increased	46	10.2	24	7.9	22	15.1
Decreased	47	10.4	32	10.5	15	10.3
No change	357	79.3	248	81.6	109	74.7
"Cooperative" Feature						
Added	64	14.3	38	12.6	26	17.9
Dropped	10	2.2	7	2.3	3	2.1
No change	373	83.4	257	85.1	116	80.0
Revision of Course Outline						
Approved	269	59.3	185	60.5	84	56.8
Not approved	180	39.6	118	38.6	62	41.9
No change	5	1.1	3	1.0	2	1.4
Use of Reading Materials						
Increased	277	62.2	182	60.9	95	65.1
Decreased	10	2.2	4	1.3	6	4.1
No change	158	35.5	113	37.8	45	30.8
Group Instruction						
Increased	184	40.9	118	38.9	66	44.9
Decreased	45	10.0	31	10.2	14	9.5
No change	221	49.1	154	50.8	67	45.6
Individual Instruction						
Increased	233	52.4	152	50.8	81	55.5
Decreased	24	5.4	17	5.7	7	4.8
No change	188	42.2	130	43.5	58	39.7
Shop from "Exercise" to "Live"						
Change	151	33.3	102	33.3	49	33.6
No change	301	66.7	204	66.7	97	66.4
Shop from "Live" to "Exercise"						
Change	31	6.9	23	7.5	8	5.5
No change	421	93.1	283	92.5	138	94.5
Major Equipment Change						
Change	188	41.7	132	43.1	56	38.6
No change	263	58.3	174	56.9	89	61.4

in terms of the kinds of major course revisions that are taking place. The conclusion flatly contradicts the generalization made earlier (based upon data furnished by principals) that major course revisions are more prevalent in vocational schools. The writer is inclined to side with the instructors.

To assess the number of different types of revisions applied to individual courses in recent years, each course was credited one point per major type of revision claimed by the instructor. Table 54 shows how the courses distributed on their degree of course revision measure. The distribution of school means, based upon course scores, is also shown to illustrate differences among the schools.

The mean number of types of major revisions claimed, based on the revisions listed in Table 54, is 5.8 revisions of one kind or another over a maximum ten-year period. Of more interest than the mean value is the distribution of the courses over the entire range from one to ten or more types of revisions during the period. The wide range of the distribution prompts curiosity about how the schools themselves distributed on the measure. The distribution suggests that course revision activity is heavily influenced by school factors.

TABLE 54. DISTRIBUTION DATA ON T&I COURSE REVISION INDEX FOR COURSES AND SCHOOL MEANS BASED ON COURSES

NUMBER OF REVISION FACTORS	COURSE REVISION INDEX						SCHOOL MEAN CLASS INTERVALS
	COURSES			SCHOOLS			
	N	%	C%	N	%	C%	
10	39	8.9	100.0	1	1.0	100.0	10
9	29	6.7	91.1	3	3.1	99.0	9.0 - 9.9
8	52	11.9	84.4	6	6.1	95.9	8.0 - 8.9
7	59	13.5	72.5	21	21.4	89.8	7.0 - 7.9
6	67	15.4	59.0	12	12.3	68.4	6.0 - 6.9
5	52	11.9	43.6	30	30.6	56.1	5.0 - 5.9
4	40	9.2	31.7	16	16.3	25.5	4.0 - 4.9
3	44	10.1	22.5	6	6.1	9.2	3.0 - 3.9
2	28	6.4	12.4	1	1.0	3.1	2.0 - 2.9
1	26	6.0	6.0	2	2.1	2.1	1.0 - 1.9
NUMBER	436			98			NUMBER
MEAN	5.8			5.8			MEAN
MEDIAN	6			5.7			MEDIAN
S.D.	2.6			1.7			S.D.

Curriculum Revision Resources Reported by Principals

The 100 school principals were asked to indicate which of a list of curriculum review and revision resources were used at their schools, and if used, how frequently.

● To what extent do the schools use the different types of curriculum review and revision resources? What is the frequency of use where they are used? Table 55 presents the data. (The number of cases in the frequency answer categories do not necessarily equal the total number of cases reporting use of the method because some of the principals failed to indicate a frequency of use.)

A word about the answer categories "as opportunity occurs" and "other." The first proved to be a vague catchall which project interviewers soon learned to interpret loosely as very infrequently. Probing for specifics as to the last use or meeting resulted in finding out there had been no use or meeting in more than a year. The phrase makes more sense when applied to such informal procedures as interviews with former students when they happen to visit the school. The term "other" is also vague. Sometimes, it means a regular frequency other than what was listed. More often, it means "when needed" or "when a special occasion requires." The questionnaire construction on these two answer categories was unfortunate.

The curriculum review and revision resources are listed in Table 55 in the order of reported frequency of use. A brief comment will be made about each.

1. Informal interviews with graduates. About 59 percent of the schools reported using informal interviews with graduates who worked in their field of training as a source of information for course revision. Although a number of schools reported a regular frequency of such interviews, almost 80 percent of the schools that use such interviews as described do so on an "as the opportunity occurs" frequency or some other irregular frequency. Such interviews usually occur when a former student visits his former shop instructor.

2. Local employment opportunity surveys. Fifty-eight percent of the schools reported the use of such surveys. Of these, 36 percent conducted such surveys annually or more frequently. About 64 percent conducted such surveys irregularly as seemed necessary or less frequently than annually. The study made no attempt to assess the adequacy of such surveys. A large percentage of the exhibits of such studies provided by the schools indicated, however, that the survey was not school initiated. It was a survey initiated by another agency and made available to the school. This suggests that the percentage of schools that claim use of such surveys on a planned basis may be somewhat less than the 58 percent who so reported.

3. Local employer interviews. About 57 percent of the schools reported use of local employer interviews. Of the 54 schools, about 42 percent had some regular schedule of employer visits that ranged from weekly to annually. Many, if not most, visits were in connection with cooperative program supervision. About 40 percent of the schools that conducted such

TABLE 55. REPORTED USE AND FREQUENCY OF USE OF DIFFERENT CURRICULUM REVIEW RESOURCES AND METHODS

CURRICULUM REVIEW RESOURCES AND METHODS	U. S. SAMPLE		FREQUENCY OF CURRICULUM REVIEW METHOD APPLICATION													
			WEEKLY		MONTHLY		QUARTERLY		SEMI-ANNUALLY		ANNUALLY		EVERY OTHER YEAR		OTHER	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Use of general management labor advisory committee	38	40.4	1	2.9	6	17.1	3	8.6	9	25.7	4	11.4	0	-	12	34.3
Use of craft advisory committee	49	52.1	0	-	6	12.8	10	21.3	6	12.8	11	23.4	0	-	14	29.8
Planned surveys of vocational course graduates	47	50.0	0	-	0	-	0	-	1	2.2	26	57.8	0	-	18	40.0
Use of teacher curriculum committee	38	40.4	0	-	6	16.7	1	2.8	5	13.9	8	22.2	3	8.3	13	36.1
Planned surveys of local employment opportunities	55	58.5	0	0.0	2	3.8	1	1.9	2	3.8	14	26.9	3	5.8	30	57.7
Planned interviews with local employees	54	57.4	3	6.0	6	12.0	1	2.0	3	6.0	8	16.0	1	2.0	28	56.0
Use of department head curriculum committees	27	28.7	0	0.0	8	33.3	3	12.5	2	8.3	3	12.5	0	-	8	33.3
Informal interviews with graduates working the trade	54	58.7	0	0.0	2	3.7	1	1.9	0	-	8	14.8	0	-	43	79.6
Information obtained from "cooperative" students	33	35.9	5	15.2	1	3.0	0	-	0	-	4	12.1	1	3.0	22	66.6
Information from state vocational curriculum centers	43	46.7	1	2.4	0	-	4	9.5	2	4.8	12	28.6	0	-	23	54.8
Use of curriculum studies under teacher training auspices	22	23.9	0	-	0	-	0	-	1	4.5	8	36.4	1	4.5	12	54.5
Use of published curriculum guides	36	39.1	0	-	0	-	1	2.9	0	0.0	7	20.0	0	-	27	77.1
Use of state and/or university consulting services	45	48.9	0	-	1	2.3	1	2.3	3	6.8	8	18.2	0	-	31	70.5

interviews did so on an irregular frequency as the opportunity occurred. Some of the schools surveyed required shop instructors to visit so many potential employers each month. The item was not the subject of data collection, but it seems reasonable to say this occurred in less than ten of the schools that made use of employer interviews.

4. Craft advisory committees. Fifty-two percent of the schools reported use of such committees. In these 49 schools, about 60 percent of the committees met either once a year or on an irregular schedule of meeting as the opportunity arose. While meeting frequency is not to be confused with effectiveness, the relative infrequency of such committee meetings in so many schools raises some doubt about the degree to which craft committees are a major force in curriculum revision. There is no question but that they can be and are a major influence in some schools, but the national picture that emerges does not credit such committees with a major role in curriculum review and revision. (The writer got the impression, admittedly no substitute for data, that in no few schools the craft committees had a relatively minor, perhaps even a ceremonial function.)

5. Vocational graduate follow-up surveys. About 50 percent of the schools reported the use of such surveys. The frequency of use was usually once a year (58 percent). The balance of schools using such surveys reported that surveys were conducted on an irregular basis or as the opportunity and need arose. Many of the latter were unable to provide the project staff with an exhibit of the follow-up instrument. Indeed, but few schools provided such an exhibit although all had been asked to do so. The writer is inclined to be skeptical about some of the claims that follow-up surveys are used regularly.

6. University curriculum consulting services. About 49 percent of the schools reported use of such services. The percentage is undoubtedly restricted by the lack of opportunity for such consultation in some locations. The minority of schools reported such consultations on any regular basis. About 70 percent of the schools that claimed such consultations reported that they were made as needed or as the opportunity arose.

7. State vocational education centers. About 47 percent of the schools reported use of state vocational education centers as a resource for curriculum revision. Again, the percentage is probably restricted because not all schools have recourse to such centers. Of the schools reporting the use of such centers, 45 percent reported such contacts on a regular basis of once a year or more frequently. The majority indicated such contacts as needed or as the opportunity arose.

8. General management-labor advisory committees. Forty percent of the schools reported use of such committees. Of those that provided frequency of meeting data, about 54 percent had regular meetings more frequently than once a year. About 34 percent reported that these committees met on an irregular schedule or as the opportunity and need dictated. The data suggests that general advisory committees are not a major force on curriculum revision, although in some schools they may be very effective instruments.

9. Teacher curriculum committees. About 40 percent of the schools reported the use of teacher curriculum committees. From these 38 schools, about 34 percent of the committees met more frequently than annually, 30 percent met annually or every other year and the balance (36 percent) met irregularly or as the opportunity arose. Again, the relative infrequency of such committee meetings raises a question about how much influence such committees are on curriculum review and revision.

10. Published curriculum guides. Only 39 percent of the schools reported use of published curriculum guides as a resource for revising curriculum and course content. One wonders why so few. It may be a lack of availability. Those that used such guides reported doing so mainly on an "as needed" or "as the opportunity occurs" basis. A few schools claim they regularly review such guides.

To examine the extensiveness of school use of the different curriculum review methods, schools were credited one point for each method claimed as a regular method.

Table 56 shows the distribution. The average school claimed use of 5.7 of the listed methods related to curriculum content reviews. Five schools indicated no use of any of the listed information sources. About 10 percent claimed the use of one or two of the methods. Another 23 percent indicated use of three or four of the methods or information sources. A 60 percent majority indicated use of more than five of the course revision methods or information sources. Looking at the negative side, because that is where the problem is, it is clear that a very substantial percentage of United States schools offering T&I vocational courses do not make use of many basic methods for revising curriculum and course content or information-gathering procedures which might influence changes. Moreover, the comprehensive schools, which constitute the great majority of T&I program-offering schools, show the greater variability in the use of such review and revision methods.

The data is admittedly a superficial hop, skip and jump over an important problem area. Nevertheless, two general conclusions are suggested. One is that a substantial percentage of schools report the use of each of the listed sources of information. Since the percentages are not mutually exclusive, it follows that schools are tapping a wide variety of information sources. The second conclusion looks at the reverse side of the coin. There are very large percentages of schools that are apparently ignoring some very essential sources of information that might influence curriculum changes. Half of the schools did not claim that they conducted any type of follow-up survey of graduates. These schools are operating in the semi-dark as far as follow-up data is concerned. About a half do not have the benefit of general or craft advisory committees. Forty percent indicated that they do not conduct local employment opportunity surveys. Slightly more than 40 percent indicated they do not interview local employers. The reader may continue this look at the negative side of the percentages shown in Table 56. Quite clearly, there is a negative side. It is even more apparent when one considers the relative infrequency with which the schools engage in use of these curriculum and course review and revision resources.

TABLE 56. COMPARATIVE DATA ON THE NUMBER OF DIFFERENT TYPES OF METHODS RELATED TO CURRICULUM REVIEW USED BY VOCATIONAL AND COMPREHENSIVE SCHOOLS

NUMBER OF REVIEW METHODS CLAIMED USED	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
13 - 14	5	5.3	1	2.1	4	8.7
11 - 12	6	6.4	2	4.2	4	8.7
9 - 10	6	6.4	3	6.2	3	6.5
7 - 8	16	17.0	8	16.7	8	17.4
5 - 6	24	25.5	14	29.2	10	21.7
3 - 4	22	23.4	15	31.2	7	15.2
1 - 2	10	10.6	3	6.2	7	15.2
0	5	5.3	2	4.2	3	6.5
NUMBER	94		48		46	
MEAN	5.7		5.4		6.0	
MEDIAN	5		5		6	
S.D.	3.4		2.8		3.9	

How do vocational and comprehensive schools compare in terms of their use of the listed curriculum revision resources? Table 57 provides the data.

A greater percentage of the vocational schools reported the use of:

- Craft advisory committees (58 vs. 46%)
- University consulting services (54 vs. 43%)

And, a greater percentage of comprehensive schools reported the use of:

- General advisory committees (48 vs. 35%)
- Follow-up surveys of graduates (54 vs. 46%)
- Teacher curriculum committees (50 vs. 31%)
- Local employer interviews (63 vs. 52%)
- Department curriculum committees (37 vs. 21%)
- Published curriculum guides (45 vs. 33%)

The reader is reminded that the data is based upon claimed use of resources for potential curriculum modification, and in no way does the data tell the story of how effectively such resources are used.

TABLE 57. COMPARATIVE DATA ON CLAIMED USE OF METHODS RELATED TO CURRICULUM REVIEW FOR VOCATIONAL AND COMPREHENSIVE SCHOOLS

CURRICULUM REVIEW METHODS REPORTED TO BE USED BY SCHOOLS	TYPE OF SCHOOL			
	VOCATIONAL		COMPREHENSIVE	
	N	%	N	%
Interviews with graduates working in trade	29	60.4	25	56.8
Survey of local employment opportunities	28	58.3	27	58.7
Interviews with local employers	25	52.1	29	63.0
Craft advisory committees	28	58.3	21	45.7
Surveys of vocational graduates	22	45.8	25	54.3
University consulting service	26	54.2	19	43.2
Information from state vo-ed centers	22	45.8	21	47.7
Management-labor advisory committees	17	35.4	21	45.7
Teacher curriculum committees	15	31.3	23	50.0
Published curriculum guides	16	33.3	20	45.5
Information from "cooperative" students	16	33.3	17	38.6
Department head curriculum committees	10	20.8	17	37.0
Curriculum studies under teacher training	10	20.8	12	27.3
Other than above	2	4.2	4	9.1

COURSE REVISION INFLUENCE SOURCES REPORTED BY INSTRUCTORS

After indicating the types of revisions their courses had undergone in recent years (see Table 53), the shop instructors indicated which of a list of factors caused or influenced the revision to be made. Table 58 provides the data. The percentages are not mutually exclusive.

Understandably, about 70 percent of the instructors indicated that they were one of the major sources that influenced a course revision. This percentage stands so far above any other percentage that it seems reasonable to conclude that the shop instructors are the single most frequent source of major course revisions. This agrees with the earlier finding that the majority of instructors claim sole decision or considerable influence on decisions concerning course content, instructional equipment, shop equipment and other decision-making areas likely to influence course revisions of the type shown in Table 53.

The next most frequent source of influence on course revision was the school or school district apparatus above the shop instructor. About 32 percent of the instructors reported the school district apparatus as a source of the revisions made. This is undoubtedly the influence of data from major metropolitan area school districts where curriculum and course revision tends to be centralized.

TABLE 58. COMPARATIVE DATA ON COURSE REVISION INFLUENCE SOURCES REPORTED BY T&I INSTRUCTORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

REVISION SOURCE	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Employer representative	155	29.0	109	32.1	46	23.6
Labor union representative	68	12.7	55	16.2	13	6.7
Course instructor	374	69.9	246	72.4	128	65.6
Former course students	103	19.3	60	17.7	43	22.1
Curriculum review committee	107	20.0	71	20.9	36	18.5
State office of education	97	18.1	64	18.8	33	16.9
School administration	168	31.5	109	32.2	59	30.3
Other than above	114	21.3	76	22.4	38	19.5

Employer representatives ranked third as a major source of course revision influence. In principle, this type of influence is highly desirable because it implies a working relationship between schools and potential employers. In contrast, only 13 percent of instructors acknowledged the influence of labor organizations in recent year curriculum or course revisions.

CURRICULUM SUPERVISION AND COURSE OUTLINES

Earlier, it was reported that 95 percent of the instructors claimed to have an approved course manual or course outline. Such approval implies that the school authorities intend instructions to be carried out according to plan. Apparently, there have been experiences in vocational education that necessitated the invention of the curriculum supervisor whose main task, as the title implies, is to assure that instruction plans are carried out. The study has no comment on how much of this is necessary. However, since the role of a curriculum supervisor appears well established in education, a brief survey look seemed appropriate.

About 25 percent of the schools had neither a full-time nor a part-time curriculum supervisor.

● What percent of the curriculum supervisor's time was allotted to curriculum supervision? How do vocational and comprehensive schools compare in this respect? Table 59 provides the data.

The mean and median percent of the curriculum supervisor's time spent in curriculum supervision is 42 and 25 percent respectively. Most vocational curriculum supervisors are full-time something else and only part-time curriculum supervisors. The percent of time spent as a curriculum supervisor ranges from 10 percent or less for 13 percent of the supervisors, to 90 percent or more for 23 percent of the supervisors. The rest are spread between what presumably reflects the degree of supervision judged necessary based upon the number of courses to be supervised.

There is a very substantial difference in the claimed percentage of time spent in curriculum supervision in vocational and comprehensive schools. About 38 percent of the comprehensive schools surveyed had no one serving as a curriculum supervisor, in contrast with 11 percent of the vocational schools. The question raised, but unanswered is how this effects the quality of vocational education in the two types of schools.

● What are the sources that develop the vocational course outline? How do vocational and comprehensive schools compare in terms of the development sources? Principals provided the data shown in Table 60.

About 68 percent of the schools indicated that each instructor is required to develop his course outline, on his own or in conjunction with other resources. State-level curriculum specialists were cited as a development resource by 44 percent of the schools, and 28 percent cited a school curriculum committee. Only 20 percent of the schools acknowledged craft advisory committees as a curriculum development resource although 54 percent claimed to have such committees. This confirms an earlier observation about

TABLE 59. COMPARATIVE DATA ON PERCENT OF TIME SPENT AS A CURRICULUM SUPERVISOR BY THE PERSON ASSIGNED TO BE CURRICULUM SUPERVISOR

PERCENT TIME SPENT AS CURRICULUM SUPERVISOR	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
91 - 100	22	23.4	17	38.6	5	10.0
81 - 90	4	4.3	2	4.5	2	4.0
71 - 80	5	5.3	2	4.5	3	6.0
61 - 70	1	1.1	1	2.3	0	0.0
51 - 60	1	1.1	1	2.3	0	0.0
41 - 50	7	7.4	2	4.5	5	10.0
31 - 40	3	3.2	0	0.0	3	6.0
21 - 30	8	8.5	5	11.4	3	6.0
11 - 20	7	7.4	2	4.5	5	10.0
1 - 10	12	12.8	7	15.9	5	10.0
0	24	25.5	5	11.4	19	38.0
NUMBER	94		44		50	
MEAN	42.1		53.1		27.5	
MEDIAN	25		60		20	
S.D.	40.6		46.3		38.7	

TABLE 60. COMPARATIVE DATA ON SOURCES REPORTED ASSISTING DEVELOPMENT OF COURSE OUTLINES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

PERSONS OR SOURCES REPORTED AS ASSISTING DEVELOPMENT OF VOCATIONAL COURSE OUTLINES	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Each instructor	65	68.4	36	73.5	29	63.0
School curriculum committee	27	28.4	19	38.8	8	17.4
Craft advisory committee	19	20.2	14	29.2	5	10.9
School district specialists	10	10.6	3	6.3	7	15.2
State-level specialists	42	44.2	20	40.8	22	47.8
University/college specialists	11	11.6	6	12.2	5	10.9
Other than above	17	17.9	8	16.3	9	19.6
Percent schools having outlines	91	95.8	47	95.9	44	95.7

the ceremonial functions of such committees in many schools. The multiple sources that participate in curriculum development are usually a wedding of the instructor or instructor representative and the technical curriculum specialist. In major metropolitan area school districts, curriculum development invariably involves multi-levels of the school district apparatus, and the voice of the individual teacher tends to be a committee voice.

With the very considerable effort that is spent on developing course outlines or curriculum guides, the next question seems appropriate.

● What policies do schools endorse regarding the use of course outlines? Table 61 provides the data.

Apparently course outlines are to be followed generally, not necessarily in detail. About 76 percent of the schools indicated that was the policy. About 14 percent of the schools (principals) said use of the course outline was optional with the instructor. These facts suggest that instructors are given considerable leeway in deciding what will be taught in their classes. Only 7 percent of the principals expected the course outlines to be followed in detail.

TABLE 61. COMPARATIVE DATA ON SCHOOL POLICY REGARDING COURSE OUTLINE USE IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

SCHOOL POLICY REGARDING USE OF COURSE OUTLINES	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Use optional with instructor	12	13.8	7	15.6	5	11.9
Outline to be followed generally	66	75.9	32	71.1	34	81.0
Outline to be followed in detail	6	6.9	4	8.9	2	4.8
Other than above	3	3.4	2	4.4	1	2.4

● What methods are used to control the teaching applications of the course outlines? Table 62 tells the story.

The most common control strategem is to require the instructor to keep a record of what work projects and theory units he has covered. Such records are subject to check by curriculum supervisors. Since instructors normally would keep such records for their own pupil progress control--all do not necessarily proceed at the same pace--the control procedure is not a burdensome matter as a rule.

It is interesting that 25 percent of the principals indicated that there are no control methods. Use of the course outlines was left entirely to the teachers.

About 25 percent regarded examination of the student on required instructional materials as a major control. It is not known who prepares

TABLE 62. COMPARATIVE DATA ON METHODS USED TO CONTROL ADHERENCE TO APPROVED COURSE OUTLINES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

METHODS USED TO CONTROL ADHERENCE TO APPROVED COURSE OUTLINES	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Instructor required to keep record of work projects covered	38	43.7	18	41.9	20	45.5
Instructor required to keep record of topics covered	31	35.6	20	46.5	11	25.0
None: Matter left entirely to instructor	22	25.3	12	27.9	10	22.7
Students examined on required instructional topics	22	25.3	12	27.9	10	22.7
Instructor required to report major departures from outline	9	10.3	3	7.0	6	13.6
Other than above	11	12.6	3	7.0	8	18.2

the examinations in such schools. If it is the instructor, then clearly this cannot be considered much of a control.

None of the above comments should be construed as implying controls are necessary. The study has no data to say one way or the other.

● To what degree do the instructors follow the details of their course outlines? Table 63 reports what instructors answered.

About 25 percent claimed they followed their course outlines 100 percent. About 51 percent said they adhered to about 75 percent of their outline. Eighteen percent said they went along with about 50 percent, and a maverick six percent applied about 25 percent. The general picture confirms the impression stated earlier that shop instructors have considerable leeway in what will be taught. This was further evidenced by a look at the instructors who were in the schools in which course outlines were to be followed in detail according to the principals. Of the fifty-three instructors in these schools, thirteen adhered 100 percent, twenty-nine accepted 75 percent, nine claimed 50 percent compliance and two thumbed their noses at school policy with 25 percent compliance. As is often the case, policy and practice do not agree.

TABLE 63. COMPARATIVE DATA ON THE AVAILABILITY AND USE OF COURSE OUTLINES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS AS REPORTED BY INSTRUCTORS

INSTRUCTOR REPORTED COURSE OUTLINE USE AND AVAILABILITY	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Course outline available	849	94.9	566	95.8	283	93.1
Percent of time followed						
• About 25%	51	6.1	30	5.4	21	7.6
• About 50%	148	17.7	93	16.7	55	19.8
• About 75%	427	51.2	280	50.4	147	52.9
• About 100%	208	24.9	153	27.5	55	19.8

The comparative data suggests that approved course outlines are followed more closely in vocational than comprehensive schools. This may be the result of the greater use of curriculum supervisors in the vocational schools, and where such are used, the greater percentage of time spent in curriculum supervision. However, it is clear that in both types of schools, the majority of instructors do not follow approved course outlines one hundred percent or any degree near one hundred percent. Teacher individualism asserts itself regardless of school policy and degree of curriculum supervision.

SCHOOL-EMPLOYER COOPERATIVE PROGRAMS

There are basically two types of cooperative programs: diversified occupation cooperative programs and T&I course related cooperative programs. The former are non-shop courses in which the enrollees learn their occupation by means of on-the-job training in a cooperative relation with community employers. What is learned in school about the occupation is limited to what supplementary reading materials are provided to the students who proceed on a guided self-study basis. This type of cooperative program was found mainly in southeastern United States. The more common type of cooperative program involves a select few students in a T&I shop course substituting on-the-job training for in-school shop training in the third or more usually the fourth year of school.

Sixteen percent of the schools surveyed had a diversified occupation program, and 37 percent had a trade cooperative program. Of these, 13 percent had both types of programs.

● What kinds of occupations are represented in the two types of programs?

The T&I trade cooperative occupations reflect the frequency of course offerings. Of a total 24 trade cooperative occupations, the ten most frequent were:

Auto mechanics	15	Mill/cabinetry	9
Machine shop	15	Sheet metal	9
Printing	15	Auto body repair	7
Drafting	12	Radio and television repair	7
Electricity	12	Welding	6

The diversified cooperative program occupations included auto mechanics (7), cooking (5), meat cutting (5), printing (5), radio and television repair (4), cabinet making (3), dental technician (3), auto body repair (2), library services (2), medical assistant (2), painter (2), photographer (2) and upholsterer (2). In addition, there were many occupations represented only once among the diversified cooperative programs, e.g. exterminator, custodian, diesel mechanic, florist, glazier, histology technician, auto parts clerk, dry cleaning operator, medical records technician, mattress builder, photographer assistant, service station attendant, tailor, typewriter repair, mortician assistant, shipping clerk, and others. The list will convey the degree of diversification among the occupations involved in diversified cooperative programs.

One advantage of the diversified cooperative program concept is immediately clear. It has the maximum flexibility in terms of the occupational mix. The only limits to occupations that may be included are those which both schools and employers decide are unsuitable to high school youth.

● What percent of the students enrolled in T&I programs are participants in cooperative programs? Of the 40 schools that claimed such programs, only 30 provided sufficiently complete enrollment data to include in the analysis. Table 64 provides the data for these 30 schools.

The mean and median percents, based upon percentages derived for each of the 30 schools, were about 18 and 16 percent respectively. The percentages for comprehensive schools are almost twice those for vocational schools. Thus, not only do more comprehensive schools have cooperative programs (48 vs. 32 percent), but their percentage student involvement in such programs is almost twice as great.

The N values in parentheses represent schools with diversified occupations programs.

● What are the cooperative program entry requirements for students?

While the prerequisites vary among the schools, there is a common pattern. Of the 22 schools that provided data on this question, 48 percent indicated eleventh or twelfth grade standing was a requirement; 40 percent indicated a subject grade standard, usually a 3.0 grade point average or better; 36 percent indicated instructor approval based upon interpretation of ability and 23 percent indicated that approval of the school principal

TABLE 64. COMPARATIVE DATA ON THE PERCENTAGES OF T&I ENROLLMENT INVOLVED IN COOPERATIVE PROGRAMS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS WHERE SUCH PROGRAMS WERE AVAILABLE

PERCENTAGES OF TOTAL T&I STUDENTS ENROLLED IN COOP PROGRAM	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
46 - 50	1	3.3	0	0.0	1	5.0
41 - 45	2	6.7	0	0.0	2	10.0
36 - 40	0	0.0	0	0.0	0	0.0
31 - 35	3	10.0	0	0.0	3	15.0
26 - 30	3	10.0	1	10.0	2	10.0
21 - 25	2	6.7	1	10.0	1	5.0
16 - 20	3	10.0	1	10.0	2	10.0
11 - 15	5	16.7	2	20.0	3	15.0
6 - 10	5	16.7	2	20.0	3	15.0
1 - 5	6	20.0	3	30.0	3	15.0
NUMBER	30 (16)		10 (4)		20 (12)	
MEAN	17.9		11.7		20.9	
MEDIAN	16.1		9.4		17.4	
S.D.	22.6		14.5		26.1	

was necessary. A small percent indicated consideration of conduct, attendance and other reflections of social adjustment. Since there are multiple prerequisites in all schools, a select minority of the students usually participates in such programs. In the trade cooperative programs, the schools tend to send forth their best in the interests of maintaining employee relations. Students who do not work out well with their employers tend to damage employer relations, and instructors can usually offer anecdotal evidence to support this view. Unfortunately, this restrictive policy also closes the door to cooperative program experience for many students who would undoubtedly work out with employers if given the opportunity. The understandable caution of school personnel denies them the opportunity.

The writer, however, is not satisfied that this study has given adequate account of the restrictive policies and practices. A more concentrated research effort is needed.

● What are the cooperative program prerequisites for employers?

Only 22 of 40 schools that claimed they had a cooperative program provided data for this question. (The writer is inclined to believe that most, if not all, of the schools that did not provide data failed to do so because in effect they had no employer prerequisites other than the employer's willingness to participate, i.e. accept a student into his place of business. However, this is opinion, not data, and should be so regarded.)

The requirements most frequently stated were:

•Employer assurances of proper instruction	45%
•Approval of employer by program coordinator	23
•Adequacy of working conditions	18
•Payment of minimum wage	14
•Employer agreement to make monthly reports	14
•Employer agreement to follow training outline	9

Because the question was open-ended, the percentages do not reflect the true percentages of schools that were guided by listed employer prerequisites.

● What are some general characteristics of cooperative programs related to supervision and control? Table 65 provides the data. Because data was missing for some questions, the percentages are based upon varying numbers of schools.

Of 25 schools, seventeen (68 percent) expected that the employer follow a mutually agreeable training program.

Of 26 schools, all reported that the employers provide a periodic evaluation of the student. However, only ten (39 percent) reported that the student is asked to evaluate the employer. (This is one more example of the low esteem that school authorities hold of student-provided evaluative opinion.)

Of 26 schools, only six reported there was any type of community advisory committee to serve the cooperative program. This suggests the

TABLE 65. COMPARATIVE DATA ON COOPERATIVE PROGRAM CHARACTERISTICS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

COOPERATIVE PROGRAM CHARACTERISTICS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Does employer follow a mutually agreeable training program	17	68.0	11	68.8	6	66.7
Does employer report on evaluation of the student	26	100.0	16	100.0	10	100.0
Does student report on evaluation of employer	10	38.5	6	37.5	4	40.0
Does the program have a community advisory committee	6	24.0	4	26.7	2	20.0
Grade program begins						
•11th	9	34.6	7	43.8	2	20.0
•12th	17	65.4	9	56.3	8	80.0
Frequency of visits to employers						
•Weekly	2	8.3	0	0.0	2	22.2
•Bimonthly	3	12.5	0	0.0	3	33.3
•Monthly	4	16.7	3	20.0	1	11.1
•Every other month	1	4.2	1	6.7	0	0.0
•Quarterly	3	12.5	3	20.0	0	0.0
•Once a term	1	4.2	1	6.7	0	0.0
•Other than above	10	41.7	7	46.7	3	33.3
Types offered						
•T&I only	24	60.0	12	75.0	12	50.0
•Diversified only	3	7.5	1	6.2	2	8.3
•Both kinds offered	13	32.5	3	18.8	10	41.7

schools are missing out on an important source of community support for such programs.

Of the 40 schools with cooperative programs, 22 had a program coordinator. The average number of students per cooperative program coordinator was 25 students in comprehensive school programs and 28 students in vocational schools. The most common regular frequency of employer visits by the coordinator was once a month. However, the regular frequencies ranged from once a week to once a year. Many schools claimed no regular schedule of visits. Instead, they claimed visits were made as the opportunity or need arose.

Based upon 26 schools reporting, about 35 percent offer the cooperative program in the eleventh and twelfth grades and 65 percent offer it in the twelfth grade only. The students spend an average of 18 hours per week at the employer's location and 18 hours per week at the school location.

The average employer has participated 5.5 years in the cooperative program. This would indicate that the schools are reasonably successful in maintaining a continuity of relationship with participant employers. One can infer that the employers, also, derive some benefits.

TABLE 66. MORE COMPARATIVE DATA ON COOPERATIVE PROGRAM CHARACTERISTICS IN COMPREHENSIVE AND VOCATIONAL SCHOOLS

COOPERATIVE PROGRAM CHARACTERISTICS	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
Number of program coordinators	22	2.4	3.7	12	3.2	4.9	10	1.4	0.8
Hours per week at employer's location	22	17.9	6.9	14	16.6	7.9	8	20.0	4.2
Hours per week at school location	22	17.8	7.3	14	17.2	7.4	8	18.8	7.6
Average number of years of employer participation	17	5.5	4.9	11	6.0	5.7	6	4.7	3.1
Number of students per coordinator	20	26.5	35.6	8	28.5	43.1	12	25.1	31.7

CURRICULUM VARIABLE CORRELATION ANALYSIS

Curriculum Variable Definitions

A brief definition or explanation of the curriculum variables selected for correlation analysis follows below:

1. Course duration in years. Self-explanatory.

2. Average grade enrollment. Because the courses varied in year durations, and total course enrollments varied with the durations of the courses, the mean grade enrollment was used as a measure of course enrollment. Thus, all course enrollments were put on a per grade basis for correlation purposes.

3. Course admission requirements index. Instructors indicated which of six types of course admission requirements were used to screen admissions to their courses. The number of admission requirements claimed constituted the index. Range: 1-6. See Table 27, page 5-38, for a list of the six types of admission requirements. The index may be interpreted as a gross measure of the degree of selectivity applied in admitting students to the course. Some evidence that this might be so is given by the finding that the index was higher for electronics courses than for sheet metal courses.

4. Course examination policy. Each instructor indicated which of six different types of examinations he used regularly, i.e. daily, weekly, monthly (or six weeks), mid-term, final or other regular frequency. The number of different types claimed constituted the examination index. The measure reflects the degree to which the instructors were examination oriented. See page 5-55 for a more complete discussion.

5. Course revision index. Each instructor indicated which of 13 types of course revisions had been applied to his course over a specified number of years. The number of types of revisions claimed constituted the course revision index. The measure has some obvious limitations. It does not reflect the intensiveness of certain course revisions. It is also subject to varying interpretations as to what constituted a major revision. Range: 0-13. See Table 53, page 5-73, for a list of the types of course revisions involved.

6. Course revision source index. Instructors indicated which of eight different sources caused or influenced major course revisions. The sources included employers, labor unions, former students, curriculum committee state curriculum specialists, school administration and the instructor. The total sources checked constituted the index. Range: 1-8.

7. Three R rating index. Each instructor rated his students as a group on reading, writing and arithmetic skills. The ratings were weighted as follows: 4-excellent, 3-good, 2-fair and 1-poor. The mean of the three

ratings constituted the index. Range: 1-4. The three R index may be as much a reflection of the instructors as of the student. See pages 3-61 to 3-64 for a more complete discussion.

8. Course holding power. Each instructor provided the number of students enrolled in each grade of the course at the start of the school year. He also provided the number of students who dropped out of the course, for any reason, by the end of the school year, presumably on the basis of checking class books. Course holding power was the number of students remaining expressed as a percentage of the number enrolled at the start of the school year. Those who dropped out did not necessarily leave the school. Some switched to another vocational curriculum.

9. Percentage of graduates recommendable. Each instructor indicated the number of students who completed the course in the last school year. He was then asked to consult his classbook and indicate the number that he would recommend for entry into the occupation studied. Presumably, he weighed each graduate or course completer. The number he would recommend was expressed as a percentage of the number who completed the course. See page 5-49 for a more complete discussion.

10. Percentage of graduates placed. Each instructor was asked to indicate the number of course completers that he helped to place in a job, not necessarily in the occupation studied. The number he claimed was expressed as a percentage of the total number of who he claimed completed the course. The measure ranged from zero to one hundred percent. It is possible that some claims exceeded the actual numbers placed.

11. Number of T&I courses offered. Self-explanatory.

12. Course add-drop index. All schools indicated the T&I courses added and dropped in the five year period preceding the survey. The number of courses added and dropped constituted the add-drop index, and was interpreted as a reflection of a school's responsiveness to change course offerings.

13. Course add-drop plans index. The school principals indicated what courses were to be added and dropped in the next school year, and what courses they would like to see added or dropped in coming years. The total courses planned and preferred as add or drop candidates constituted the index. The measure was interpreted as a reflection of readiness to change course offerings, given the resources or authorization.

14. Number of curriculum revision methods employed. Principals indicated which of thirteen listed procedures related to curriculum revision were used by the school. See Table 52, page 5-71 for a list of the procedures. The total number of methods claimed constituted the measure which was interpreted as a reflection of the school's use of different resources to improve curriculum.

15. Exploratory programs index. Principals indicated which of 14 different types of exploratory or orientation programs were regularly available to vocational and would-be vocational students. See Table 9, page 5-11 for a list of the exploratory and orientation programs. The number of such programs claimed constituted the index.

16. Exceptional learner provision index. Principals indicated which of 10 provisions for slow learners and 10 provisions for rapid learners were available in the school. See the G-1 questionnaire, items 37 and 38, in Appendix Section 1, for a list of the slow and rapid learner provisions. The total such provisions claimed constituted the exceptional learner provision measure.

The Curriculum and Course Variable Intercorrelations

The intercorrelation coefficients for these variables are shown in Table 67. The asterisked variables are those for which a value was obtained for each course, based upon data provided by the shop instructors. The other variables are those for which a value was obtained for each school, based upon data provided by the principals. To run the intercorrelations between course and school variables, the school variable values were replicated as necessary for each school variable value. For example, in a three T&I course school, each course had a value in terms of course holding power. The school's vocational enrollment was then paired with each of the three scores. The same manipulation applied to all schools permitted the intercorrelation analysis of variables with an N equal to the number of schools and variables with an N equal to the number of courses.

With that background, let's consider some of the more interesting intercorrelation coefficients.

1. Course admission requirements. The measure, which purports to reflect the degree to which students are screened for course admission, shows no significant correlation with either course holding power or the percentage of graduates that the instructor would recommend. This is not what one would expect. A possible explanation may be that the admission requirements claimed were not rigorously applied in practice. Another explanation might be that they have no validity for screening students most likely to succeed in a given course.

The measure does show significant correlations with percentage of graduates instructors claim they place (.16), wide range of sources that influence course revision (.30), and course duration in years (.15). Obviously, no interpretation of cause-effect relationship makes sense.

2. Instructor three R rating of students. The variable correlates significantly with course holding power. The suggestion is that holding power is related to the quality of the students defined in terms of instructor ratings of the three basic abilities, i.e. reading, writing and arithmetic. The broader significance is that once again a student resource factor is shown to be related to a major effectiveness yardstick, namely holding power.

3. Course holding power. The measure relates significantly and inversely to the duration of the course in years, i.e. the greater the duration, the less the holding power.

TABLE 67. COURSE AND OTHER VARIABLE INTERCORRELATION COEFFICIENTS

	COURSE AND OTHER VARIABLE INTERCORRELATIONS	1 COURSE ADMISSION REQUIREMENT	2 THREE R RATING INDEX	3 COURSE HOLDING POWER	4 COURSE EXAMINATION POLICY	5 % GRADUATES RECOMMENDABLE	6 % GRADS PLACED BY INSTRUCTOR	7 MAJOR COURSE REVISIONS	8 COURSE REVISION SOURCES	9 COURSE DURATION IN YEARS	10 MEAN ENROLLMENT PER GRADE	11 NO. OF T&I COURSES OFFERED	12 COURSE ADD-DROP INDEX	13 COURSE ADD-DROP PLANS INDEX	14 CURRICULUM REVISION METHODS	15 EXPLORATORY PROGRAM INDEX	16 EXCEPTIONAL LEARNER INDEX
1	Course admission requirement*	-	-.02	.02	.02	.08	.16**	-.06	.30**	.15**	.02	.08	-.01	.12**	-.01	.12	-.03
2	Three R rating index*	480	-	.18**	-.07	.10	-.01	.08	.03	-.10	.08	.10	.10	-.07	-.00	.07	-.01
3	Course holding power*	623	473	-	.00	-.03	.02	.08	.01	-.18**	.12**	.00	-.07	-.02	-.02	.07	.04
4	Course examination policy*	461	464	454	-	.09	-.03	.10	-.00	-.08	-.05	-.23**	-.04	-.01	.02	.04	.02
5	% graduates recommendable*	381	385	382	372	-	.53**	.01	.12	.15**	.08	-.04	-.02	-.01	.08	-.04	.03
6	% grads placed by instructor*	318	319	320	307	294	-	-.02	.11	.24**	-.06	-.02	-.05	-.02	-.07	-.04	.08
7	Major course revisions*	419	424	417	406	345	294	-	.22**	-.03	-.08	.03	.00	.05	-.03	-.04	-.04
8	Course revision sources*	515	388	505	370	320	274	384	-	.04	.08	.08	-.04	.01	-.00	.09	-.03
9	Course duration in years*	665	497	647	477	394	328	435	553	-	-.02	.16**	-.15**	.20**	-.07	-.18**	-.03
10	Mean enrollment per grade*	631	478	648	460	386	323	420	510	655	-	.16**	.03	-.10	-.02	.19**	.10
11	No. of T&I courses offered	665	498	648	478	394	329	436	534	690	656	-	.14**	.18**	.10	.28**	.15**
12	Course add-drop index	665	453	648	478	394	329	436	534	690	656	691	-	-.19**	-.16**	-.01	-.08
13	Course add-drop plans index	665	498	648	478	394	329	436	534	690	656	691	691	-	.08	-.03	-.04
14	Curriculum revision methods	665	498	648	478	394	329	436	534	690	656	691	691	691	-	.08	.07
15	Exploratory program index	620	465	605	445	370	304	406	494	645	613	646	646	646	646	-	.02
16	Exceptional learner index	665	498	648	478	394	329	436	534	690	656	691	691	691	691	646	-
17	City population	-.03	.09	.04	.01	-.10	-.08	-.01	.06	.00	-.02	.36**	.05	-.02	-.02	.16**	.12**
18	T&I enrollment	.02	.12**	.06	.02	-.03	-.05	-.02	.06	.05	-.03	.49**	.15**	-.02	-.21**	.40**	.11
19	Total enrollment	-.05	.04	.07	.01	-.08	-.16**	-.07	.02	.03	-.08	-.14**	-.02	-.13**	-.10	.07	.19**

* Course variables
** Significant at .01 level of confidence

4. Course examination policy. The measure purports to reflect the degree to which instructors make use of examinations. It relates significantly and inversely with number of course offerings in the schools. This would suggest that examinations are less frequently given in schools that offer many T&I courses than those that offer few. Undoubtedly, this relationship is being mediated by an uncontrolled third variable.

5. Graduates recommended by instructors. The measure correlates very substantially (.53) with the percentage of graduates that instructors claimed they placed. The relationship makes sense. The greater the percentage of graduates that the instructor claims he would recommend for entry into the occupation studied, the greater the percentage he claims he placed.

The measure also correlates significantly with course duration. Could this be a case of those that stick it out or survive are more likely to have the qualities that would make the instructor want to recommend them? The possibility is plausible in view of the inverse relationship between holding power and course duration.

Notice also that the percentage of graduates that instructors claim they have placed is also significantly related with course duration. Percentage placement is greater in the longer duration courses.

6. Exploratory and orientation program provisions. The measure correlates a strong .40 with the total vocational enrollment, but not with total school enrollment. The greater the vocational enrollment, the more available are pre-vocational exploratory and orientation programs.

7. Number of T&I course offerings. The measure correlates significantly with the add-drop index and the add-drop plans index. In other words, the more courses a school offers, the more likely has it been an active adder and dropper of courses and the more courses does it plan to add or drop. Change takes place in the larger schools (defined in terms of course offerings), not the smaller ones where vocational education is a non-growth operation.

8. Exceptional learner provision index. The measure correlates significantly with total enrollment. Thus, provisions for slow and fast learners are more likely to be found in the larger enrollment schools, particularly the larger enrollment comprehensive schools.

9. Population of city served. The only variable that relates significantly with the population of the city served is the number of course offerings. More interesting are the variables not related to city size. Included are course holding power, percentage of graduates that would be recommended (significant at the 5 percent level of confidence), and percentage of graduates that instructors claimed they placed. This lack of relationships suggest city size may be more myth than reality in so far as influencing the quality of vocational education in one direction or the other.

Correlations Between Teacher Related Variables and Selected Course Variables

The selected course variables are course holding power, percentage of graduates that instructors would recommend for entry into the occupation studied, and the percentage of graduates that instructors claimed they placed. Table 68 shows the correlation coefficients obtained when the above variables were correlated with selected teacher variables.

Course holding power shows a very low but significant correlation with years of experience as a teacher and amount of formal education. The low magnitude of the correlation coefficients, however, does not warrant making much about the suggested relationship. Holding power is unrelated to teacher years of experience in the trade and the relatedness of teachers' part-time and summertime teaching and non-teaching employment. Past and present experience with the occupation being taught does not appear to have a bearing on course holding power. The frequency of student problems reported by the teachers does correlate significantly with course holding power, i.e. those who report a greater frequency of student problems also have a lower course holding power. The reader is cautioned against a cause-effect conclusion. One can not conclude that teachers who are unable to control classroom problems have a lower course holding power, although that might be the case. The core of the problem might be the quality of the student resource, rather than the teacher.

Percentage of graduates recommended for entry into the occupation studied also shows a significant correlation (-.18) with the teacher student problem index. The relationship suggests that the greater the frequency of student problems, the smaller the percentage of graduates that would be recommended. Again, it is more reasonable to assume that the key element is the quality of the student resource rather than any characteristic of the teacher. None of the variables that are uniquely teacher variables show a significant correlation with the percentage of graduates that instructors would recommend.

Percentage of graduates (or course completers) that teachers claim they placed shows no significant relationship with any of the teacher variables shown in Table 68. This is consistent with the earlier finding that the teacher variables described in this study have little or no relationship with occupational experience variables that characterize the graduates.

Correlations Between Selected Course and Other Variables and Vocational Outcomes

● To what extent are selected course variables related to the vocational outcomes experienced by the 1962 graduates? Table 69 provides the results of the correlation analysis.

The discussion is organized in terms of the occupational outcome measures:

1. Placement time. The only variable to correlate significantly at the one percent level of confidence with placement time is the percentage of graduates that instructors claimed they placed. The inference is that

TABLE 68. CORRELATION COEFFICIENTS FOR CORRELATION ANALYSIS BETWEEN SELECTED TEACHER VARIABLES AND COURSE HOLDING POWER, PERCENT GRADUATES RECOMMENDED BY INSTRUCTORS AND PERCENT GRADUATES PLACED BY INSTRUCTORS

	SELECTED T&I TEACHER VARIABLES	1 COURSE HOLDING POWER REPORTED BY INSTRUCTORS	2 % GRADUATES RECOMMENDED BY INSTRUCTORS	3 % GRADUATES CLAIMED PLACED BY INSTRUCTORS
1	Teacher years of experience in teaching profession	.08* 601	.05 367	.08 311
2	Teacher years of formal education	.08* 607	-.00 370	-.09 315
3	Teacher years of experience in occupation now teaching	-.00 590	-.01 364	.06 307
4	Teacher professional self-development activities index	.01 621	.04 380	.02 320
5	Relatedness of teacher's part-time and summer teaching	-.00 621	.10* 380	.06 320
6	Relatedness of teacher's part-time and summer non-teaching work	.02 621	.01 380	.02 320
7	Teacher index of frequency of student classroom problems	.14** 619	.18** 379	.09 319
8	Range of instructional methods reported used by teachers	-.01 621	.05 380	-.02 320
9	Teacher claimed affiliation with community	.08* 616	.02 377	-.03 318

* Significant at .05 level of confidence
** Significant at .01 level of confidence

TABLE 69. CORRELATION COEFFICIENTS FOR RELATIONSHIPS BETWEEN COURSE AND OTHER VARIABLES AND THE OCCUPATIONAL OUTCOMES EXPERIENCED BY THE 1962 GRADUATES

	T&I VOCATIONAL COURSE AND OTHER VARIABLES	1962 VOCATIONAL GRADUATE OCCUPATIONAL OUTCOMES									
		1	2	3	4	5	6	7	8	9	10
		PLACEMENT TIME	FIRST JOB RELATEDNESS	FIRST JOB SATISFACTION	STARTING HOURLY EARNINGS	PRESENT JOB RELATEDNESS	PRESENT JOB SATISFACTION	PRESENT HOURLY EARNINGS	EARNINGS INCREASE	EMPLOYMENT SECURITY	ATTITUDE TOWARD FORMER SCHOOL
1	Course duration in years	-.09 1222	.14* 1149	.10* 1156	-.02 1152	.14* 1143	.10* 1147	-.05 1153	-.06 1089	-.00 1138	-.04 1219
2	Mean enrollment per grade	-.04 1178	.06 1106	.04 1112	.13* 1109	.00 1099	-.02 1103	.16* 1109	.04 1047	.02 1095	.02 1176
3	Course admission requirement	-.04 1181	.10* 1110	.07 1117	.06 1114	.10* 1104	.07 1108	.04 1115	-.02 1054	.04 1099	-.01 1178
4	Course examination policy	.07 91[illegible]	-.06 859	-.00 866	-.09 864	-.02 856	-.03 858	-.11* 866	-.05 817	.10 850	-.07 906
5	Major course revisions	.10 874	-.03 829	-.05 836	-.07 829	-.01 826	-.04 829	-.04 834	.02 787	.04 817	-.03 869
6	Course revision sources	.01 978	.08 923	.02 930	-.01 924	.05 919	.04 924	.01 927	-.00 877	.01 907	-.00 974
7	Three R rating index	-.01 937	.05 889	.03 896	-.03 890	.03 886	.02 889	.00 893	.03 840	-.01 879	.10 934
8	Course holding power	.03 1167	.06 1097	.03 1103	-.03 1100	.05 1090	-.05 1094	-.03 1100	.05 1039	-.04 1086	.05 1165
9	% graduates recommendable	-.08 779	.21* 738	.10 744	-.08 740	.22* 736	.11 736	.02 742	.05 703	-.00 729	.13* 778
10	% grads placed by instructor	-.14* 692	.22* 659	.10 663	-.01 658	.21* 655	.11 655	.09 660	.09 622	.03 647	.10 691
11	No. of T&I courses offered	.04 1296	.02 1221	.03 1227	-.01 1224	.03 1214	-.02 1217	-.01 1225	-.01 1157	.01 1209	.03 1293
12	Course add-drop index	.08 1296	-.08 1221	-.05 1227	-.02 1224	-.07 1214	-.01 1217	.02 1225	.04 1157	.00 1209	.07 1293
13	Course add-drop plans index	-.06 1296	.10* 1221	.00 1227	-.14* 1224	.10* 1214	-.02 1217	-.10* 1225	.06 1157	.01 1209	.02 1293
14	Curriculum revision methods	.04 1296	-.01 1221	-.03 1227	-.05 1224	.03 1214	-.01 1217	-.05 1225	-.06 1157	.03 1209	-.13* 1293
15	Exploratory program index	.03 1296	.00 1221	.00 1227	.07 1224	.02 1214	.06 1217	.06 1225	-.03 1157	.01 1209	-.02 1293
16	Exceptional learner index	.01 1222	.05 1152	.00 1157	-.06 1154	.04 1145	-.06 1148	-.01 1156	.06 1091	.05 1141	.01 1220

* Significant at .01 level of confidence

the greater the placement activities of the instructor, the sooner will his graduates be placed. Stated another way, the graduates of instructors who claimed they placed a relatively high percentage of their graduates found their first full-time job sooner than those whose instructors reported that a relatively low percentage of graduates were placed.

2. Relatedness of first job to training. This is the primary outcome measure, and it correlated .14 with course duration in years, .10 with course admission requirements, .21 with the percentage of graduates instructors would recommend for entry into the occupation studied, .22 with the percentage of graduates instructors claimed they placed and .10 with plans to add and drop courses. All coefficients are significant at the one percent or better confidence level.

The course duration relationship implies that the graduates from the longer duration courses are more likely to go into their field of training than those from the shorter duration courses. While it can not be ruled out that course duration has some direct relationship with relatedness of the first job to the course studied, it is likely that the relationship is mediated by an uncontrolled third variable. Four and three-year courses are more frequently found in vocational schools than in comprehensive schools. The converse is true for two-year courses. Thus, type of school is an uncontrolled variable in the relationship. There are undoubtedly others.

The course admission requirements correlation with the relatedness measure suggests that higher course admission requirements pay off in higher placement of graduates into the fields for which trained. The possibility of the relationship being mediated by an uncontrolled third variable always exists. The relationship, however, suggests where additional research may be fruitfully applied.

The percentage of graduates that the instructor would recommend for entry into the occupation studied shows, for the nature of the data, an impressive relationship with relatedness of first job to training. The greater the percentage that would be recommended, the more likely was placement in the field for which trained. There is a two-fold importance to this relationship. First, it provides an independent validation of the instructor assessments. Second, it confirms the earlier conclusion that the better shop performers are more likely to go into the field for which trained.

The percentage of graduates that instructors claimed they placed also shows an impressive relationship with the first job relatedness measure, in view of the nature of the data and method of correlation. For the first time in the study, we get a relationship between some form of placement activity by school personnel and success in placing graduates in the field for which trained. This confirms the value of teacher placement activities. It also confirms the earlier conclusion that direct placement action will do more to improve the percentage of graduates placed in their field of study than programs designed to improve the quality of the teacher, such as professional self-development activities.

It is also interesting that no relationship was found between relatedness of first job to training and the number of T&I courses offered by the school. The graduates who came from schools offering only three, four and five courses apparently did as well as those who came from schools offering ten or more courses. Other variables that had no relationship with the relatedness of first job to training included: (1) the average grade enrollment, (2) the instructor's examination policy, (3) the intensiveness of claimed course revision, (4) the course holding power, (5) the school's provision for exploratory programs and (6) the school's provision for exceptional learners. The lack of a demonstrated relationship does not mean some of these factors are unimportant.

It should be noted that the correlation coefficients obtained for present job relatedness to training (two years after graduation) were essentially the same as for first job relatedness. The reason is that the majority of graduates are still with their first job at the end of their first two years of work.

The reader is free to explore the other correlation coefficients indicated as significant at the one percent or better level of confidence. It is interesting that such variables as: (1) course revision activity, (2) course revision sources, (3) instructor three R ratings of students, (4) course holding power, (5) number of courses offered, (6) activity in adding and dropping courses, (7) provision for exploratory programs and (8) provisions for exceptional learners--all show no correlations with the vocational outcomes that are significant at the one percent or better confidence level.

SUMMARY OF FINDINGS

The T&I Vocational Curriculum

1. The median curriculum in the four year comprehensive school. The median curriculum consists of 2 years of industrial arts, 2 years of vocational shop, 4 years of English, 2 years of mathematics, 2 years of science, 3 years of social studies and 1 year of a recommended subject other than above.

2. The median curriculum in the four year vocational school. The median curriculum consisted of zero years of industrial arts, 3 years of vocational shop, 4 years of English, 2 years of mathematics, 2 years of science, 3 years of social studies and 3 years of other subjects including related vocational subjects.

Related Mathematics and Science

1. Related mathematics. Ten percent of the schools surveyed offered related mathematics only to vocational students. Forty-five percent offered both related and non-related mathematics, and 45 percent offered non-related mathematics only. Whereas 58 percent of the vocational schools offered related mathematics, only 42 percent of the comprehensive schools did so.

2. Related science. Fifteen percent of the schools offered related science only to vocational students. Twenty-eight percent offered both related and non-related science. And 57 percent offered non-related science only.

The vocational schools are more frequent users of related science than the comprehensive schools (58 versus 28 percent).

3. Grades in related mathematics and science. Vocational graduates who had related mathematics and science made significantly higher grades in these subjects than those who had unrelated math and science.

SHOP SCHEDULES

1. Type of schedules. Eighty-five percent of the schools surveyed had a weekly shop schedule. The balance had a one, two or three week about schedule. Week about schedules are infrequently found in the comprehensive schools.

2. Relation with grades. Those graduates who had some type of week about schedule had significantly higher grades in all subjects than those who had a weekly schedule. The results warrant further research on the relative merits of the two types of schedules.

Track Systems

1. Availability. Seventy-nine percent of the schools reported no track system for T&I vocational students. There was no difference between comprehensive and vocational schools on this point.

2. Type. Only 14 percent of the schools had a college preparatory track for vocational students who were qualified and so elected. Other so-called track systems were ones which allowed taking extra subjects or separated vocational courses into ability groups.

Industrial Arts and Exploratory Programs

1. Industrial arts. Seventy-nine percent of the schools claimed an industrial arts program in their school or in a feeder school. A greater percentage of comprehensive than vocational schools had such programs.

2. Exploratory shops. Only 38 percent of the schools had some type of exploratory shops program. More of the comprehensive schools than vocational schools had such programs.

3. Orientation and information programs. Of twelve different types of vocational orientation or information programs, only one type was offered by more than half of the schools. That was an orientation program for grade and junior high school students. Only 33 percent of the schools claimed to have an occupational information library.

4. Students with industrial arts. Instructor estimates indicated that about 64 percent of their students had industrial arts. The records of the 1962 graduates surveyed indicated that 53 percent had industrial arts, but since records did not include grade school subjects, that percentage is undoubtedly low. Comprehensive school students are more likely to have industrial arts than vocational school students.

5. Relation between industrial arts and vocational shop work. About 60 percent of the T&I vocational shop instructors reported that students with industrial arts experience did better in vocational shop work. About 40 percent claimed there was no real difference.

Present Course Offerings

1. Types of T&I courses. The ten most frequently offered courses were auto mechanics (89%), machine shop (76%), drafting (58%), electricity (55%), printing (49%), electronics (47%), mill and cabinetry (44%), welding (31%), sheet metal (29%), and carpentry (25%). The course mix of vocational schools was basically similar to that of comprehensive schools, although the former are more likely to offer courses in new fields.

2. Number of T&I courses. The mean and median number of T&I courses offered per school is 7.4 and 6 respectively. Since the survey excluded schools with less than three courses, these values can not be considered parameter estimates. Two T&I courses per school is the actual median value based on all schools offering a T&I program.

Recent Course Additions

1. Number of courses added. In the five year period from 1959 to 1963, the 100 schools surveyed added 70 courses for a nine percent increase in course offerings in the period. Fifty-nine percent of the schools did not add a course during the five year period.

The vocational schools, which offered a much greater number of courses than the comprehensive schools initially, also added more than twice as many courses as the comprehensive schools.

2. Type of courses added. With the exception of electronics, the courses added followed the traditional T&I pattern. There was little evidence of T&I programs breaking into new occupational fields.

3. Factors influencing additions. The five most frequently cited reasons for course additions were: special school board studies (44%), employment opportunity surveys (38%), community employer requests (33%), student body requests (30%), and general advisory committee recommendations (23%).

Recent Course Terminations

1. Number of T&I course terminations. For the same five year period, the 100 schools surveyed dropped only 25 courses. Seventy-eight percent of the schools terminated no courses. Only 2 schools terminated two or more courses.

2. Type of courses terminated. There was no distinctive pattern in the type of courses terminated, although electricity was the most frequently terminated course.

3. Reasons for terminating courses. Insufficient local employment opportunity was cited for 56 percent of the twenty-five courses dropped. Continual enrollment decline was the next most frequently cited reason.

Course Addition Plans and Preferences

1. Authorized course addition plans. Seventy-three percent of the schools had no plans for adding a course in the 1965 school year. Electronics was the course most frequently claimed as the next authorized addition.

2. Preferences for course additions. Principals were asked what courses they would like to see added. Data processing, electronics and air conditioning were the three most frequently cited. However, virtually all established T&I courses were included in what principals would like to add. There was very little mention of new occupational fields other than data processing.

About 25 percent of the schools did not wish to add any more courses.

Course Termination Plans and Preferences

1. Number of T&I course terminations. Ninety-seven percent of the schools did not plan to terminate a course in the 1965 school year.

2. Preferences for terminations. Only 7 percent of the schools indicated they would like to see a specified T&I course dropped. Mill and cabinetry was the most frequently mentioned.

Course Entry Requirements

1. Extent of admission requirements. About 60 percent of 682 shop instructors indicated that there were no course admission requirements other than completion of the preceding grade. Those that reported entry requirements reported the following types: all subject grade standard (17%), special subject grade standard (11%), aptitude test standards (26%), and achievement test standards (16%). Vocational schools gave more evidence of admission standards than comprehensive schools.

2. Instructor recommendations. About 86 percent of the instructors claimed there should be some type of course admission standards. The types of admission standards recommended varied considerably.

3. Students refused admission. About 62 percent of the instructors reported that no students were refused admission in the present school year. The mean number of students that were refused admission was 7.5 students. Lack of space was the primary reason for not admitting students. The vocational schools turn away more students than do the comprehensive schools.

Course Durations and Starting Grades

1. Course durations in years. For 731 T&I courses, the duration in years were as follows: four years (12%), three years (49%), two years (38%) and one year (1%).

2. Instructor recommendations. About 60 percent of the instructors of courses that began in the ninth grade indicated they should begin in a later grade. About 21 percent of the instructors of courses that began in the tenth grade felt the courses should begin in a later grade. However, of those whose courses began in the eleventh grade, almost half said they should begin in an earlier grade.

3. Duration and type of course. Course durations do not seem to be related to type of course as much as school policy. The top ten T&I courses occur as four, three and two year courses.

Course and Class Enrollments

1. Course enrollments. The 100 schools surveyed had a total T&I enrollment of about 28,500 students. Auto mechanics courses had 18 percent of that total enrollment. Other percentages are: machine shop (13%), electricity (10%), printing (7%), drafting (7%), electronics (6%), and mill and cabinetry (5%).

2. Class sizes. The average pupils per class ranged from a low of 17 in electronics courses to a high of 20 in electricity courses. Pupil load can not be regarded as a problem in most courses.

Cooperative Programs

1. Availability. Only 40 percent of the schools had provision for some type of cooperative training program. A substantially greater percentage of comprehensive schools had such provisions than vocational schools.

2. Type of program. Twenty-four percent of the schools had a T&I grade cooperative program only. Three percent had a diversified occupations program only, and thirteen percent had both types of cooperative programs.

3. Student enrollments. Based on schools for which data was available, the mean percent of student enrollment in cooperative programs is about 18 percent. The percentage of student enrollment in cooperative programs is twice as great in comprehensive schools than vocational schools.

4. Student prerequisites. About half of the schools with cooperative programs indicated that eleventh and twelfth grade standing was a requirement. About 40 percent required a 3.0 or better grade average. About 30 percent indicated instructor approval was essential, and 23 percent indicated principal approval was needed. In the trade cooperative programs, the tendency is to send forth only the best students.

5. Employer prerequisites. The main prerequisites were employer assurances of proper instruction and approval of the employer and his place of business by the program coordinator.

6. General characteristics. Based on schools offering cooperative programs and complete data, the following cooperative program characteristics emerge: (1) About 68 percent of the employers follow a mutually agreed-to training program. (2) All employers report an evaluation of the student. (3) In most programs, students do not evaluate employers. (4) Very few cooperative programs have a community advisory committee. (5) The schools had a mean of 2.2 cooperative program coordinators. (A little less than half of the schools had no program coordinator.) (6) The average number of students per coordinator was about twenty-seven. (7) The average employer had been a cooperative program participant for 5.5 years. (8) Most program coordinators visited employers once a month or less frequently. Many had no regular schedule of employer visits.

Instructor Assessment of Graduates

1. Percentage who would be recommended. The percentage of graduates or course completers that would be recommended for entry into the occupation studied ranged from less than 10 percent to more than 90 percent in the 400 T&I courses for which instructor assessments were available. The mean and median percentage of graduates recommended for entry into their field of study was 68 and 61 percent respectively. Apparently, instructors have misgivings about a great many graduates.

Vocational and comprehensive schools do not differ greatly on this measure.

2. Proficiency level objectives. About 52 percent of the instructors claimed that their course objective was to establish entry-level skills and know-how. Another 29 percent claimed their objective was to attain the proficiency level of an apprentice.

Miscellaneous Course Characteristics

1. Grade mixing. In about 46 percent of the courses, all grades met in one shop class. In 16 percent of the courses, each grade met in a separate shop class. The pattern was essentially the same for vocational and comprehensive schools.

2. Examination frequencies. The examination frequencies reported by the shop instructors were as follows: daily (16%), weekly (43%), monthly (27%), midterms (41%) and finals (61%).

3. Course changes. The most frequently instructor recommended course changes were: stricter course entry requirements (33%), improved shop tools and equipment (32%), major shop rehabilitation (20%), better relations with employers (9%), and improved vocational guidance (8%).

Graduates and Holding Power

1. Output of graduates. The 100 schools generated 38,500 graduates in a five year period. There was no evidence of a general increase in the trend of graduate output although some specific courses did show an increasing trend. The courses that contributed the greatest percentage of graduates were: auto mechanics (16%), machine shop (15%), electricity (11%), printing (9%), and drafting (8%). These five courses contributed about 60 percent of all T&I graduates.

2. Per course output of graduates. The average T&I course generates 10 graduates per year. Based on type of courses, the output ranges from a low of 4 per year (foundry) to 15 per year (auto mechanics).

3. Contribution to national manpower requirements. An anaiysis of the auto mechanics occupation indicates that auto mechanics vocational courses in all schools contribute between 1.5 and 2.0 percent of the estimated annual need. Vocational programs at the high school level are not presently a major source of fulfilling manpower requirements.

4. Course holding powers. Based on about 650 courses, the mean annual holding power of vocational courses is 89 percent. Thus, the attrition rate is 11 percent per year. Not all of those who drop a course drop out of schools. The attrition rate includes those who switched to other courses.

Schools show wide differences in course holding powers. The range was from less than 60 percent to more than 96 percent. Vocational and comprehensive schools do not differ significantly in mean course holding power. Type of course is not a major factor influencing course holding power.

Course Revisions

1. Availability of course outlines. About 95 percent of the 691 instructors claimed they had an approved course outline.

2. Extent of major course revision. According to principals, 58 percent of the T&I courses underwent some type of major revision in the past five years. Course instructor data indicated that a substantially greater percentage of the courses had undergone major revision.

3. Type of course revisions. The type of revisions most frequently reported were increase in manipulative skill requirements (62%), increase in theory content (73%), increase in use of reading materials (62%), increase in individual instruction (52%), and change to live shop work (33%).

Course Revision Resources

1. Use of methods related to curriculum revision. The schools reported use of the following methods in the indicated percentages: general advisory committees (40%), craft advisory committees (52%), follow-up surveys of graduates (50%), teacher curriculum committees (40%), local employment opportunity surveys (58%), regular program of local employer interviews (57%), interviews with graduates in the field (58%), consultation with state curriculum advisors (47%), and use of published curriculum guides (39%).

Comprehensive schools claim a wider range of resource use for curriculum review and revision.

2. Instructor as a revision resource. As seen by the instructors, the principal resource for curriculum revision is the instructor. About 70 percent indicated so.

Curriculum Supervision

1. Availability of curriculum supervisors. Twenty-five percent of the schools had neither a full-time nor a part-time curriculum supervisor. The median curriculum supervisor spends about 25 percent of his time in that function. Almost 40 percent of the comprehensive schools have no curriculum supervisors.

2. School policy regarding course outline. The policies reported were as follows: use optional with the instructor (14%), outline to be followed generally (76%), outline to be followed in detail (10%).

3. Instructor adherence to outline. The adherence claimed was as follows: one hundred percent adherence (25%), about seventy-five percent adherence (51%), about fifty percent adherence (18%), about twenty-five or less percent adherence (60%). Even where the school policy called for strict adherence to the course manual, only 20 percent of the instructors reported near 100 percent adherence to the manual. In general, adherence was greater where curriculum supervision was greater.

Correlation Analysis Highlights

1. Course holding power. The following variables were found to be related to course holding power at the one percent or better level of confidence:

- duration of course in years (inversely).
- mean course enrollment.
- index of teacher problems with students.

Of interest also are some of the variables that did not correlate significantly with course holding power. Included were:

- course examination frequency index.
- percentage of graduates recommended by instructor.
- number of course offerings in the school.
- intensity of course revision activity.
- school provision for exploratory programs.
- school provision for exceptional learners.
- total student enrollment.
- total vocational student enrollment.
- population of city served by the school.

2. Percentage of graduates recommended by instructors. The following variables were found significantly related with the percentage of graduates that instructors would recommend for entry into the occupation studied:

- percentage of graduates placed by instructor.
- duration of course in years.
- index of teacher problems with students.

Of interest also are some of the variables that did not correlate significantly with the percentage of graduates recommended:

- years of experience in teaching profession.
- years of formal education of the teachers.
- years of experience in occupation now teaching.
- relatedness of teacher's summer and part-time work.
- course admission requirements index.
- course holding power.
- school provision for exploratory programs.
- school provision for exceptional learners.
- total student enrollment.
- total vocational student enrollment.
- population of city served by the school.

3. Relatedness of graduate's first job to course studied. The following variables were found to be related to the relatedness of the graduate's first job to the course he studied, at the one percent or better level of confidence:

- duration of course in years.
- course admission requirements index.
- percentage of graduates recommended by instructor.
- percentage of graduates placed by instructor.

Of interest also are some of the variables that did not correlate significantly with relatedness of the first job. They included:

- mean course enrollment.
- course examination policy.
- intensity of course revision activity.
- sources of course revision influence.
- course holding power.
- number of course offerings in the school.
- school provision for exploratory programs.
- school provision for exceptional learners.
- school activity in adding and dropping courses.

4. Percentage of graduates that instructors claimed they placed. The following variables were found to be related to the percentage of graduates that instructors claimed they placed:

- course admission requirements index.
- percentage of graduates recommended by instructor.
- duration of course in years.
- total school enrollment (inversely).

Also of interest are the variables that did not correlate significantly with the percentage of graduates that instructors claimed they placed. They included:

- course holding power.
- course examination policy.
- intensity of course revision activity.
- mean course enrollment.
- number of course offerings in the school.
- school activity in adding and dropping courses.
- school provision for exploratory programs.
- school provision for exceptional learners.
- total vocational student enrollment.
- population of city served by the school.

The teacher variables that failed to show a significant correlation included:

- years of experience in teaching profession.
- years of formal education of the teachers.
- years of experience in occupation now teaching.
- relatedness of teacher's summer and part-time work.
- teacher claimed professional self-development.
- teacher claimed community organization affiliation.

SOME TENTATIVE RECOMMENDATIONS

The reader who has not already done so is urged to read the introductory remarks to the recommendations made in Chapter 2, page 2-62. They set forth the limitations that govern action recommendations made by researchers who lack the complete picture. The primary purpose of the recommendations is to draw attention to problem areas and to stimulate discussion.

Greater Use of Related Mathematics and Science

Of the comprehensive schools, 72 and 58 percent respectively do not offer related science and mathematics. The equivalent percentages for vocational schools are 42 and 32 percent. Available evidence, including data from this study, suggests that the principles of mathematics and science are more readily learned when related in meaningful ways to an occupation being studied. It is therefore recommended that school systems provide both related and non-related mathematics and science as alternatives for appropriate T&I courses. The questionable practice of insisting that non-college bound vocational students take their mathematics and science in the same form as college-bound academic program students stems largely from unverified claims by general educators as to the benefits to be derived. Properly constructed, related mathematics and science represents a weeding out of the irrelevant rather than a watering down of what is important. Those who are concerned about the effectiveness of vocational education will do well to support further research and development work in this area.

Research Related to Use of Week About Schedules

The finding that students on a week about schedule demonstrate significantly better grades than those on a weekly schedule is suggestive, not conclusive. Further research should be done to corroborate or refute the present findings. Such research needs to employ experimental designs which will control the inadvertent influence of other variables known to influence subject grade performance. It is quite possible that a differential influence of such variables accounted for the superiority of the week about schedule in the present study.

Greater Availability of Track Systems for Vocationals

Seventy-nine percent of the schools had no type of track system for vocational students. Consideration should be given to a minimum college preparatory track where enrollment numbers are sufficient to warrant such an alternative. Choice of a vocational curriculum should not close the door on a college decision later. Undoubtedly, it does so now. Chapter

3 provided data that shows there is a substantial percentage of college potential among vocational students. The track alternatives should be there for the qualified and interested students, even though they will always be a relatively small minority. It is also possible that more students will elect vocational programs if they realize that a college decision may yet be made within the framework of a vocational program.

Greater Use of Prevocational Exploratory and Orientation Programs

Only 38 percent of the schools had some type of exploratory shop programs. Also, a minority of the schools have a vocational course orientation program coupled with occupational information about the vocational fields. Quite possibly, it is this inadequate basis for decision-making that results in some students electing courses which they later find are not suitable to their capabilities and interests. In many schools, the student who makes a wrong choice is locked in. He can not switch to another course without the penalty of loss of credits, a disadvantaged late start in another course or even inability to graduate with his class. The school pressure is for him to stay with his first choice. That may account for the finding that 25 percent of the T&I course graduates claimed they did not obtain employment in their field of study because of lack of interest in that field.

A related recommendation is that the United States Office of Education provide research and development support for the development of an occupational orientation series from which schools could select appropriate units for their local use. Small school districts do not have the resources to develop such materials. Such standard orientation programs could be supplemented with local information about wage rates, opportunities and other matters.

Expansion of Vocational Choice via Diversified Occupations Program

The concept of diversified occupations should be re-examined to see if it provides a partial solution to the problem of increasing the range of occupations available to the would-be vocational student in the sch··ls with less than ten in-school shop courses. The concept is in line ... the recognition to increase work experience of high school level stu- ... during their high school period. It is quite possible that increased ...portunity to work and study will serve to increase course and school holding powers. It is also likely that a diversified occupations cooperative program may provide a partial solution to the problem of occupational training opportunity at different ability levels.

The specific recommendation to the United States Office of Education is that support be given for an intensive study of diversified occupations programs, including follow-up studies of graduates, to establish more completely the advantages and limitations of the concept.

Elimination of Four-year Vocational Courses

Despite the finding that course duration correlates significantly with the percentage of graduates that instructors are willing to recommend, the percentage that they claimed they placed and the relatedness of the graduate's first job to the course studied, it is recommended that four-year vocational courses be eliminated from secondary school vocational programs. Only 90 such courses, 12 percent of the total, were found in the schools surveyed, and 72 were in major city vocational schools. Sixty percent of the instructors of four-year courses recommended that their courses should start in a later grade. Many commented freely about the lack of student readiness in the ninth grade for vocational training.

Adequate Data Basis for New Course Additions

When 61 percent of the courses are added without a local employment opportunity study, and 70 percent of the courses are added without an assessment of student interest, it is appropriate to recommend that school districts be asked to justify new course additions with data rather than opinion. Job opportunity should be defined in terms of local employer or labor union willingness to provide graduates with a start in the occupations being considered for possible inclusion in the T&I program. It is not sufficient to borrow economic data which only tangentially answers the problem of job opportunity for high school vocational graduates.

Interviews with school principals revealed a tendency to want the "latest." A very large percentage wanted to add an electronics course because, as one of them put it, electronics was the coming thing. When asked if a local employment opportunity survey was found to justify adding the electronics course, virtually all admitted that no such survey had been done. Many instead cited the national growth in the field of electronics, apparently oblivious to the lack of mobility among vocational graduates.

Increased Output of Vocational Graduates

There must be an increase in vocational course offerings, enrollments and graduates if vocational education is to be a major supplier of entry-level trained manpower for skilled occupations. The present study, however, found a disturbingly high percentage of principals who were content not to add any further vocational courses. The majority of these were principals of comprehensive schools with an inadequate number and mix of T&I course offerings. Some had as few as three T&I courses and were willing to leave it that way. One can not imagine there will be much pressure for expansion where such attitudes prevail.

When the study finding that 25 percent of the principals did not want to add another course is generalized to the population of United States schools offering T&I courses, it is clear that there are some serious obstacles to vocational education growth, and that one such obstacle

is the school principal, particularly in comprehensive schools. Clearly, there must be a change of attitudes if vocational education is to move ahead in the comprehensive schools. What is not clear (at least, to the writer) is how such attitudes may be changed. Some powerful stimulus is needed to move such principals off their status quo.

6 THE T&I VOCATIONAL SHOPS AND RELATED DATA

INTRODUCTION

Relation to Resource Allocation

The most visible aspect of T&I vocational education is the hardware, i.e. the vocational shops and equipment. Under the impetus of the 1963 Vocational Education Act, large sums of money, relative to past expenditures, are being directed at extending and upgrading vocational education in the United States. A substantial share is going into hardware, i.e. renovation of shops, replacement of worn and obsolescent equipment, and new facility construction. As always, resources are limited, and must be allocated on some priority basis. Also, there are always differences of opinion about what is the best allocation of resources. Hardware, perhaps because of the high visibility factor, usually gets generous attention.

The main objective of the present chapter is to describe the pre-1963 Vo-Ed Act status of high school level, T&I vocational shops in the United States. The description will cover the following shop characteristics:

- Availability and adequacy of major shop equipment.
- Availability and adequacy of auxiliary facilities.
- Conditions essential for shop safety and efficiency.
- Overall ratings of shops by instructors.
- Miscellaneous shop characteristics of general interest.

The data herein presented should have a bearing on the resource allocation problem. It is, of course, no substitute for developing comparable data at state and local levels where resource allocation decisions have to be made. Indeed, it is to be hoped that the methods and findings herein discussed will stimulate state and local levels to undertake similar fact-finding to put resource allocation on a firm data basis.

Some Basic Questions

Some of the more basic questions for which the chapter provides data are as follows:

1. To what extent do T&I vocational shops have required major items of equipment? How adequate is the available equipment from the standpoint of sufficient numbers, operability and obsolescence? How comparable is the equipment to that used in industry?

2. To what extent do the shops have required auxiliary facilities, e.g. storage equipment, dust and fume ventilation, work station illumination and similar auxiliary items? How adequate are the auxiliary items that are available from the standpoint of quantity, design, physical condition and obsolescence?

3. How do the shops rate in terms of conditions particularly related to shop safety and efficiency, e.g. machine guarding, obstruction-free floor space, suitability of flooring and other such factors?

4. How do instructors rate their shops overall from the standpoint of having what is essential to attain the educational objectives? What are the most frequent reasons cited for unsatisfactory ratings?

5. How adequate are the shops in terms of space and equipment available for the largest classes, maintenance of equipment and availability of shop supplies?

6. How many shops are in need of major rehabilitation? How many years has it been since shops were last renovated?

About the Sample and the Data

A total of 741 T&I vocational shops in 100 vocational and comprehensive high schools provided the basis for the chapter data. Table 1 shows how those shops were distributed by type of school (vocational vs. comprehensive), gross geographic region (east vs. west of the Mississippi), and vocational enrollment (less than 300 vs. more than 300). Notice that 78 percent of the shops came from the East, 63 percent from vocational schools and 65 percent from schools with a vocational enrollment greater than 300. The distribution represents the sampling strategy discussed in Chapter 1.

TABLE 1. DISTRIBUTION OF SHOPS BY REGION, TYPE OF SCHOOL AND SCHOOL VOCATIONAL ENROLLMENT

TYPE OF SCHOOL	VOCATIONAL ENROLLMENT	EAST		WEST		U.S.	
		N	%	N	%	N	%
VOCATIONAL	<300	103	13.9	16	2.1	119	16.0
	>300	266	35.8	86	11.6	352	47.5
	ALL	369	49.7	102	13.7	471	63.5
COMPREHENSIVE	<300	105	14.1	36	4.8	141	19.0
	>300	105	14.1	24	3.2	129	17.4
	ALL	210	28.3	60	8.0	270	36.4
COMBINED	<300	208	28.0	52	7.0	260	35.0
	>300	371	50.0	110	14.8	481	64.9
	ALL	579	78.1	162	21.8	741	100.0

The 50 vocational schools in the sample generated a sample of 471 shops, whereas, the 50 comprehensive schools generated a sample of 276 shops. It can be argued that the vocational schools are overrepresented in the shop samples. The view taken here is that the sample correctly represents both types of schools because vocational schools have a greater number of shops per school than do comprehensive schools. In either case, there is no problem if there are no substantial differences in shop characteristics between the two types of schools. In the event that there are such differences, those who take the view that vocational schools are overrepresented may obtain a somewhat different estimate of United States population parameters by averaging the statistics obtained separately for the two types of schools.

The shop composition of the sample is shown in Table 2. Virtually all kinds of T&I shops are represented in various proportions. The percentage representation of shops in the sample approximates the percentage representation in the United States population of T&I shops. All shops in the 100 schools surveyed were included. Six types of shops (automobile mechanics, machine shop, drafting, electricity, printing and electronics) comprise 55.8 percent of the total sample. This is not believed to be an overrepresentation.

The questionnaire used to generate the data is shown in Appendix Section 1. The reader is urged to examine the questionnaire so that he will better understand its limitations. Several general comments are appropriate:

1. The great majority of shop instructors did conscientious and time-consuming jobs of completing the questionnaire. Some did not. About 2 percent of the questionnaires were dropped from the analysis because content inspection suggested that the instructors did not take their task seriously, e.g. large number of items left blank, etc.

2. Much of the data was originally of an opinion nature. The shop is described through the eyes of the shop instructor. The evaluations by the latter were made in the absence of established standards of what constitutes major equipment requirements, adequacy of equipment and facilities and so on. They are thus subject to the influence of instructor attitudes, biases and even emotional states. Hopefully, the large number of shops sampled cancelled out the non-objective excesses committed by individual instructors.

3. School principals provided data on years since last shop renovation as well as assessments of adequacy of shop space and equipment. When presented, the source (principal) is identified to distinguish such data from that obtained from shop instructors.

TABLE 2. DISTRIBUTION OF SHOPS BY TYPE OF SCHOOL AND UNITED STATES SAMPLE OF 100 SECONDARY SCHOOLS

TYPE SHOP	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Auto mechanics	93	12.6	52	11.0	41	15.2
Auto body repair	16	2.2	12	2.5	4	1.5
Aircraft mechanics	12	1.6	12	2.5	0	0.0
Air conditioning/heating	10	1.3	7	1.5	3	1.1
Building trades	13	1.8	3	0.6	10	3.7
Carpentry	31	4.2	16	3.4	15	5.6
Commercial art	19	2.6	15	3.2	4	1.5
Drafting	64	8.6	39	8.3	25	9.3
Electricity	56	7.6	38	8.1	18	6.7
Electronics	51	6.9	35	7.4	16	5.9
Food trades	17	2.3	10	2.1	7	2.6
Foundry	5	0.7	5	1.1	0	0.0
Machine shop	92	12.4	50	10.6	42	15.6
Masonry	12	1.6	4	0.8	8	3.0
Mill/cabinetry	39	5.3	27	5.7	12	4.4
Metal trades	11	1.5	5	1.1	6	2.2
Painting/decorating	7	0.9	6	1.3	1	0.4
Plumbing	11	1.5	11	2.3	0	0.0
Printing	57	7.7	34	7.2	23	8.5
Radio/television	21	2.8	16	3.4	5	1.9
Sheet metal	32	4.3	23	4.9	9	3.3
Shoe repair	5	0.7	4	0.8	1	0.4
Tailoring	6	0.8	2	0.4	4	1.5
Upholstery	5	0.7	4	0.8	1	0.4
Welding	33	4.5	27	5.7	6	2.2
Other than above	23	3.0	14	3.0	9	3.3
All shops	741	-	471	-	270	-

SHOP CHARACTERISTICS: THE UNITED STATES FINDINGS

Major Shop Equipment

The shop instructors were asked to inventory the major items of shop equipment in their shops, identifying the types and quantities. Secondly, they rated each type listed in terms of whether it was satisfactory or not, indicated the reason for an unsatisfactory rating and judged whether the equipment was comparable to that used in industry. Lastly, they listed additional types and quantities of equipment needed by the shop. Consult Question 1 of the Shop Data Form, Appendix Section 1, for how the above information was obtained and recorded.

The above assessments permitted the calculation of three descriptive measures:

1. Availability of major shop equipment. For each shop, the available number of items of major shop equipment was expressed as a percentage of the sum of the available number plus the number of additional items of equipment required in the opinion of the instructor. The assumption was that what they had plus what they claimed was needed constituted the best estimate of what was required in total.

2. Adequacy of major shop equipment. For each shop, the number of kinds of major shop equipment rated satisfactory was expressed as a percentage of the equipment available. Equipment could be rated unsatisfactory for such specific reasons as: (1) insufficient number, (2) poor design, (3) poor operating condition or (4) obsolescence.

3. Comparability of major shop equipment. For each major type of equipment listed, the instructor indicated whether it was comparable to that used in industry. Such judgments provided the basis for a percentage comparability score for each shop, i.e. the number of items judged to be comparable was expressed as a percentage of the total number of listed items.

Table 3 tells the story of these three measures. The upper portion of the table shows how the shops and schools were distributed in percentage class intervals. The lower portion gives the United States mean percentages.

•How much of required major shop equipment was available? The United States mean percentage for all shops is 84.7. About 68 percent of the shops had 81 percent or more of required major shop equipment. Fully 75 percent of the schools had a mean equipment availability percentage of 81 percent or more. There is a sprinkling of shops with very low scores. Some, if not most of these low values are cases of instructors who were less than energetic in listing their available equipment but were enthusiastic in terms of listing their equipment needs. The measure is susceptible to distortion by this type of incomplete listing. The school differences, however, suggest that there are substantial shortages in all or most shops of some schools. Twenty-five

TABLE 3. STATUS OF MAJOR SHOP EQUIPMENT. Consult text for definitions of the three measures

PERCENT CLASS INTERVALS	MAJOR SHOP EQUIPMENT											
	AVAILABILITY				ADEQUACY				COMPARABILITY			
	SHOPS		SCHOOLS		SHOPS		SCHOOLS		SHOPS		SCHOOLS	
	N	%	N	%	N	%	N	%	N	%	N	%
91 - 100	283	47.0	26	26	251	37.8	17	17	296	48.0	23	23.2
81 - 90	129	21.4	49	49	107	16.1	28	28	108	17.5	33	33.3
71 - 80	73	12.1	16	16	71	10.7	21	21	60	9.7	27	27.3
61 - 70	53	8.8	9	9	49	7.4	14	14	54	8.7	11	11.1
51 - 60	38	6.3	-	-	46	6.9	10	10	21	3.4	2	2.0
41 - 50	13	2.1	-	-	45	6.8	7	7	20	3.2	3	3.0
31 - 40	8	1.3	-	-	33	5.0	3	3	19	3.0	-	-
21 - 30	1	0.2	-	-	28	4.3	-	-	14	2.3	-	-
11 - 20	2	0.4	-	-	11	1.7	-	-	4	0.7	-	-
0 - 10	2	0.4	-	-	22	3.4	-	-	21	3.3	-	-
TOTAL	602		100		663		100		617		99	
MEAN	84.7		-		75.0		-		81.2		-	
STD. DEV.	17.0		-		27.1		-		24.9		-	

percent of the schools had a mean equipment availability percentage less than 81.

• How satisfactory was the available shop equipment? The United States mean percentage for all shops was 75.0. Stated differently, the average shop had but 75 percent of available types of equipment rated satisfactory. Only 37.8 percent of the shops scored 91 percent or better satisfactory equipment. Twenty percent of the shops scored 50 percent or less satisfactory equipment. (The reader is reminded that the measure reflects types of equipment, not necessarily individual units of any given type.) The school differences suggest the problem is not limited to individual shops within a multi-shop school. Fully 20 percent of the schools had a mean percentage satisfactory equipment score of 60 percent or less.

The reasons checked for rating equipment unsatisfactory are indicated below in the form of mean percentages for all shops:

• Poor operating condition	10.0%
• Obsolete/obsolescent	7.3
• Insufficient quantity	4.1
• Poor design	2.9

The major problem seems to be old, improperly operating equipment. Individual shop percentages on the above vary greatly, with some shops

running as high as 100 percent unsatisfactory equipment because of poor operating conditions. See Appendix Section 6 for a frequency distribution breakdown.

• How comparable was the shop equipment to that used in industry? The United States mean percentage for all shops was 81.2. Stated otherwise, the average shop had 81.2 percent of available types of equipment judged to be comparable to that used in industry. The distribution of the shops on this measure indicates 65 percent of the shops scored 80 percent or better on comparability. The school distribution on the measure suggests that most schools have a uniform high percentage of equipment comparability across their shops. The differences between schools, as may be expected, are greater than the differences within schools.

Auxiliary Shop Facilities

Auxiliary shop facilities include all those facilities other than major shop equipment which instructors judge are essential to a safe and efficient shop, e.g. ventilation, storage facilities, movable electrical outlets, dust and fume exhausts and so on.

Shop instructors were asked to consider each item on a master list of such facilities and to indicate whether or not it was available. If not available, a further indication of needed or not needed was required. If available, they were to indicate whether it was satisfactory or unsatisfactory for reasons of: (1) too few, (2) poor design, (3) poor condition or (4) obsolescence. The resulting responses permitted the calculation of two general descriptive measures.

1. Availability of needed auxiliary equipment. For each shop, the total number of items available was expressed as a percentage of total items required, i.e. those available plus those not available but needed according to the instructor.

2. Adequacy of available equipment. For each shop, the total number of items marked available and satisfactory was expressed as a percentage of the total number of items marked available.

Before considering these measures, a look at the list of auxiliary facilities will improve understanding. Table 4 lists the items and shows the response percentages to each item. The items range from facilities of great importance to certain shops, e.g. dust and fume exhausts, to facilities of convenience, e.g. student wash-up facilities.*

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* The measures described in this section do not take into account the relative importance of the items for shop objectives. It was felt beyond the resources of the study to make such judgments. Earlier recognition of the problem could have resulted in tapping instructor judgments.

TABLE 4. AVAILABILITY AND ADEQUACY OF AUXILIARY SHOP FACILITIES.
The table provides the response percentages for all shops combined*

NOT AVAILABLE		AUXILIARY SHOP FACILITIES	AVAILABLE & SATISFACTORY	UNSATISFACTORY	UNSATISFACTORY BECAUSE			
NOT NEEDED	NOW NEEDED				TOO FEW, LITTLE	POOR DESIGN	POOR CONDITION	OBSOLETE
1.9	1.6	1. Artificial general illumination	79.4	20.6	9.3	8.4	0.9	2.0
14.1	12.9	2. Work station spot illumination	65.6	34.4	20.2	9.6	2.0	2.6
1.1	1.6	3. Heat to all areas of shop	83.5	16.6	5.4	8.2	1.2	1.8
1.3	4.0	4. Ventilation to all areas of shop	79.5	20.4	10.1	8.5	1.2	0.6
19.5	16.6	5. Fume and dust exhaust fans or ducts	67.7	32.3	16.5	11.0	2.8	2.0
29.7	22.3	6. Sound absorbing walls and ceilings	64.8	35.2	8.2	18.4	3.3	5.3
1.9	2.6	7. Fixed shop electrical outlets	77.3	22.7	18.1	2.2	1.6	0.8
41.2	9.0	8. Movable shop electrical outlets	70.3	29.7	25.4	2.3	1.0	1.0
7.1	10.8	9. Raw material storage facilities	56.6	43.2	31.2	7.8	2.0	2.2
10.1	15.6	10. Processed material storage facilities	54.9	45.1	35.6	5.7	1.3	2.5
27.0	16.4	11. Adult evening class material storage	53.4	46.6	39.7	4.2	0.6	2.1
4.8	15.0	12. Shop library	66.8	33.1	23.7	4.3	4.2	0.9
4.6	5.4	13. Pupil wash-up facilities in shop	77.7	22.3	10.8	6.2	3.2	2.1
13.0	15.4	14. Drinking fountain in shop	85.5	14.6	3.8	5.2	3.6	2.0
2.7	6.2	15. Toilet facilities in or near shop area	87.6	12.4	5.3	3.3	3.3	0.6
11.6	9.1	16. Power equipment main switch in shop	91.6	8.4	3.5	3.2	0.7	0.9
22.6	21.4	17. Project display area in shop	70.3	29.7	21.6	5.4	1.4	1.4
16.9	28.4	18. Adjoining rooms for shop "theory"	76.1	23.9	11.4	8.7	1.1	2.7
25.4	8.4	19. Shop gas and air outlets	81.6	18.4	11.2	4.8	1.7	0.7
42.3	22.5	20. Safety zones painted around machines	69.7	30.3	16.6	4.3	5.2	4.3
15.7	4.4	21. Safety guards on machines	91.6	8.4	3.6	2.1	2.3	0.4
41.4	21.4	22. Slip-proof flooring for machines	73.8	26.2	15.4	2.7	2.3	5.9
1.4	6.5	23. Blackboard for instruction	83.4	16.6	9.9	2.7	2.9	1.1
21.5	9.7	24. Fireproof receptacles for inflammables	89.0	11.0	7.8	1.8	0.7	0.7
27.6	11.4	25. Metal cabinet for finishing supplies	84.3	15.7	11.8	0.5	1.6	1.6
15.9	14.6	26. First aid supplies in shop	79.9	20.1	15.4	1.5	2.1	1.1
6.5	4.8	27. Fire fighting equipment in shop	90.7	9.3	8.2	1.0	0.2	0.0
20.1	21.6	28. Space for large project assembly	67.2	32.8	26.4	4.3	0.5	1.6
4.3	17.1	29. Space for group instruction & testing	80.7	19.3	12.9	5.5	0.2	0.7
42.9	14.2	30. Machines color-coded for safety	76.4	23.6	13.0	2.4	4.7	3.5
5.4	15.7	31. Storage facility for pupil books, etc.	74.8	25.2	18.6	2.9	2.2	1.5
2.7	5.6	32. Basic instructional manuals	86.6	13.4	10.6	0.6	1.1	1.1
11.7	23.5	33. Shop instructor office area	74.8	25.2	12.4	9.5	2.3	1.1
14.0	8.8	34. Personal protective equipment (student)	85.3	14.7	12.7	0.6	1.0	0.4
11.0	19.3	35. Film, slide, or overhead projector	83.0	17.0	15.1	0.4	0.6	0.8
74.7	14.2	36. Time card clock	57.8	42.2	25.0	1.6	0.0	15.6
16.8	21.4	37. Individual project storage space	68.9	31.1	24.0	4.0	1.5	1.7
3.3	3.0	38. Hand tools	83.5	16.5	13.6	0.6	2.0	0.3
32.8	7.2	39. Material handling equipment	82.5	17.5	12.5	1.9	1.1	1.9

* Order of presentation is as appeared in questionnaire. No order of importance is implied.

•What percentage of the required auxiliary facilities were available in the shops? Table 5 indicates a mean percentage of 84.8 for all shops. Thus, the average shop had 84.8 percent of the facilities that were judged necessary by the instructor. The percentages for individual shops varied widely. The upper section of Table 5 shows how the shops were distributed on the measure. About 47 percent of the shops had 91 percent or better of needed auxiliary facilities. About 18 percent had 70 percent or less of what instructors felt was necessary.

The school distribution on the same measure indicates that 43 percent of the schools had a mean score for all shops of 81 percent or better. At the low end, 30 percent of the schools had a score of 70 percent or less, indicating substantial school differences. This is to be expected. Schools lacking funds to provide such facilities are likely to reflect that state of affairs in all of their shops. The problem may be administrative attitudes.

Table 4 indicates the percentages of shops that claimed they needed each of the listed facilities.

•What percentage of the facilities that were available were rated satisfactory by the instructors? Table 5 indicates a mean percentage of 76.5 for all shops. The distribution of the individual shop percentages

TABLE 5. AVAILABILITY AND ADEQUACY OF SHOP AUXILIARY FACILITIES.
Consult text for definition of the two measures

PERCENT CLASS INTERVALS	REQUIRED AUXILIARY FACILITIES							
	AVAILABILITY				ADEQUACY			
	SHOPS		SCHOOLS		SHOPS		SCHOOLS	
	N	%	N	%	N	%	N	%
91 - 100	342	47.0	27	27	235	32.0	8	8
81 - 90	145	19.9	42	42	142	19.3	35	35
71 - 80	111	15.3	17	17	113	15.5	27	27
61 - 70	72	9.8	11	11	93	12.6	14	14
51 - 60	32	4.4	3	3	64	8.8	13	13
41 - 50	13	1.7	-	-	28	3.9	3	3
31 - 40	10	1.3	-	-	26	3.6	-	-
21 - 30	1	0.1	-	-	15	2.0	-	-
11 - 20	2	0.3	-	-	6	0.8	-	-
0 - 10	-	-	-	-	11	1.5	-	-
TOTAL	728		100		733		100	
MEAN	84.8		-		76.5		-	
STD. DEV.	15.6		-		21.7		-	

clearly indicates a large number of shops have 70 percent or less of their auxiliary equipment rated unsatisfactory. What reasons were given for such ratings? The following mean percentages were generated for all shops:

• Insufficient amount or quantity	14.1%
• Poor design	4.5
• Poor operating condition	1.8
• Obsolete/obsolescence	1.3

What they have, they don't have enough of--that seems to be the major problem. The reasons given for unsatisfactory ratings will, of course, vary widely with the type and conditions of the shops as well as instructor standards of what is satisfactory.

Miscellaneous Shop Ratings

Shop instructors were asked to rate 12 shop conditions related to safety and efficiency, and in addition, provide an overall rating of the shop's capacity to meet its educational objectives. These ratings generated two measures:

1. Shop safety and efficiency index. The applicable conditions were rated either excellent (3), satisfactory (2) or unsatisfactory (1). The mean of the individual ratings provides a single shop score.

2. Overall rating of shop facility. The rating of each shop was based on a four point scale: excellent (4), satisfactory (3), inadequate (2) and very poor (1). Ratings of inadequate or very poor were to be explained with reasons why such ratings were given.

In addition to the above, instructors indicated whether their shops were adequate in terms of:

- Space available for largest class.
- Equipment available for largest class.
- Repair and maintenance of equipment.
- Quantity of shop materials and supplies.

•How were the shops rated by the instructors on the 12 conditions related to shop safety and efficiency? Table 6 provides the percentage of shops rated excellent, satisfactory and unsatisfactory on each condition.

On each rated condition, the majority of shops received satisfactory or excellent ratings. However, there were substantial percentages of shops with unsatisfactory ratings on the conditions rated. The conditions most frequently cited as unsatisfactory were as follows:

• Location of storage facilities	40.2%
• Flexibility of shop for major changes	37.7
• Sufficient work stations for large classes	28.7
• Obstruction free condition of floor space	24.7
• Adequate width of main aisles	20.6

The main picture that emerges is one of shops with inadequate space and facilities to accommodate the growth in pupil enrollment that has taken place since the shops were built. About 47 percent of the shops are over 20 years old. The growth in number of pupils has resulted in congestion and other inadequacies that border on the hazardous in many shops. The congestion and storage problem is further confirmed by the percentage of shops rated unsatisfactory on the following factors:

•Evening classes storage facilities	46.6%
•Project material storage facilities	45.1
•Raw material storage facilities	43.2
•Space for large project assembly	32.8
•Group project display areas	29.6

The space inadequacies influence and limit the type of work done in many shops. As one instructor put it, they were building vanity tables when they should have been building store display furniture and counters. The vanity tables fitted conveniently under the work station benches.

Further evidence of lack of space is provided by the estimates of principals that 28 percent of the shops were overcrowded* and that 32 percent of the shops were in need of major renovation or remodeling.

TABLE 6. SHOP INSTRUCTOR RATINGS OF CONDITIONS RELATED TO SHOP SAFETY AND EFFICIENCY. The mean rating is based upon weights of 3, 2 and 1 respectively for ratings of excellent, satisfactory and unsatisfactory

CONDITIONS RELATED TO SHOP SAFETY AND EFFICIENCY	INSTRUCTOR RATINGS*						MEAN CONDITION RATING
	EXCELLENT		SATIS-FACTORY		UNSATIS-FACTORY		
	N	%	N	%	N	%	
1. Shop location relative to other classrooms	212	29.8	394	55.4	105	14.8	2.15
2. Unobstructed view of shop (instructor)	248	34.2	346	47.7	132	18.2	2.16
3. Shop flexibility for major changes	126	18.0	310	44.3	264	37.7	1.80
4. Obstruction free condition of floor space	153	21.7	380	53.8	173	24.5	1.97
5. Grouping of equipment into activity groups	152	23.2	410	62.7	92	14.1	2.09
6. Basic layout of shop equipment	160	23.2	425	61.7	104	15.1	2.08
7. Location of storage facilities	114	15.9	314	43.9	288	40.2	1.76
8. Distance between machinery or equipment	121	18.7	403	62.3	123	19.0	2.00
9. Width of main aisles	135	19.7	408	59.6	141	20.6	1.99
10. Suitability of shop flooring	182	25.3	395	54.9	142	19.7	2.06
11. Sufficiency of work station	142	19.8	370	51.5	206	28.7	1.91
12. Adequacy of machine guarding/safety devices	156	24.4	429	67.1	54	8.5	2.16

* Instructors rated only items applicable to their shops.

* About 8 percent of the shops were rated by principals as having excess space, whereas 64 percent were rated as being satisfactory from a total space standpoint.

Table 7 provides a distribution of the mean shop safety and efficiency ratings for both shops and schools. The mean rating of the latter was the average of individual shop mean ratings.

Sixty percent of the schools had a mean shop rating of less than 2.0, the equivalent of a satisfactory rating for all shops. About 48 percent of the shops had a mean rating of less than satisfactory. The data indicates widespread unsatisfactory ratings of schools and shops on factors related to shop safety and efficiency. Many of the auxiliary shop facilities reported to be lacking or inadequate are equally important from a safety and efficiency standpoint as the conditions specifically grouped under that heading in the questionnaire.

TABLE 7. DISTRIBUTION OF SHOPS AND SCHOOLS ON MEAN RATING FOR SAFETY AND EFFICIENCY. The mean rating is based upon weights of 3, 2 and 1 respectively for ratings of excellent, satisfactory and unsatisfactory

MEAN RATING CLASS INTERVALS	SAFETY & EFFICIENCY RATING DISTRIBUTION			
	SHOPS		SCHOOLS	
	N	%	N	%
3.0	23	3.2	0	0.0
2.5-2.9	104	14.3	4	4.0
2.0-2.4	249	34.2	36	36.0
1.5-1.9	276	37.9	55	55.0
1.0-1.4	77	10.6	5	5.0

•How were the shops rated overall? Table 8 provides the data.

Seventy-two percent of the shops received an overall rating of satisfactory or excellent. On the negative side, 28 percent received an overall unsatisfactory rating. The lower portion of the table gives the percentage of the six most frequently cited reasons for unsatisfactory ratings. Inadequate storage space and inadequate major equipment were most frequently cited.

Poor overall physical condition was also mentioned frequently. Had there been a check list of reasons, the percentages associated with the reasons for overall unsatisfactory ratings would undoubtedly have been higher. The requirement to write in explanations for unsatisfactory ratings tends to diminish the number of reasons cited.

•How were the shops rated by the instructors on: (1) adequacy of space for the largest class, (2) adequacy of equipment for the largest class, (3) adequacy of equipment maintenance and (4) adequacy of shop materials? Table 9 gives the percentage of shops rated inadequate on each of the four factors.

TABLE 8. OVERALL SHOP RATINGS GIVEN BY SHOP INSTRUCTORS; ALSO REASONS CITED FOR INADEQUATE OR POOR RATINGS. Multiple reasons were cited by instructors

OVERALL SHOP RATINGS AND REASONS FOR POOR RATINGS	ALL SHOPS	
	N	%
1. Excellent	159	22.1
2. Satisfactory	362	50.2
3. Inadequate	177	24.5
4. Very poor	23	3.2
REASONS CITED FOR POOR OR INADEQUATE RATINGS	N	%
•Inadequate storage space	86	46.2
•Inadequate equipment	73	39.2
•Poor physical condition	53	28.2
•Student overcrowding	31	16.7
•Inefficient area layout	13	7.0
•Additional facilities needed	13	7.0

Almost 40 percent of the shops have inadequate space and equipment for their largest class. This confirms the general impression gained from ratings of auxiliary facilities and from factors related to shop safety and efficiency. About 25 percent of the shops were rated inadequate from the standpoint of equipment maintenance and repair. While instructors are normally responsible for maintenance and repairs within their capability, some maintenance and repair servicing requires the use of outside sources. Presumably, the data reflects that type of servicing. About 22 percent of the shops reported inadequate shop raw materials and supplies. The problem is both quantitative as well as qualitative. Many instructors complained about shortages of raw materials which influenced the kinds of shop projects that could be undertaken. Others were dissatisfied with the kind of raw material that was supplied. The practice of soliciting raw material sources in the community for free donations is not uncommon in small schools located in small communities. Shortages have stimulated instructors to be resourcefu

TABLE 9. PERCENTAGE SHOPS RATED INADEQUATE ON SPACE AND EQUIPMENT FOR LARGEST CLASS, EQUIPMENT MAINTENANCE AND SHOP MATERIALS

MISCELLANEOUS INSTRUCTOR RATINGS	INADEQUATE	
	N	%
1. Adequacy of shop area for largest class	286	39.4
2. Adequacy of shop equipt. for largest class	287	39.5
3. Adequacy of equipment maintenance	183	25.4
4. Adequacy of shop materials	69	22.1

Miscellaneous Shop Related Information

Table 10 provides miscellaneous shop related information obtained from instructors and principals.

Several comments can be made. The average number of students per class (18.9) and the number in the largest class (21.2) are very close, indicating that the ratings of adequacy of space and equipment for the largest class (Table 9) may also apply for the average size class for many shops--namely, that there is a substantial space and equipment lack in as high as 40 percent of the shops.

About 30 percent of the shops do not have an annual shop budget. This may account for part of the inadequacy problem of shop equipment and facilities. Without a budget, the shop instructors are required to submit requests for approval of individual shop expenditures. The procedure of individual item approval virtually assures that some needs do not get submitted as requests and some requests do not get approved. Without a rational budget for repair and replacement, there is most likely to be an accumulation of shortages and deficiencies.

TABLE 10. MISCELLANEOUS SHOP RELATED DATA DERIVED FROM SHOP INSTRUCTORS AND PRINCIPALS. Asterisked data was provided by school principals

MISCELLANEOUS SHOP RELATED DATA	UNITED STATES		
	N	MEAN	S.D.
1. No. day classes using shop daily	719	3.3	4.7
2. No. day students per class (average)	721	18.9	6.8
3. No. day students in largest class	718	21.2	7.8
4. No. work stations in shop	687	22.2	13.2
5. No. periods of daily shop use	720	6.5	3.2
6.* No. hours of daily shop use	598	6.0	0.6
7.* No. hours of daily shop use, adult education	405	2.9	1.3
8. No. instructors using shop	731	1.5	1.0
9.* No. years since last renovation	448	9.0	7.5
PERCENTAGES GIVEN FOR AFFIRMATIVE ANSWERS	**N**		**%**
10.* Major shop renovation needed	155		32.1
11.* Major shop equipment available	557		91.0
12. Shop used for adult evening classes	201		64.2
13. Shop used for MDTA course	26		8.9
14. Shop has annual budget	492		70.8

(See Appendix Section 6 for comparable data by type of shop.)

About one-third of the shops are not used for adult evening classes. One can not say for certain that this represents an inefficient use of facilities. There may be no demand for evening courses of a certain kind in some communities. The reported lack of facility use for evening classes does seem high, however, in view of the need for skilled craftsman in most communities today.

Based on the assessments of principals, 91 percent of the shops have all the major shop equipment required. This clearly contradicts the assessment of instructors. About 32 percent of the shops rated by the instructors had less than 80 percent of required major equipment. The contradiction reemphasizes the opinion nature of the data. It is understandable that principals and instructors may have different opinions on what is lacking and inadequate. One tends to see things within the framework of available money; the other sees things in terms of his shop objectives. In this respect, it is all the more significant that 28 percent of the shops were overcrowded in the opinion of principals.

Based on the assessments of principals, about 32 percent of the shops are in need of major renovation or rehabilitation. Seventeen percent of the shops, with a mean age of 8 years have never undergone major renovation. Eight percent have not undergone renovation within twenty-four years. Table 11 shows how the shops are distributed in terms of years since last major shop renovation.

TABLE 11. SHOP DISTRIBUTION IN TERMS OF YEARS SINCE LAST MAJOR SHOP RENOVATION

YEARS SINCE LAST MAJOR RENOVATION										
YEARS	0-2	3-5	6-8	9-11	12-14	15-17	18-20	21-23	≥24	NEVER
N	93	136	77	74	52	35	15	6	53	114
%	14.2	20.8	11.8	11.3	7.9	5.3	2.3	0.9	8.1	17.4

The data on renovation needs, and years since last renovation confirm the general picture revealed by unavailable or inadequate major equipment and auxiliary facilities. While pupil enrollments have been growing and shop utilization has approached the maximum; repair, replacement and renovation have not kept pace.

SHOP CHARACTERISTICS: VOCATIONAL AND COMPREHENSIVE SCHOOLS

•How do vocational and comprehensive schools compare in terms of the shop characteristic variables? Table 12 provides the data.

There are no substantial differences between the two types of schools in terms of the major shop measures, i.e. availability and adequacy of major shop equipment, comparability of shop equipment to that found in industry, availability and adequacy of auxiliary shop facilities, instructor ratings of shop safety and efficiency factors and lastly the instructors' overall rating of shops. The slight differences that do exist favor the shops in the vocational schools.

Of variables 8 through 10 in Table 12 only one showed a difference greater than five percent. A greater percentage of comprehensive school shop instructors felt their shop materials and supplies were adequate than those from vocational schools (84 vs. 74 percent). Differences in the percentage of instructors who felt the shop area, shop equipment and equipment maintenance was adequate were minor.

TABLE 12. COMPARATIVE DATA ON T&I SHOP VARIABLES FOR VOCATIONAL AND COMPREHENSIVE SCHOOLS

SHOP VARIABLES	TYPE OF SCHOOL					
	VOCATIONAL			COMPREHENSIVE		
	N	MEAN	S.D.	N	MEAN	S.D.
Major Shop Equipment: Availability	392	85.5	16.4	210	83.2	17.8
Major Shop Equipment: Adequacy	427	76.4	26.4	236	72.4	28.5
Major Shop Equipment: Comparability	397	82.2	24.6	220	79.4	25.3
Auxiliary Facilities: Availability	459	84.6	15.7	269	85.1	15.5
Auxiliary Facilities: Adequacy	464	77.1	21.6	269	75.5	22.3
Safety and Efficiency Rating	463	1.96	0.45	266	1.98	0.46
Instructor Overall Rating	456	2.90	0.77	265	2.94	0.76
Adequacy of Shop Area: Largest Class	271	58.9	-	169	63.5	-
Adequacy of Shop Equipment	280	61.0	-	159	59.6	-
Adequacy of Equipment Maintenance	344	75.6	-	193	72.8	-
Adequacy of Shop Materials	165	73.5	-	78	83.9	-
No. Years Since Last Renovation	423	11.8	18.0	235	10.2	11.0
Major Renovation Needed	106	38.6	-	42	25.2	-
Shop Has Annual Budget	313	71.5	-	179	69.6	-

For the average shop in vocational schools, it was about 12 years since the last major shop renovation versus 10 years for shops in comprehensive schools. The difference is reflected in the percentage of shops in need of major renovation as judged by school principals. Vocational school principals claimed 38 percent of their shops needed renovation. The comprehensive school principals claimed 25 percent of their shops were in need of major renovation.

The general picture that emerges is that the two schools are not too different in terms of major shop characteristics, e.g. availability and adequacy of equipment and shop facilities, as reported by shop instructors. They are different in years since last shop renovation and need for such renovation as reported by principals, and the difference favors the comprehensive schools. The data does not, however, support the conclusion that the shop equipment, facilities and general environment are greatly different in the two types of schools.

CORRELATIONAL ANALYSIS

Shop Variable Intercorrelations

The shop variable intercorrelation coefficients are shown in Table 13. The general pattern of significant correlation coefficients indicates, as one might expect, that shops rated high on one characteristic by their instructors tend to be rated high on other characteristics. For example, the availability of major shop equipment correlated .33 with the instructors' overall ratings of their shops. However, the lack of correlation is also impressive. It indicates, for example, that some shops may have available all of the needed major shop equipment, yet fall short in terms of needed auxiliary facilities as factors related to

TABLE 13. INTERCORRELATIONS OF SHOP VARIABLES DERIVED FROM T&I TEACHER REPORTED DATA

	VOCATIONAL SHOP VARIABLE INTERCORRELATIONS	1 MAJOR SHOP EQUIPMENT AVAILABLE	2 MAJOR SHOP EQUIPMENT ADEQUACY	3 MAJOR SHOP EQUIPMENT COMPARABLE TO IND.	4 AUXILIARY FACILITIES AVAILABLE	5 AUXILIARY FACILITIES ADEQUATE	6 SAFETY AND EFFICIENCY RATING	7 OVERALL RATING
1	Major Shop Equipment Available	-	.07	.20**	.18**	.24**	.12**	.33**
2	Major Shop Equipment Adequacy	598	-	.12**	.07	.13**	.09*	.13**
3	Major Shop Equipment Comparable to Industry	557	624	-	.14**	.18**	.11**	.18**
4	Auxiliary Facilities Available	597	665	622	-	.36**	.33**	.37**
5	Auxiliary Facilities Adequate	597	665	622	733	-	.46**	.42**
6	Safety and Efficiency Rating	602	671	627	733	733	-	.56**
7	Overall Rating	586	652	610	716	716	721	-

** Significant at .01 level of confidence

shop safety or efficiency. Thus, a shop rated high on one shop characteristic, such as equipment availability, does not necessarily rate high on another characteristic, such as adequacy of auxiliary facilities. This is interpreted as further evidence that the shop instructors made appropriate discriminations in their assessments.

Shop Variable Correlations with Vocational Outcomes

• Are the characteristics of the shops in which the graduates worked and learned related to the occupational experiences of the graduates? Table 14 provides the correlation data.

TABLE 14. CORRELATIONS BETWEEN SHOP VARIABLES AND 1962 DIRECT TO WORK VOCATIONAL GRADUATE OUTCOME VARIABLES

	VOCATIONAL SHOP VARIABLE CORRELATIONS	1962 VOCATIONAL GRADUATE OUTCOMES								
		1 TIME TO FIRST FULL-TIME JOB	2 RELATEDNESS FIRST JOB	3 SATISFACTION FIRST JOB	4 INITIAL EARNINGS	5 RELATEDNESS PRESENT JOB	6 SATISFACTION PRESENT JOB	7 PRESENT EARNINGS	8 PERCENTAGE EARNING INCREASE	9 EMPLOYMENT SECURITY
1	Major Shop Equipment Available	-.02 1030	.01 973	-.03 975	-.02 971	.01 967	.00 966	.03 970	.03 923	-.03 957
2	Major Shop Equipment Adequacy	.00 1134	-.01 1070	-.04 1075	-.06* 1072	-.01 1063	-.00 1066	.01 1072	.04 1016	-.03 1054
3	Major Shop Equipment Comparable to Industry	.01 1001	-.01 944	-.01 947	-.07* 947	.02 936	.01 939	.00 945	.05 895	.02 927
4	Auxiliary Facilities Available	-.05 1219	.04 1150	-.03 1157	.04 1151	.03 1143	.02 1148	.11** 1153	.07* 1090	.01 1136
5	Auxiliary Facilities Adequate	.01 1222	-.00 1151	-.00 1158	.01 1153	-.01 1144	.04 1149	.04 1155	.02 1092	.00 1138
6	Safety and Efficiency Rating	.01 1218	.01 1147	-.06* 1153	.02 1150	-.01 1140	-.04 1144	.05 1152	.03 1089	-.01 1135
7	Overall Rating	-.01 1199	.06* 1130	-.00 1135	.04 1135	.07* 1123	.04 1126	.08** 1134	.05 1073	-.03 1116

* Significant at .05 level of confidence
** Significant at .01 level of confidence

The scattered significant correlation coefficients fail to make a case for shop variables, such as availability and adequacy of major equipment and auxiliary facilities, having any impressive influence on what happens to graduates after leaving school. Stated differently, whether a shop is modern and has all the latest equipment and facilities or whether it is grossly inadequate in terms of equipment and facilities seems to have no effect upon whether the graduate enters the occupation studied, the time it takes him to find his first job, the earnings he makes, or the satisfaction he reports with his work. Apparently, a student can learn his skills in what is essentially an obsolescent and inadequate shop (according to his instructor) and do as well in the field for which trained as one who has experienced, so to say, the best of anything. Plainly stated, differences in hardware do not explain or account for the differences in post-school occupational success. This generalization may leave those who are inclined to give hardware top priority somewhat uncomfortable.

A cautionary note must be sounded. The writer has seen some shops that were so grossly crowded, so lacking in essential facilities, so handicapped by decrepit equipment that no one needs to await research findings to support a decision to improve these shops.

SUMMARY AND CONCLUSIONS

There are two sides to the shop data coin. On the plus side, most schools and shops have most of what they need in the way of shop equipment and auxiliary facilities. Moreover, most of what they now have is in a satisfactory condition. On the negative side, a very substantial percentage of schools and shops have impressive shortages of shop equipment and auxiliary facilities and much of what they have is considered unsatisfactory by instructors and principals. Since one of the major purposes of this survey is to reveal problem areas in T&I vocational education, the conclusions will dwell on the negative side of the coin where there is, indeed, a negative side of any significance.

Availability and Adequacy of Major Shop Equipment

1. Availability of equipment. Even allowing for possible exaggerated claims by shop instructors, the data indicates widespread, substantial shortages of major shop equipment. Based on shop instructor claims, one-third of the shops had less than 80 percent of the major shop equipment considered essential for course objectives. The same statement applies to 25 percent of the schools. This indicates that lack of major equipment tends to be a school rather than an individual shop problem.

Conceivably, the shortages in some schools and shops may impair the effectiveness of shop instruction and prejudice the opportunity of graduates to enter the fields for which trained. This remains to be demonstrated.

2. Adequacy of equipment. The equipment adequacy problem is even more severe. About 45 percent of the shops reported that less than 80 percent of their equipment was satisfactory. Again, the problem seems to be school-wide. The mean adequacy of major shop equipment score for fully half of the schools was less than 80 percent. The most frequently cited reasons were poor operability and obsolescence. This indicates a substantial need for equipment repair or replacement in T&I shops across the country.

3. Comparability of equipment. Instructor assessments of the comparability of shop equipment to that used in industry suggest there may be a comparability problem. About 12 percent of the shops reported that less than 80 percent of their major shop equipment was comparable to that used in the trade. The conclusion here is that the comparability problem is a pseudo-issue. Evidence was cited that shows graduates are handicapped very little, if at all, when they come across equipment in the trade which differs markedly from that used in the schools. Apparently, in most courses, it is not necessary to have the latest equipment available to learn the basic principles of equipment use, instructor opinion to the contrary.

Availability and Adequacy of Auxiliary Shop Facilities

Auxiliary shop facilities range from items of major importance to shop efficiency, such as adequate material and project storage space, to items of relatively minor importance, such as student wash-up facilities. The measures of availability and adequacy make no distinction as to relative importance of items rated.

1. Availability of auxiliary facilities. One-third of the shops and almost one-third of the schools were reported as having less than 80 percent of required auxiliary shop facilities. The items most frequently cited as lacking were:

•Adjoining room for theory instruction	28%
•Individual project storage space	21
•Large project assembly space	22
•Mechanical safeguards on machinery	22
•In-shop visual aid equipment	16

Where there are multiple deficiencies of the kind cited above in a given shop, an impairment of shop instruction and management is a reasonable conclusion.

2. Adequacy of auxiliary facilities. About 49 percent of the shops (and 57 percent of the schools) reported less than 80 percent of their available auxiliary facilities were satisfactory. The items most frequently cited as unsatisfactory were:

•Evening class material storage	45%
•Project material storage space	45
•Raw material storage facilities	43
•Work station spot illumination	34
•Shop library	33

The nature of the items cited indicates they are of major importance. Compounded inadequacies may be expected to impair shop efficiency.

Conditions Related to Shop Safety and Efficiency

About 48 percent of the shops had a mean safety and efficiency rating of less than satisfactory. The mean rating was based on a three point rating scale (3-excellent, 2-satisfactory and 1-unsatisfactory) applied to 12 conditions related to shop safety and efficiency by the shop instructors. The items most frequently cited as unsatisfactory were poor location of storage facilities (40 percent), insufficient work stations (29 percent), lack of shop flexibility for major changes (38 percent) and inadequate distances between equipment (20 percent). The data forces the conclusion that a large percentage of schools and shops are operating under serious handicaps to shop safety and efficiency.

Overall Shop Ratings

About 28 percent of the shops were rated inadequate or very poor by their instructors. The rating was based upon a four point rating scale, i.e. excellent, satisfactory, inadequate and very poor. The reasons cited by instructors to support unsatisfactory ratings were principally inadequate storage space of all kinds, insufficient equipment for larger classes and generally poor physical conditions of shops. Poor shop ratings tend to characterize schools rather than represent individual instances of shops being out of line with the school quality of shops. The data supports the conclusions drawn from other shop measures, i.e. shortages and inadequacies of shop equipment and auxiliary facilities are widespread and among some schools substantial.

Major Shop Renovation

Approximately 32 percent of the shops require major renovation or rehabilitation according to assessments of principals. This independently confirms the inadequacies revealed by instructor ratings. The average shop has gone 7 years since a last major renovation. More than 8 percent have not been renovated within the last 24 years, and about 17 percent have never undergone a major renovation or rehabilitation. We are dealing here with facts, not opinions.

Shop Usage

About 28 percent of the shops were assessed by school principals to have insufficient space for their pupil loads. This agrees generally with the finding that 45 percent of the shops had more students in their largest class than they had work stations. (Not all shops run on a work station basis.) The general picture of overcrowding that emerges is consistent with the degree to which required items of major equipment and auxiliary facilities were lacking as per instructor judgment.

Another usage feature is underusage for adult education. About 36 percent of the shops are not used for evening adult vocational education. Only 9 percent were used for MDTA training. The data unfortunately does not indicate whether there was a sufficient demand for adult vocational education to warrant evening use of the unused shops. The fact remains there is considerable unused shop facility for adult vocational education. This is not a criticism of schools until it can be shown that there is a local need for evening use of their facilities. Where there is such a need, such facilities should not be idle, even though there may be problems in coordinating day and evening shop use.

SOME TENTATIVE RECOMMENDATIONS*

Minimum Requirements Standard for Equipment and Facilities

At the present time, there are no generally accepted standards that specify the basic kinds of facilities and equipment that should be available for each of the many different types of T&I courses. Such standards presented as a minimum requirement would be helpful in new facility planning as well as the assessment of current facilities. It would be especially helpful if the standards were stated in terms of per pupil constant, e.g. so many feet of project storage space per so many pupils. Such standards are best developed by committees of specialists with firsthand and continuing experience with required shop equipment and facilities.

It is recommended that the United States Office of Education support a pilot project to develop minimum facility and equipment requirement standards for a select group of T&I courses. The availability of such standards for state and local level planning groups need not, and should not imply that the standards must be met. The standards would simply be a planning resource for those concerned with planning new facilities or upgrading current facilities.

It may be argued that the concept of minimum facility and equipment standards would impose an undesirable uniformity on T&I shop facilities. The latter is not necessarily so. First, the standards are guidelines to be departed from when local conditions require different equipment and facilities. Second, the standards would be minimum requirements which would be exceeded at local option as permitted by available resources.

Periodic Shop Equipment and Facility Surveys

Presently, there are very few school systems that apply a systematic, well-defined procedure for a periodic survey of T&I shop facilities and equipment and for dollarizing the repair and replacement needs revealed by such a survey.

It is recommended that the United States Office of Education develop a manual that describes the principles, procedures, uses and benefits of locally conducted surveys of this type on some agreeable periodic basis. The procedures should be sufficiently flexible with alternatives, if necessary, to permit application anywhere in the United States.

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* The recommendations go beyond the data reported. They represent the personal opinions of the project director and are offered primarily to stimulate discussion and to provoke alternatives. Undoubtedly, vocational educators will come to other conclusions and recommendations. This is inevitable because they will be approaching the data from different perspectives.

States should be encouraged to stimulate local school district use of such surveys. Ultimately, local level surveys conducted on an every Nth year basis could be used to provide a state compilation of equipment and facility repair and replacement needs in dollar terms. Such data would be useful for both state and local level resource allocation decisions. It should remove some of the guesswork from such decisions.

Use of Shop Repair and Replacement Budgets

The shops whose instructors claimed they had annual budgets were in better shape in terms of availability, adequacy of equipment and facilities than those that did not have such budgets. This suggests that part of the problem is failure to use a rational budget approach to equipment repair and replacement, and to facility expansion with pupil load increases. Many instructors work in a situation where each expenditure is dependent upon the approval of the principal in a very literal sense. They have learned to ask for little, and in some cases not to ask at all, but to make the best of what is available. This type of arbitrary approach to shop expenditures results in a gradual accumulation of deficiencies which reach the magnitude found in some of the shops surveyed. A rational budget approach would require a formal documentation of repair, replacement and expansion needs with adequate justification. It would also tend to produce a more reasoned consideration of budget requests. The end result should be less deferment of repairs, replacement and additions to accommodate pupil increases.

Correction of Present Equipment and Facility Inadequacies

Until there are some types of standards for minimum equipment and facility requirements and some approved method of surveying schools and shops to determine repair, replacement and rehabilitation needs, as well as expansion needs, it is inadvisable to make special monies available to and through the states with the hope that the money will go for the right purposes in the right locations. There should be a systematic procedure for identifying the three R needs (repair, replacement and rehabilitation) and providing the resources over a period of time to bring shop facilities and equipments up to standard.

There is no evidence that the shops reporting relatively serious inadequacies in shop facilities and equipment are failing to develop minimum occupation entry skills.

Design of Shop Facilities

The T&I shops as presently designed are prisoners of their own four walls. Their design does not permit relatively low cost expansion outward to accommodate pupil increases. The net result is internal "expansion" which creates congestion of equipment, facilities and overcrowding of students. It would seem desirable that the Office of Education spend some research and development funds for the design of different types of T&I shops.

Design considerations should include:

- Capacity for relatively low cost expansion.
- Flexibility for changes in internal layout.
- Flexibility for conversion to other types of shops.
- Flexibility for accomodating evening classes.
- Flexibility for multi-job cluster instruction.

The above are certainly not the only major design considerations. What is needed is development of design guidelines and the conversion of the same into a variety of basic model shops for each of the T&I courses. A "shop of the future" approach with attendant prohibitive costs should be avoided. There is little value in designing shops that most school districts can not afford to build or maintain.

7 THE GENERAL SCHOOL FACILITIES

INTRODUCTION

The Role of General Facilities

The term, general facilities, has reference to the school facilities unrelated to a vocational curriculum, e.g. general classrooms, outdoor facilities and general purpose indoor facilities. It is highly unlikely that the availability and adequacy of such facilities has much of a bearing on either the quality of vocational education or the occupational outcomes experienced by vocational program graduates. Their description is included primarily because such data completes the description of school facilities to which vocational program students are exposed and may be of general reader interest. The writer attaches no great importance to general facilities as a source of variables influencing the process and products of vocational education.

Some Basic Questions

The chapter provides answers to the following questions:

1. What is the age of the main school plant to which vocational students are exposed? What was the original design purpose of the building?

2. To what extent do the general facilities need major repairs, renovation or rehabilitation? How many years has it been since the last renovation?

3. What types of outdoor and indoor facilities are available? To what extent are such facilities judged adequate by the principals?

4. What environmental controls, furnishings and instructional equipment are available in general purpose classrooms, and to what extent are such items judged adequate by the teachers?

5. How adequate do principals and teachers judge the available classroom space?

About the Sample and Data

Information about general purpose classrooms was obtained by having a sample of 3 academic teachers in each school, who taught both vocational and academic students, describe the classroom in which they met their first class of the week. As a rule, this meant having an English, mathematics, science and social studies teacher in each school describe his or her first classroom of the week. Table 1 shows how the sample of classrooms were distributed by type of school.

A total of 350 classrooms were surveyed. Half were in schools with vocational program enrollments of less than 300 pupils. About 55 percent were in comprehensive schools and 45 percent were in vocational

TABLE 1. DISTRIBUTION OF CLASSROOMS BY REGION, TYPE OF SCHOOL AND SCHOOL VOCATIONAL ENROLLMENT

TYPE OF SCHOOL	VOCATIONAL ENROLLMENT	EAST		WEST		U.S.	
		N	%	N	%	N	%
VOCATIONAL	<300	41	32.0	5	17.2	46	29.3
	>300	87	68.0	24	82.8	111	70.7
	TOTAL	128	47.6	29	35.8	157	44.9
COMPREHENSIVE	<300	87	61.7	40	76.9	127	65.8
	>300	54	38.3	12	23.1	66	34.2
	TOTAL	141	52.4	52	64.2	193	55.1
COMBINED	<300	128	47.6	45	55.6	173	49.4
	>300	141	52.4	36	44.4	177	50.6
	TOTAL	269	76.9	81	23.1	350	100.0

schools. About 77 percent of the classrooms were east of the Mississippi because that is where most of the schools were in the sample. The sample is assumed to represent reasonably well the population of general purpose classrooms in the United States to which T&I vocational students are exposed.

Table 2 shows how the classrooms were distributed in terms of the type of teacher providing the data. The percentage of classrooms from each of the four teacher sources was a reasonably close match both within the two types of schools and across the two types of schools.

The data about general facilities other than classrooms was obtained from the principals. See Chapter 1, Table 4, for how this data source was distributed by type of school, vocational enrollment and region.

TABLE 2. DISTRIBUTION OF TYPE OF SUBJECT TEACHERS PROVIDING CLASSROOM DATA FOR VOCATIONAL AND COMPREHENSIVE SCHOOLS

TEACHER SUBJECT	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
English	95	27.1	45	28.7	50	25.7
Mathematics	87	24.9	40	25.5	47	24.4
Social Science	87	24.9	37	23.6	50	25.7
Science	81	23.1	35	22.3	46	23.8

GENERAL SCHOOL FACILITIES

Overall School Plant

•How old is the main school building? Table 3 shows how the schools distributed in age class intervals.

The mean age of the school building was about 27 years, where all over 45 years of age were counted as 47 years, the hypothetical midpoint for the open-ended class interval. About 40 percent of the schools were 35 or more years old. Twenty percent were more than 45 years old.

The mean age of the vocational schools was about 29 years versus 25 years for the comprehensive schools. Only 18 percent of the comprehensive schools were 40 years of age or older, whereas fully 38 percent of the vocational schools were at or above the forty year rank. A good number were pre-World War I schools.

TABLE 3. COMPARATIVE DATA ON AGE OF MAIN SCHOOL BUILDING

AGE OF MAIN SCHOOL BUILDING	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
<5 years	7	7.1	3	6.0	4	8.3
5 - 9 years	15	15.3	7	14.0	8	16.6
10 - 14 years	11	11.2	3	6.0	8	16.6
15 - 19 years	4	4.1	4	8.0	0	0.0
20 - 24 years	5	5.1	3	6.0	2	4.2
25 - 29 years	8	8.2	4	8.0	4	8.3
30 - 34 years	8	8.2	4	8.0	4	8.3
35 - 39 years	12	12.2	3	6.0	9	18.9
40 - 44 years	8	8.2	6	12.0	2	4.2
45 or more years	20	20.4	13	26.0	7	14.6

•What was the main school plant originally designed to be? The question was based on a lead which claimed that a sizable percentage of vocational schools were operating in buildings not designed to be schools. Table 4 provides the data.

About 14 percent of the schools were in buildings not designed to be schools. Five percent were in facilities designed for industrial or commercial purposes. Whether such facilities are a detriment to the edu-

TABLE 4. COMPARATIVE DATA ON DESIGN PURPOSE OF MAIN SCHOOL PLANT

DESIGN PURPOSE OF MAIN SCHOOL PLANT	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Elementary school	4	4.1	3	6.0	1	2.1
Comprehensive high school	47	48.0	3	6.0	44	91.7
Technical high school	4	4.1	4	8.0	0	0.0
Vocational high school	21	21.4	20	40.0	1	2.1
Vocational-technical high school	8	8.2	8	16.0	0	0.0
Industrial or commercial facility	5	5.1	5	10.0	0	0.0
Other than above	9	9.2	7	14.0	2	4.2

cational process is highly questionable. In any event, the great majority of schools are in buildings designed to be schools. Comprehensive schools are almost always in such buildings.

•How many years has it been since different elements of school general facilities have been renovated? What percentage of schools report the need for major repair or renovation to such facilities? Table 5 provides the data.

The mean number of years since last renovation ranged from a low of 5 years for interior painting to a high of 14 years for toilet facilities. To calculate mean and median values, schools that had never undergone major renovation were given values equivalent to their ages. The mean years since last major renovation or rehabilitation suggest that many of these facilities need major R&R work, and that is the case. About one-third of the schools claimed major renovation or repairs were needed for:

• General classrooms	31%
• Administrative offices	36
• Gymnasium facilities	35
• Cafeteria facilities	32
• Toilet facilities	36
• Heating/ventilating facilities	34
• Interior walls & ceilings	34
• Interior painting	39

Quite possibly, the principals have overstated the need for major repair and renovation. General impressions gained by the project interviewers, admittedly not specialists in these matters, agreed that a large percentage of the schools presented a picture of being worn, shabby and on the grimy side. Then, too, the years since last major renovation add to the credibility of the assessments made by teachers. Of course, all this may have nothing to do with the quality of vocational education provided.

TABLE 5. SCHOOL REPORTED NEED FOR MAJOR REPAIR, RENOVATION, OR REMODELING, AND YEARS SINCE LAST MAJOR RENOVATION

GENERAL SCHOOL FACILITIES	SCHOOLS NEEDING REHAB/REPAIR		YEARS SINCE LAST MAJOR RENOVATION		
	N	%	N	MEAN	S.D.
General classrooms	29	30.9	86	8.2	6.6
School library	25	29.4	82	12.3	6.8
School administrative offices	35	36.5	96	6.1	6.3
Gym & related facilities	30	34.9	84	12.2	6.6
Cafeteria & related facilities	28	31.5	83	12.3	6.9
Toilet facilities	34	35.8	95	13.8	6.6
Heating & ventilating system	33	34.0	91	12.8	6.4
Plumbing	23	23.7	88	11.9	6.9
Ceiling & interior walls	33	34.0	94	13.4	6.7
Roof & structural walls	22	22.7	92	11.9	6.5
Classroom & hallway illumination	29	29.9	96	9.8	5.8
Exterior painting	22	22.9	89	5.8	6.0
Interior painting	38	39.2	90	5.4	5.2
Other than above	4	4.1	11	10.9	8.1

Special Purpose Facilities

● To what extent are outdoor athletic and recreational facilities available and adequate at the schools? Table 6 provides the data.

The facilities listed do not imply that there should be such facilities or that the absence of such facilities in any way impairs the educational process. The data indicates that a relatively large percentage of schools do not have available, or access to, athletic fields, track and field sports facilities, surfaced recreation areas, tennis courts and other facilities. Where such facilities are available, they are generally considered adequate.

A larger percentage of vocational than comprehensive schools did not have each of the listed outdoor facilities. For example, whereas only 8 percent of the comprehensive schools were without a track and field sports area, 41 percent of the vocational schools reported they did not have this type of facility. See Appendix Section 7 for complete comparative data on outdoor facilities.

TABLE 6. AVAILABILITY AND ADEQUACY OF OUTDOOR FACILITIES

TYPE OF OUTDOOR FACILITY	AVAILABILITY AND ADEQUACY OF OUTDOOR FACILITIES									
	NOT AVAILABLE		AVAILABLE INTEGRAL ADEQUATE		AVAILABLE NONINTEGRAL ADEQUATE		AVAILABLE INTEGRAL INADEQUATE		AVAILABLE NONINTEGRAL INADEQUATE	
	N	%	N	%	N	%	N	%	N	%
Large-team athletic field	55	55.6	27	27.3	14	14.1	3	3.0	0	0.0
Track and field sports area	24	24.2	43	43.4	24	24.2	4	4.0	4	4.0
Outdoor basketball courts	17	17.2	49	49.5	20	20.2	5	5.1	8	8.1
Outdoor tennis courts	50	50.5	28	28.3	18	18.2	2	2.0	1	1.0
Surfaced recreation area	57	58.2	24	24.5	8	8.2	7	7.1	2	2.0
Outdoor swimming	83	84.7	3	3.1	9	9.2	1	1.0	2	2.0
Lawn and/or garden area	39	39.8	49	50.0	3	3.1	6	6.1	1	1.0

•To what extent are indoor facilities (as listed) available and adequate at the schools? Table 7 provides the data.

Again, it is emphasized that the facilities listed do not imply that there should be such facilities or that their absence impairs the vocational education process.

With the exception of indoor swimming pools, most schools surveyed have the type of indoor facilities listed. However, there are substantial percentages that claim their facilities are inadequate. For example, 12 percent claimed there was no central school library, and 24 percent claimed their library facilities were inadequate. Considering the ages of the schools and the expansion of enrollments beyond the capacities for which the schools were originally designed, it is not unreasonable that large percentages of schools report their special purpose indoor facilities inadequate.

TABLE 7. AVAILABILITY AND ADEQUACY OF INDOOR FACILITIES

TYPE OF INDOOR FACILITY	AVAILABILITY AND ADEQUACY OF INDOOR FACILITIES									
	NOT AVAILABLE		AVAILABLE INTEGRAL ADEQUATE		AVAILABLE NONINTEGRAL ADEQUATE		AVAILABLE INTEGRAL INADEQUATE		AVAILABLE NONINTEGRAL INADEQUATE	
	N	%	N	%	N	%	N	%	N	%
School library	12	12.0	58	58.0	6	6.0	23	23.0	1	1.0
Auditorium or assembly room	16	16.0	53	53.0	7	7.0	23	23.0	1	1.0
Gymnasium	12	12.0	54	54.0	8	8.0	25	25.0	1	1.0
Swimming pool	72	72.0	17	17.0	4	4.0	5	5.0	2	2.0
Student cafeteria	9	9.0	63	63.0	5	5.0	23	23.0	0	0.0
Audio-visual aid room	26	26.0	46	46.0	6	6.0	22	22.0	0	0.0
Health examination room	23	23.0	53	53.0	4	4.0	19	19.0	1	1.0

The availability problem is invariably more severe in the vocational schools. For example, all of the comprehensive schools had a central library, whereas 24 percent of the vocational schools did not. Similarly, all comprehensive schools had a gymnasium, whereas 24 percent of the vocational schools did not. Part of the difference is accounted for by the fact that 8 percent of the vocational school sample consisted of area vocational schools to which other schools sent their vocational program students on a part-time basis. See Appendix Section 7 for complete comparative data on indoor facilities.

GENERAL CLASSROOM FACILITIES

The general classrooms were assessed from the standpoint of: (1) environmental control facilities, (2) general furnishings and (3) instructional equipment. It is not claimed that the individual items assessed in each of these categories are either essential or non-essential to the quality of the educational process. The concern is merely with describing the availability and teacher-judged adequacy of such facilities.

Enviromental Control Facilities

• What type of environmental control facilities are not available and needed? If available, to what extent do teachers consider them to be adequate? Table 8 provides the data.

In the order of non-availability and need, the major environmental control facilities lacking are:

• Soundproofing against outside noise	47%
• Room-controlled air cooling	38
• Central air cooling	31
• Air movement fans	22
• Forced-air room ventilation	21

TABLE 8. AVAILABILITY AND ADEQUACY OF CLASSROOM ENVIRONMENTAL CONTROLS BASED ON TEACHER JUDGMENTS

ENVIRONMENTAL CONTROL FACILITIES	NOT AVAILABLE AND NOT NEEDED		NOT AVAILABLE AND NOW NEEDED		AVAILABLE AND ADEQUATE		AVAILABLE BUT INADEQUATE	
	N	%	N	%	N	%	N	%
Artificial general illumination	0	0.0	4	1.1	318	91.1	27	7.7
Individual spot illumination	272	79.8	28	8.2	36	10.6	5	1.5
Forced-air room ventilation	94	27.8	71	21.0	143	42.3	30	8.9
Centrally controlled air cooling	169	50.3	103	30.7	55	16.4	9	2.7
Room-controlled air cooling	138	41.1	127	37.8	55	16.4	16	4.8
Centrally controlled air heating	70	21.2	15	4.5	210	63.6	35	10.6
Room-controlled air heating	107	32.1	56	16.8	146	43.8	24	7.2
Air movement fans	151	46.5	72	22.2	73	22.5	29	8.9
Window-controlled ventilation	29	8.8	13	3.9	237	71.8	51	15.5
Soundproofing against outside noise	99	29.9	156	47.1	56	16.9	20	6.0

In the order of available but inadequate, the environmental control problems were:

• Window-controlled ventilation	15%
• Centrally controlled air heating	10
• Forced-air room ventilation	9
• Air movement fans	9
• Artificial general illumination	7
• Room-controlled air heating	7

The combination of not available but needed, and available but inadequate indicates the following to be a problem as judged by teachers:

• Soundproofing against outside noise	53%
• Room-controlled air cooling	43
• Centrally controlled air cooling	33
• Air movement fans	31
• Room-controlled air heating	24
• Window-controlled ventilation	19
• Centrally controlled air heating	15

It is clear that noise and extreme temperatures are considered to be a problem by a large percentage of teachers.

Classroom environmental controls were available more frequently in vocational than comprehensive schools. In terms of the adequacy of what was available, however, the two schools were more alike than different. See Appendix Section 7 for comparative data on classroom environmental controls in the two types of schools.

General Furnishings

• What is the availability status of different types of general classroom furnishings? If available, to what extent are they considered adequate? Table 9 provides the classroom percentages.

Given in the order of not available and needed, as determined by the teachers, the classroom furnishing problems were as follows:

• Wall projection screen	21%
• Inter-com/telephone	12
• Storage space for supplies	8

Items that were available but inadequate included:

• Storage space for supplies	22%
• Movable pupil desks	17
• Bulletin board/display space	17
• Blackboard space	15
• Window blinds or shades	13

TABLE 9. AVAILABILITY AND ADEQUACY OF CLASSROOM FURNISHINGS BASED ON TEACHER JUDGMENTS

INSTRUCTIONAL EQUIPMENT	NOT AVAILABLE AND NOT NEEDED		NOT AVAILABLE AND NOW NEEDED		AVAILABLE AND ADEQUATE		AVAILABLE BUT INADEQUATE	
	N	%	N	%	N	%	N	%
Motion picture film projector	9	2.6	6	1.7	276	80.0	54	15.7
Television/radio receiver	128	38.9	53	16.1	118	35.9	30	9.1
Slide projector	16	4.7	14	4.1	279	81.3	34	9.9
Opaque projector	36	10.9	36	10.9	212	64.4	45	13.7
Overhead projector	55	16.4	40	11.9	203	60.4	38	11.3
Record player	51	15.1	18	5.3	236	69.8	33	9.8
Flannel board	234	72.7	46	14.3	37	11.5	5	1.6
Conference table(s)	109	32.3	58	17.2	156	46.3	14	4.2
Programmed instruction equipment	119	38.6	69	22.4	99	32.1	21	6.8
Shelves for reference materials	19	5.6	63	18.6	211	62.4	45	13.3

The reader is reminded that needed refers to teacher opinion, not the opinion of the researchers. Most of the instructional equipment listed was available and adequate to the majority of teachers. Equipment that was available and inadequate included:

- Motion picture projector 6%
- Opaque projector 14
- Overhead projector 11
- Slide projector 10
- Record player 10

The vocational and comprehensive school classrooms were not significantly different in terms of availability and adequacy of general furnishings. Deficiencies appeared about equally in both schools. See Appendix Section 7 for comparative data details

Instructional Equipment

- What is the availability of different types of instructional equipment in general classrooms? If available, to what extent is such equipment considered adequate? Table 10 provides the classroom percentages.

Notice that much of the equipment reported as not available was also reported as not needed. That which was not available and needed included:

- Programmed instruction equipment 22%
- Reference material storage space 19
- Conference tables 17
- Television receiver 16
- Flannel board 14
- Overhead projector 12

TABLE 10. AVAILABILITY AND ADEQUACY OF CLASSROOM INSTRUCTIONAL EQUIPMENT BASED ON TEACHER JUDGMENTS

GENERAL FURNISHINGS	NOT AVAILABLE AND NOT NEEDED		NOT AVAILABLE AND NOW NEEDED		AVAILABLE AND ADEQUATE		AVAILABLE BUT INADEQUATE	
	N	%	N	%	N	%	N	%
Teacher desk and chair	1	0.3	2	0.6	314	90.2	31	8.9
Movable pupil desks	29	8.4	15	4.3	242	70.1	59	17.1
Non-movable pupil desks	254	77.4	26	7.9	37	11.3	11	3.4
Storage space for supplies	2	0.6	29	8.4	238	68.8	77	22.3
Window blinds or drapes	29	8.3	42	12.1	232	66.7	45	12.9
Bulletin boards/display space	3	0.9	24	7.0	259	75.5	57	16.6
Blackboard space	1	0.3	6	1.7	287	82.5	54	15.5
Wall projection screen	83	24.5	73	21.5	171	50.4	12	3.5
Intercom/telephone equipment	76	22.3	42	12.3	194	56.9	29	8.5

The general picture is that the unavailable or inadequate instructional equipment problems occur in a relatively small minority of the classrooms. Apparently, most academic subject teachers have what they want in the way of instructional equipment.

Again, there were no impressive differences between classrooms in vocational and comprehensive schools. The overall picture was one of similarity of equipment availability and adequacy.

Adequacy of Classroom Space

Principals were asked if their general classroom space was adequate. About 72 percent indicated that it was. The balance, 28 percent, claimed they needed more square feet of space, more seats per space available or a combination of both. The space problem was somewhat more severe in comprehensive schools. About 30 percent of the latter reported need for more classroom space, whereas 25 percent of the vocational schools reported a need.

The general classroom teachers also gave their view on the adequacy of classroom space. About 67 percent reported their classrooms were adequate for <u>all</u> of the present classes, 25 percent reported classroom space inadequate for <u>some</u> of their larger classes, and 8 percent reported their classroom space inadequate for <u>all</u> classes. These results tend to corroborate the assessments of principals, although the latter gave their opinions for the school as a whole whereas the teachers were talking about their particular classrooms.

CORRELATION ANALYSIS

Definition of Variables in Correlation Analysis

The following general facility variables were subjected to correlation analysis:

1. Age of main school plant. Self-explanatory.

2. Index of repair and rehabilitation needs. Principals indicated which of thirteen general school facilities or factors related to such facilities were in need of major repair, renovation or rehabilitation. The number of items judged in need of repair or rehabilitation constituted the index. Range: 0-13. See Table 5, page 7-4, for a list of the items rated by the school principals.

3. Years since last major repair, renovation or rehabilitation. The principals indicated how many years it had been since each of a list of thirteen general facility items had undergone major repair, renovation or rehabilitation. An unweighted average of years reported for each item was used as an index of recency of such work. Range: 0-45. See Table 5, page 7-4, for a list of the items that went into this variable.

4. Outdoor facility availability and adequacy index. The principals indicated which of seven outdoor athletic and recreational facilities were available and adequate. One point was credited for the availability and one for the adequacy of each facility. Range: 0-14. See Table 6, page 7-5, for a list of the outdoor facilities.

5. Indoor facility availability and adequacy index. The principals indicated which of seven indoor general facilities were available and adequate. One point was credited for the availability and one for the adequacy of each facility. Range: 0-14. See Table 7, page 7-6, for a list of the facilities.

6. Classroom environmental control index. The academic subject teachers indicated which of ten classroom environmental controls were needed, available and adequate. Individual items were scored 1,2 and 3 respectively if needed and not available, needed, available and inadequate; or needed, available and adequate. The mean of the item scores provided a classroom score, and the mean of the separate classroom scores provided a school score. The latter became the classroom environmental control index. Range: 1-3. See Table 8, page 7-7, for a list of the classroom environmental controls.

7. Classroom general furnishings index. Academic teachers indicated which of nine general classroom furnishings were needed, available and adequate. Individual items were scored 1, 2 and 3 respectively if needed

and not available; needed, available and inadequate; or needed, available and adequate. The mean of the item scores provided a classroom score, and the mean of the classroom scores provided a school score. The latter was used as an index of general furnishings in classrooms. Range: 1-3. See Table 9, page 7-9, for a list of the classroom general furnishings.

8. Classroom instructional equipment index. Academic teachers indicated which of ten types of instructional equipment were needed, available and adequate. Individual items were scored 1,2 and 3 respectively if needed and not available; needed, available and inadequate; or needed, available and adequate. The mean of the item scores provided a classroom score, and the mean of the classroom scores provided a school score. The latter was used as an index of instructional equipment availability and adequacy. Range: 1-3. See Table 10, page 7-10 for a list of classroom instructional equipment.

Facility Variable Intercorrelations

What are the interrelationships among the general facility variables? Table 11 provides the correlation coefficients.

Several generalizations can be made about the intercorrelations:

1. Age of the school. The older the building, the greater is the claimed need for major repair, renovation or rehabilitation. The finding should cause no surprise. Also, the older the school, the less likely are the following to be available and adequate: (1) outdoor athletic and recreation facilities, (2) indoor special purpose facilities, (3) classroom environmental controls, (4) classroom general furnishings, (5) classroom instructional equipment and miscellaneous classroom equipment.

Age of the main school plant is unrelated to either total or vocational school enrollment; or to the population of the city served.

2. Need for major R&R. The greater the years since specific facilities were renovated or rehabilated, the greater is the need for such work. The finding is of interest primarily because it validates the internal consistency of the principals' data.

3. Special purpose outdoor and indoor facilities. The availability and adequacy of these two types of special purpose facilities were, as one might expect, significantly correlated. Schools that scored high on availability and adequacy of outdoor facilities tended to score high on their indoor facilities. The mediating variable is the age of the school.

4. General classroom facilities. The availability and adequacy of classroom environmental controls, general furnishings and instructional equipment are substantially correlated. Schools that score high on one classroom variable, such as environmental controls, tend to score high on the others, such as general furnishings and instructional equipment. This is what one would expect.

5. Enrollment and population of city. It is interesting that neither vocational enrollment nor the population of the city served show

TABLE 11. GENERAL SCHOOL FACILITY VARIABLE INTERCORRELATION COEFFICIENTS

	GENERAL FACILITY VARIABLE INTERCORRELATIONS	1 AGE OF MAIN SCHOOL PLANT	2 NEED FOR MAJOR RENOVATION	3 YEARS SINCE LAST MAJOR RENOVATION	4 OUTDOOR FACILITIES INDEX	5 INDOOR FACILITIES INDEX	6 ENVIRONMENTAL CONTROL	7 GENERAL FURNISHINGS	8 INSTRUCTIONAL EQUIPMENT	9 MISCELLANEOUS EQUIPMENT	10 TOTAL ENROLLMENT	11 VOCATIONAL ENROLLMENT	12 CITY POPULATION
1	Age of main school plant	-	.52*	.15	-.28*	-.28*	-.45*	-.43*	-.36*	-.37*	-.06	-.08	-.01
2	Need for major renovation	99	-	.34*	-.34*	-.33*	-.52*	-.45*	-.39*	-.39*	-.07	-.11	-.11
3	Years since last major renovation	99	100	-	-.05	-.15	-.14	-.06	-.16	-.08	.09	.00	-.03
4	Outdoor facilities index	87	88	88	-	.46*	.19	.32*	.27*	.18	.33*	.08	-.06
5	Indoor facilities index	91	92	92	80	-	.31*	.32*	.20	.28*	.48*	.17	.13
6	Environmental control index	93	94	94	85	88	-	.57*	.55*	.52*	-.06	.04	.02
7	General furnishings index	93	94	94	85	88	94	-	.71*	.73*	.10	.05	-.03
8	Instructional equipment index	93	94	94	85	88	94	94	-	.68*	.01	-.03	-.10
9	Miscellaneous equipment index	93	94	94	85	88	94	94	94	-	.10	-.02	-.01
10	Total enrollment	99	100	100	88	92	94	94	94	94	-	.22	.15
11	Vocational enrollment	99	100	100	88	92	94	94	94	94	100	-	.51*
12	City population	99	100	100	88	92	94	94	94	94	100	100	-

* Significant at .01 level of confidence

any significant relationships with school and classroom general facility characteristics. Only two measures correlated with total enrollment, i.e. outdoor and indoor special purpose facilities. That is because the comprehensive schools generally have larger total enrollments than the vocational schools, and they also have a greater availability and adequacy of special purpose facilities.

Facility Variable Correlations with Vocational Outcomes

•To what extent do general classroom and school facility variables correlate with the vocational outcomes experienced by graduates? Table 12 provides the data.

None of the general classroom variables and general school facility variables were significantly related to placement time, initial earnings, present earnings, percentage of earnings increase or employment security at the .01 percent level of confidence. The five out of eighty coefficients that were significant were very small, barely achieving the .01 percent confidence level. They are also scattered over four criterion measures. Accordingly, the writer prefers to conclude that general facility variables are not related to the vocational outcome variables.

TABLE 12. CORRELATION COEFFICIENTS FOR RELATIONSHIPS BETWEEN GENERAL FACILITY VARIABLES AND THE OCCUPATIONAL OUTCOMES EXPERIENCED BY THE 1962 T&I GRADUATES

	GENERAL FACILITY VARIABLE CORRELATIONS	1962 VOCATIONAL GRADUATE OCCUPATIONAL OUTCOMES								
		1	2	3	4	5	6	7	8	9
		TIME TO FIRST FULL-TIME JOB	RELATEDNESS FIRST JOB	SATISFACTION FIRST JOB	INITIAL EARNINGS	RELATEDNESS PRESENT JOB	SATISFACTION PRESENT JOB	PRESENT EARNINGS	PERCENTAGE EARNINGS INCREASE	EMPLOYMENT SECURITY
1	Age of main school plant	-.03 1294	-.05 1219	.05 1225	-.03 1222	.05 1212	-.00 1215	-.0? 1223	.00 1155	-.02 1207
2	Index of repair and rehabilitation needs	-.04 1299	-.08* 1224	.00 1230	.00 1227	-.09* 1217	-.02 1220	-.0? 122?	-.00 1160	-.03 1212
3	Years since last major repair, renovation or rehabilitation	-.04 1299	-.04 1224	.02 1230	.06 1227	.01 1217	.01 1220	.02 1228	-.03 1160	.01 1212
4	Outdoor facility availability and adequacy index	.00 1091	.03 1020	.00 1027	-.02 1022	.05 1014	.04 1018	.00 1023	.01 964	.03 1013
5	Indoor facility availability and adequacy index	.04 1165	-.06 1102	-.08* 1106	.00 1106	-.06 1094	-.10* 1095	.03 1107	.04 1046	.02 1088
6	Classroom environmental control index	.04 1203	.02 1134	-.03 1140	-.02 1137	.06 1127	-.03 1129	-.01 1138	.02 1082	.04 1120
7	Classroom general furnishings index	.02 1203	-.01 1134	-.09* 1140	.01 1137	-.02 1127	-.06 1129	.06 1138	.06 1082	.00 1120
8	Classroom instructional equipment index	-.03 1203	.01 1134	-.04 1140	.03 1137	.01 1127	-.01 1129	.07 1138	.05 1082	.04 1120
9	Classroom miscellaneous equipment index	-.01 1203	.01 1134	-.04 1140	.05 1137	.02 1127	-.00 1129	.08 1138	.00 1082	.03 1120

* Significant at .01 level of confidence

SUMMARY OF FINDINGS

The Main School Plant

1. Age of main school building. The mean age of the schools surveyed was 27 years. Forty percent were 35 or more years old. Twenty percent were over 45 years old. The vocational schools were as a group older than the comprehensive schools. Almost 40 percent were forty years or more old.

2. Original school plant design. Only 14 percent of the schools were in buildings not designed originally to be schools. These were, excepting two schools, vocational schools.

Major Repair, Renovation and Rehabilitation (R&R)

1. Facilities in need of R&R. Based on principals' assessments, the percentages of schools in need of R&R work for specified facilities were as follows: general classrooms (31%), school library (29%), school administrative offices (37%), gymnasium and related facilites (35%), cafeteria and related facilities (31%), toilet and washroom facilities (36%), heating and ventilating facilities (34%), exterior painting (22%) and interior painting (39%). See text for more complete details.

2. Years since last renovation. The mean years since last renovation varied with the type of general facility. It ranged from 5.4 years for interior decorative painting to 13.8 years for toilet and washroom facility renovation. The mean years since last renovation for general classrooms was 8.2 years.

Special Purpose Facilities

1. Outdoor facilities. The following facilities were available as indicated: large team athletic field (44%), field sports area (76%), outdoor basketball courts (83%), outdoor tennis courts (50%), surfaced recreation area (42%) and outdoor swimming facility (15%). Where such facilities were available, they were generally considered to be adequate.

2. Indoor facilities. The following facilities were available as indicated: school library (88%), auditorium (84%), gymnasium (88%), swimming pool (28%), student cafeteria (91%), audio-visual aid room (74%) and health examination room (77%). Large percentages of the available facilities were considered to be inadequate by the principals, e.g. school library (23%), student cafeteria (23%) and gymnasium and related facilities (25%).

Classroom Environmental Control Facilities

1. Availability of environmental controls. The following facilities were reported not available and needed in 350 classrooms surveyed: spot illumination (8%), forced-air ventilation (21%), central air cooling (31%), room-controlled air cooling (38%), central air heating (4%), room-controlled air heating (17%), air movement fans (22%) and noise soundproofing (47%).

2. Adequacy of environmental controls. Where environmental controls of a given type were available, the great majority were reported adequate. See text for percentage details.

Classroom General Furnishings

1. Availability of general furnishings. The following furnishings were reported not available and needed in the 350 classrooms surveyed: movable pupil desks (4%), non-movable pupil desks (8%), supply storage space (8%), window blinds (12%), bulletin/display space (7%), wall projection screen (21%), and intercom equipment (12%). Thus, most classrooms had the furnishings that teachers regarded as necessary.

2. Adequacy of general furnishings. The following furnishings were reported as available and inadequate for one reason or another: teacher desk and chair (9%), movable pupil desks (17%), non-movable pupil desks (3%), storage facilities (22%), window blinds (13%), display space (17%), blackboard space (15%) and intercom equipment (8%).

Classroom Instructional Equipment

1. Availability of instructional equipment. The following items of equipment were reported not available and needed in the 350 classrooms surveyed: film projector (2%), television receiver (16%), slide projector (4%), opaque projector (11%), overhead projector (12%), record player (5%), flannel board (17%), conference table (17%) and programmed instruction equipment (22%).

2. Adequacy of instructional equipment. The following instructional equipment was reported available but inadequate: motion picture projector (16%), television (9%), slide projector (9%), opaque projector (14%) and record player (10%). Thus, the majority of available equipment was considered to be adequate.

Adequacy of Classroom Space

1. Principal's assessment. Seventy-two percent of the 100 school principals claimed their general classroom (not shop) space was adequate.

2. Teacher's assessment. Sixty-seven percent of the academic teachers surveyed reported their classrooms were adequate in space for all of their classes, 25 percent reported their classroom space inadequate for some classes, and 8 percent claimed there was too little space for all classes.

Correlation Analysis

1. General facility variable intercorrelations. The age of the school correlated significantly and inversely with all facility variables, except the need for major repair or rehabilitation. It correlated a substantial .56 with the latter. Obviously, the older the school, the greater the general facility inadequacies.

2. Facility relationships with vocational outcomes. It was concluded the states of general school and classroom facilities is unrelated to the vocational outcomes experienced by the vocational graduates. This would imply a relatively low priority for major repair and renovation of such facilities where resources were limited.

SOME TENTATIVE RECOMMENDATIONS

The reader who has not already done so is urged to read the introductory remarks to the recommendations made in Chapter 2, page 2-62. They set forth the limitations that govern action recommendations made by researchers who lack the complete picture. The primary purpose of the recommendations is to draw attention to problem areas and to stimulate discussion.

Low Priority for General Facility Renovation

The lack of relationship between general facility variables and the occupational outcome measures that reflect the experiences of the vocational graduates suggests that general facility renovation or replacement be given a relatively low priority where resources are limited and where other problems exist that have a demonstrated relationship with vocational outcomes, such as holding power and placement of graduates into the fields for which trained. It would be a better use of resources, for example, to strengthen the schools' placement and guidance services than to renovate classrooms and general facilities--assuming that it is the objective to spend resources where they will most influence favorable vocational outcomes.

Considerations for New School Facility Design

Several of the classroom deficiencies about which there was impressive teacher agreement suggest factors that should be given more consideration in the designing of new facilities. They include more effective soundproofing against outside noise, more adequate control of ventilation and temperature extremes, more display space in general classrooms, more adequate classroom storage facilities and furnishings conclusive to group discussions.

8

INSTRUCTIONAL METHODS AND EQUIPMENT

INTRODUCTION

Importance of Quality Instruction

It is a commonplace conclusion that the quality of instruction is an essential variable in the quality of education. The quality of instruction is, in the final analysis, the crux of the educational process. Unfortunately, the conclusion really says nothing because it does not define what is meant by quality instruction.

The present study examines only the most superficial aspects of the instructional process, e.g. type of instructional methods used and frequency of use, type of examinations used and frequency of use, type of instructional equipment used and frequency of use, and other such easy to assess aspects of the teaching process. It is not really surprising to find that such variables show little or no correlation with such pre-graduation criterion measures as course holding power, subject grade performance or achievement test performance. The real question is not only how well these tools are used, but perhaps more important, the motivation-inspiring context in which they are used. And this brings us back to the question of what makes for effective teaching, a question which was beyond the scope of the present study, but which certainly needs research, particularly as it applies to vocational education.

Some Basic Questions

The questions for which the chapter supplies data are as follows:

1. What types of instructional methods do vocational teachers use, and what is the claimed frequency of use? How do teachers in vocational and comprehensive schools differ in methods used? How do vocational and academic teachers differ?

2. What types of instructional equipment do vocational teachers report that they use and what is the claimed frequency of use? How do teachers in vocational and comprehensive schools differ? How do vocational and academic teachers differ?

3. What is the availability and adequacy of instructional equipment reported by school principals?

4. What policies do schools have with respect to written examinations for vocational students? How do vocational and comprehensive schools differ?

5. What factors do vocational teachers assess in evaluating their students? What is the relative importance attached to each factor?

INSTRUCTIONAL METHODS USE

Approximately 895 shop instructors responded to a list of twelve methods of instruction by indicating how frequently they used each method, e.g. daily, often, seldom or never. The answer alternatives were scored 4, 3, 2 and 1 respectively, and the mean of such values provided an index describing the range of instructional methods used.

● What instructional methods do T&I shop teachers use, and what is the relative frequency of use? Table 1 provides the data.

The methods are ranked in the table according to the mean frequency of use calculated for each method. Individualized instruction was the most frequently used method of instruction. About 67 percent of the teachers reported daily use of individualized instruction and another 27 percent claimed such instruction was often used. There is probably no form of education, from the first grade through graduate studies, where there is such a one-to-one relationship between teachers and students than in the vocational shop. Properly carried out, such instruction is probably the most effective because of the personal involvement of teacher and student.

TABLE 1. FREQUENCY OF INSTRUCTIONAL METHODS USE REPORTED BY T&I VOCATIONAL TEACHERS

INSTRUCTIONAL METHODS	REPORTED FREQUENCY OF USE								MEAN METHOD FREQUENCY *		
	DAILY		OFTEN		SELDOM		NEVER				
	N	%	N	%	N	%	N	%	N	MEAN	S.D.
Individual instruction	594	66.9	240	27.0	41	4.6	13	1.5	888	3.59	0.65
Demonstration (skills)	499	55.8	358	40.0	31	3.5	7	0.8	895	3.51	0.61
Demonstration (theory)	303	34.2	490	55.4	79	8.9	13	1.5	885	3.22	0.66
Discussion	274	31.0	496	56.2	86	9.7	27	3.1	883	3.15	0.71
Lecture	268	30.1	353	39.7	224	25.2	44	4.9	889	2.95	0.87
Illustrated talk	190	21.8	481	55.3	154	17.7	45	5.2	870	2.94	0.77
Directed study (individual)	243	28.2	364	42.2	191	22.2	64	7.4	862	2.91	0.89
Directed study (group)	122	14.2	372	43.4	268	31.3	95	11.1	857	2.61	0.86
Movie film presentation	6	0.7	254	29.1	444	50.9	168	19.3	872	2.11	0.70
Filmstrip or slide presentation	10	1.1	214	24.5	391	44.8	257	29.5	872	1.97	0.77
Field trip	1	0.1	82	9.3	480	54.4	320	36.2	883	1.73	0.62
Guest lecturer	6	0.7	42	4.8	324	37.0	504	57.5	876	1.49	0.62

* 1-Never, 2-Seldom, 3-Often, 4-Daily

Demonstration by the instructor was the second most frequently reported method of instruction. About 56 percent of the teachers reported that skill-related demonstrations were a daily occurrence. Demonstrations related to theory instruction were also used relatively frequently. Discussion was reported as a daily occurrence by 31 percent of the teachers, and another 56 percent claimed it was often used.

It is likely that the most frequently used methods of instruction, i.e. individual instruction, demonstration and discussion, involve maximum opportunity for student participation. This is in contrast with the group instruction that characterizes much academic subject teaching. The motivation-inducing characteristics of such methods are perhaps greater than those associated with group lecture methods.

Lecture methods are also frequently used, although probably not the sustained lecture that characterizes some of the academic subject teaching. About 30 percent of the instructors reported use of the lecture method daily, and another 40 percent claimed they used the lecture method often. About 30 percent indicated that they seldom or never used the lecture method of instruction.

Visual aid methods of instruction were relatively infrequently used. About a fourth of the teachers claimed to use movies, film strips or slides very often. Nineteen percent reported that they never used movies. Almost 30 percent reported that they never used film strip or slide presentations. Large percentages reported that they seldom used such methods of instruction. (A later question is more specifically addressed to the use of instructional equipment.)

●How do T&I teachers in vocational and comprehensive schools compare in terms of use of instructional methods? Table 2 provides the data.

A comparison of the frequency of use means derived for each method from the teachers in the two types of schools indicates no impressive differences. What is impressive are the similarities, not the differences. There is a suggestion that the more atypical methods, such as field trips, guest lecturers and visual aid use, are more frequently employed by the comprehensive school teachers.

●How do vocational and academic teachers compare in terms of reported frequency of use for different instructional methods? Table 3 provides the data.

Not all methods are equally applicable to the subjects of both types of teachers. This will account for the much greater use by vocational teachers of individual instruction (3.6 vs. 2.7), demonstrations (3.5 vs. 2.3) and field trips (1.7 vs. 1.4).

The academic teachers are only slightly more inclined to use the lecture method. It may be, however, that the duration of time spent in the lecture method is greater among the academic teachers. The study has no data on this possibility. What is interesting is the greater use of discussion methods reported by academic teachers. One wonders

TABLE 2. COMPARATIVE DATA ON USE OF INSTRUCTIONAL METHODS IN COMPREHENSIVE AND VOCATIONAL SCHOOLS

INSTRUCTIONAL METHODS *	TYPE OF SCHOOL					
	VOCATIONAL			COMPREHENSIVE		
	N	MEAN	S.D.	N	MEAN	S.D.
Lecture	586	2.97	0.88	303	2.90	0.85
Illustrated talk	578	2.94	0.80	292	2.94	0.73
Demonstration (skills)	595	3.51	0.62	300	3.50	0.57
Demonstration (theory)	587	3.25	0.68	298	3.17	0.64
Directed study (groups)	564	2.58	0.87	293	2.66	0.85
Directed study (individual)	577	2.92	0.91	285	2.90	0.86
Discussion	582	3.17	0.71	301	3.11	0.70
Movie film presentation	580	2.08	0.71	292	2.18	0.70
Film strip or slide presentation	574	1.97	0.77	298	1.99	0.76
Field trip	582	1.69	0.62	301	1.82	0.63
Guest lecturer	580	1.46	0.62	296	1.54	0.63
Individualized instruction	590	3.60	0.66	298	3.58	0.64

* 1-Never, 2-Seldom, 3-Often, 4-Daily

TABLE 3. COMPARATIVE DATA ON USE OF INSTRUCTIONAL METHODS BY VOCATIONAL AND ACADEMIC TEACHERS

INSTRUCTIONAL METHODS *	TYPE OF TEACHER					
	VOCATIONAL			ACADEMIC		
	N	MEAN	S.D.	N	MEAN	S.D.
Lecture	889	2.95	0.87	230	3.07	0.85
Illustrated talk	870	2.94	0.77	223	2.75	0.83
Demonstration (skills)	895	3.51	0.61	176	2.30	1.05
Demonstration (theory)	885	3.22	0.66	195	2.80	0.99
Directed study (groups)	857	2.61	0.86	226	2.73	0.87
Directed study (individual)	862	2.91	0.89	219	2.59	0.83
Discussion	883	3.15	0.71	216	3.36	0.67
Movie film presentation	872	2.11	0.70	227	2.07	0.76
Film strip or slide presentation	872	1.97	0.77	224	1.90	0.73
Field trip	883	1.73	0.62	219	1.38	0.53
Guest lecturer	876	1.49	0.62	224	1.45	0.61
Individualized instruction	888	3.59	0.65	218	2.68	0.82

* 1-Never, 2-Seldom, 3-Often, 4-Daily

whether this reflects what takes place in the classrooms or what teachers think should take place in the classrooms.

The range of instructional methods employed by vocational teachers is greater than that used by academic teachers. Undoubtedly, the differences in subject matter account for many of the differences in instructional methods used.

When teachers were scored on instructional methods use, as described at the start of this section, the individual differences were considerable. They ranged from less than 1.4, which suggests almost exclusive use of one method of instruction, to above 3.5, which suggests daily use of a majority of the methods listed (or that a few teachers were stretching the truth of their versatility).

The reader may recall that range of instructional methods used failed to correlate significantly with either course holding power or the post-school vocational outcomes experienced by the graduates. This does not mean that instructional methods are important to either holding power or vocational outcomes. The critical variable may not be the range of methods used, but how effectively specific methods are used. The present study regrettably has no data on the quality aspect of instructional methods.

See Appendix Section 8 for additional data on instructional methods use.

INSTRUCTIONAL EQUIPMENT USE

Approximately 890 shop instructors responded to a list of twelve different types of instructional devices by indicating how frequently they used each item of equipment, e.g. daily, often, seldom or never. The answer alternatives were scored 4, 3, 2 and 1 respectively, and the mean of the scores provided an index describing the teachers' use of instructional equipment.

•What is the relative frequency with which T&I shop instructors use various types of instructional equipment? Table 4 provides the data.

The instructional equipment shown in Table 4 is listed in the order of frequency of use. At the top of the list is that classical piece of equipment, the chalkboard. About 66 percent of the teachers report daily use of the chalkboard. Another 27 percent claim they use the chalkboard often. Only 7 percent indicated they seldom or never used the chalkboard. The chalkboard has a unique advantage over the other instructional tools. It is always ready, always programmed to go, never needs to be set up, never breaks down and doesn't have to be stored. Also, all of the softwear that is needed is stored in the head of the instructor. That's a hard combination to beat, and that explains why the chalkboard is still the paramount item of instructional equipment.

Running a very poor second is the motion picture projector. About 66 percent of the T&I teachers report that they seldom or never use a movie projector, although all of the schools surveyed had at least one such projector.

TABLE 4. FREQUENCY OF INSTRUCTIONAL EQUIPMENT USE REPORTED BY T&I VOCATIONAL TEACHERS

INSTRUCTIONAL EQUIPMENT	REPORTED FREQUENCY OF USE								MEAN USE FREQUENCY *		
	DAILY		OFTEN		SELDOM		NEVER				
	N	%	N	%	N	%	N	%	N	MEAN	S.D.
Chalkboard	588	66.1	237	26.6	41	4.6	24	2.7	890	3.56	0.71
Sound movie projector	2	0.2	290	32.5	390	43.7	210	23.5	892	2.09	0.75
Slide projector	19	2.1	207	23.4	332	37.5	328	37.0	886	1.91	0.83
Opaque projector	1	0.1	73	8.3	242	27.6	561	64.0	877	1.45	0.65
Overhead projector	16	1.9	89	10.4	152	17.8	595	69.8	852	1.44	0.75
Teaching machine devices	14	1.6	42	4.9	56	6.5	745	86.9	857	1.21	0.60
Phonograph	5	0.6	34	3.9	82	9.5	744	86.0	865	1.19	0.52
Tape recorder	2	0.2	19	2.2	125	14.3	730	83.3	876	1.19	0.46
"Public channel" broadcast	3	0.3	10	1.2	47	5.4	805	93.1	865	1.09	0.35
"Closed circuit" television	2	0.2	7	0.8	35	4.0	821	94.9	865	1.06	0.30

* 1-Never, 2-Seldom, 3-Often, 4-Daily

In third place was the slide projector. Almost 75 percent of the teachers reported that they seldom or never used a slide projector.

The opaque and overhead projectors ran fourth in the race to modernize instruction, and a very poor fourth at that. Ninety-one and eighty-eight percent of the instructors respectively, reported that they seldom or never used the opaque and overhead projector. All of these items of equipment were available in quantity in all schools surveyed.

The rest of the data in Table 4 is left for the reader to interpret. Not only has the age of the computer yet to reach the T&I shop classroom, but the age of the often mentioned, but seldom used overhead projector has hardly got a foot in the door.

•How do vocational and comprehensive schools compare in terms of instructional equipment use? Table 5 provides the data.

TABLE 5. COMPARATIVE DATA ON USE OF INSTRUCTIONAL EQUIPMENT IN COMPREHENSIVE AND VOCATIONAL SCHOOLS

INSTRUCTIONAL EQUIPMENT *	TYPE OF SCHOOL					
	VOCATIONAL			COMPREHENSIVE		
	N	MEAN	S.D.	N	MEAN	S.D.
Sound movie projector	591	2.06	0.75	301	2.16	0.74
Slide projector	584	1.91	0.84	302	1.90	0.81
Opaque projector	582	1.46	0.66	295	1.43	0.63
Tape recorder	581	1.19	0.47	295	1.20	0.45
Public channel broadcast	575	1.08	0.34	290	1.11	0.38
Closed circuit television	574	1.06	0.30	291	1.08	0.29
Teaching machine devices	570	1.18	0.56	287	1.28	0.67
Phonograph	574	1.18	0.52	291	1.22	0.52
Overhead projector	566	1.45	0.76	286	1.43	0.75
Chalkboard	590	3.56	0.72	300	3.56	0.69

* 1-Never, 2-Seldom, 3-Often, 4-Daily

What is remarkable about the comparative data is the similarity of instructional equipment use, not the difference. The two schools are virtually identical twins when it comes to frequency of instructional equipment use. In both, the chalkboard is in the lead and everything else is far, far behind.

•How do vocational and academic teachers compare in terms of instructional equipment use? Table 6 provides the data.

The subjects taught by the two types of teachers do not lend themselves equally to the use of instructional equipment. Half of the academic teachers, for example, taught English and social studies, subjects which have not been greatly developed in audio-visual materials. This makes the comparative data shown in Table 6 all the more interesting. The academic teachers report significantly greater use of phonographs, tape recorders and public channel television. There is no significant difference in use of sound movie projectors, slide projectors, opaque projectors, closed circuit television, teaching machines and overhead projectors. And even the chalkboard is favored more frequently by the academic teachers. If one were to rush a conclusion, it would be that vocational teachers are perhaps not as well trained or skilled in the use of mechanical instructional equipment. However, it may also be that they lack the software that goes into such equipment. The study regrettably has no data on either speculation.

TABLE 6. COMPARATIVE DATA ON USE OF INSTRUCTIONAL EQUIPMENT BY VOCATIONAL AND ACADEMIC TEACHERS

INSTRUCTIONAL EQUIPMENT *	TYPE OF TEACHER					
	VOCATIONAL			ACADEMIC		
	N	MEAN	S.D.	N	MEAN	S.D.
Sound movie projector	892	2.09	0.75	230	2.14	0.78
Slide projector	886	1.91	0.83	228	1.85	0.73
Opaque projector	877	1.45	0.65	224	1.40	0.57
Tape recorder	876	1.19	0.46	225	1.52	0.70
Public channel broadcast	865	1.09	0.35	220	1.22	0.52
Closed circuit television	865	1.06	0.30	215	1.13	0.38
Teaching machine devices	857	1.21	0.60	217	1.21	0.53
Phonograph	865	1.19	0.52	220	1.50	0.67
Overhead projector	852	1.44	0.75	222	1.50	0.81
Chalkboard	890	3.56	0.71	222	3.67	0.61

* 1-Never, 2-Seldom, 3-Often, 4-Daily

One thing is clear. Much of the equipment is in the schools. It may not be the latest and it may not be available in a quantity that makes for convenient use. However, much is available.

• What types of instructional equipment were reported available to shop instructors by the school principals? Table 7 provides the data.

All schools surveyed had movie projectors available for shop instructor use. The majority seldom or never use such equipment. Ninety-eight percent of the schools had slide projectors. The majority of T&I instructors seldom or never use such equipment. Ninety-five percent had overhead projectors. These too were not used by the majority of teachers. Essentially, the same can be said for opaque projectors, tape recorders and phonographs.

The newer devices, such as teaching machines, closed circuit television, and public channel television are found in fewer schools, so their reported previously infrequent use is more understandable.

Undoubtedly, the lack of software is a problem that curtails use of such equipment. Even so, the advantages of the chalkboard cited earlier combined with human nature (It's too much trouble to use.) do not augur well for those who would mechanize the classroom.

TABLE 7. COMPARATIVE DATA ON TYPES OF INSTRUCTIONAL EQUIPMENT AVAILABLE TO VOCATIONAL TEACHERS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPES OF INSTRUCTIONAL EQUIPMENT AVAILABLE TO VOCATIONAL TEACHERS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Sound movie projector	100	100.0	50	100.0	50	100.0
Slide projector	98	98.0	49	98.0	49	98.0
Opaque projector	88	88.0	43	86.0	45	90.0
Tape recorder	97	97.0	48	96.0	49	98.0
"Public channel" broadcast	47	47.0	20	40.0	27	54.0
"Closed circuit" television	17	17.0	11	22.0	6	12.0
Teaching machine devices	17	17.0	8	16.0	9	18.0
Phonograph	91	91.0	42	84.0	49	98.0
Overhead projector	95	95.0	48	96.0	47	94.0

• What is the quantity of instructional equipment available per one hundred students enrolled? How do vocational and comprehensive schools compare? Table 8 provides the data.

The equipment is listed in the order of mean number available per 100 students enrolled. All items were available in a quantity of less than one per 100 students. (The statement is descriptive, and does not imply a standard.)

The availability of the more common types of equipment, such as motion picture, slide and overhead projectors, adds further evidence to the explanation that lack of equipment is not the major factor behind the low frequency of use by instructors.

Excluding teaching machine devices and phonographs, the comprehensive schools have less equipment per 100 pupils than do the vocational schools. It is also the case that comprehensive schools have higher total enrollments, and that if the data had been calculated on vocational program enrollment only, the comprehensive schools would have shown more equipment per 100 vocational pupils than the vocational schools.

See Appendix Section 8 for additional data on instructional equipment use.

TABLE 8. COMPARATIVE DATA ON TYPES OF INSTRUCTIONAL EQUIPMENT AVAILABLE PER 100 PUPILS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPES OF INSTRUCTIONAL EQUIPMENT AVAILABLE (MEAN NUMBER PER 100 PUPILS)	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
Sound movie projector	96	0.8	1.4	48	0.9	1.4	48	0.7	1.3
Slide projector	95	0.9	1.6	47	1.0	1.7	48	0.7	1.6
Opaque projector	93	0.3	0.6	46	0.4	0.6	47	0.2	0.6
Tape recorder	95	0.6	0.8	48	0.6	0.8	47	0.5	0.7
"Public channel" broadcast	90	0.1	0.4	45	0.2	0.6	45	0.1	0.2
"Closed circuit" television	96	0.1	0.4	47	0.1	0.5	49	0.1	0.3
Teaching machine devices	96	0.4	2.0	49	0.3	1.4	47	0.4	2.6
Phonograph	93	0.6	4.1	46	0.5	0.7	47	0.7	5.8
Overhead projector	94	0.4	2.0	47	0.6	1.0	47	0.3	2.7

EXAMINATION POLICY AND STUDENT EVALUATION

Chapter 5 reported that T&I vocational teachers, as a group, used written examinations somewhat infrequently. No adequate explanation was offered. This section provides data that explains, perhaps, why written examinations are not more frequently used by vocational teachers. The explanation has to do with school examination policy and with what vocational teachers consider important in the evaluation of their students.

School Examination Policy

● What school policies are reported, with respect to written examination frequency, for vocational students? Table 9 provides the data.

TABLE 9. COMPARATIVE DATA ON FREQUENCY OF WRITTEN EXAMINATIONS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

FREQUENCY OF WRITTEN EXAMINATIONS BY SCHOOL POLICY	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
No written examination policy	27	27.3	16	32.0	11	22.4
Final only	22	22.2	13	26.0	9	18.4
Mid-semester only	4	4.0	3	6.0	1	2.0
Weekly	3	3.0	3	6.0	0	0.0
Other than above	6	6.1	4	8.0	2	4.1
Final and mid-semester	25	25.3	4	8.0	21	42.9
Final and monthly	2	2.0	1	2.0	1	2.0
Mid-semester and monthly	1	1.0	0	0.0	1	2.0
Final, mid-semester and monthly	4	4.0	2	4.0	2	4.1
Final, mid-semester and weekly	4	4.0	3	6.0	1	2.0
Final, monthly and weekly	1	1.0	1	2.0	0	0.0

Twenty-seven percent of the principals reported there was no school policy regarding the use of written examinations in vocational courses. Twenty-two percent required a final examination only. Twenty-five percent required only a final examination plus a midterm examination. That accounts for seventy-five percent of the schools. The relatively low frequency of examinations reported by the teachers is now more understandable. The examination frequency policies of the other 25 percent of the schools are scattered over the other response alternatives shown in Table 9.

It is apparent that most schools leave discussions on examination frequency to the shop instructors. This is perhaps best. It has been shown in Chapter 5 that the frequency of examinations reported by instructors does not correlate significantly with such criteria as course holding power, percentage of graduates who would be recommended by instructors, or any of the post-graduation occupational experiences of the graduates. While such data does not mean examinations are unimportant in vocational subjects, it does contradict the idea that examination frequency should be increased to improve the effectiveness of vocational education. There does not appear to be a relationship between examination frequency and the measures of vocational education effectiveness considered in this study.

• What school policies are reported with respect to the type of written examinations to be used? Of the 73 percent of the schools that claimed a written examination policy for vocational subjects, about 65 percent reported no school policy on the type of examinations to be used. It was left to the instructor to decide whether he would use essay, true and false, multiple choice or other types of examinations. (The policy of leaving such matters to the instructors is undoubtedly best. That does not mean, however, that schools should not be concerned about the quality of examinations given by their instructors. The study has no data on what, if anything, schools do to improve the quality of teacher developed examinations.)

Student Evaluation Factors

The shop instructors responded to a list of twelve student evaluation methods and factors by indicating that the method or factor was not used or that it was considered to be of some importance, important or very important in their total evaluation of a student. To assess the relative importance attached to each factor, the response categories, i.e. not used, some importance, important and very important, were weighted 1, 2, 3 and 4 respectively, thereby permitting the calculation of a mean rating for each evaluation method.

• What is the relative importance that vocational teachers attach to each of twelve student evaluation methods? Table 10 provides the mean ratings and the response percentages for each evaluation method. The factors are listed in the order of the mean rating of importance.

The evaluation emphasis is clear. Quality of shop work, evaluation of assigned project work, accuracy of work, attitudes and conduct--these factors take precedence over written examinations. The shop instructors emphasize shop performance rather than paper and pencil work. This explains the earlier finding that written examinations are used infrequently by most

TABLE 10. T&I VOCATIONAL TEACHER OPINIONS OF THE IMPORTANCE OF DIFFERENT STUDENT EVALUATION FACTORS

EVALUATION FACTORS	REPORTED ASSESSMENT OF IMPORTANCE								MEAN FACTOR RATING *		
	NOT USED		OF SOME IMPORTANCE		IMPORTANT		VERY IMPORTANT				
	N	%	N	%	N	%	N	%	N	MEAN	S.D.
Quality of shop work	7	0.8	11	1.2	131	14.6	751	83.4	900	3.81	0.48
Accuracy	3	0.3	17	1.9	248	27.4	636	70.4	904	3.69	0.53
Attitudes	16	1.8	25	2.8	254	28.2	606	67.3	901	3.61	0.63
Project or job evaluation	29	3.3	22	2.5	207	23.4	625	70.8	883	3.62	0.70
Conduct	15	1.7	41	4.5	337	37.3	510	56.5	903	3.49	0.66
Objective test results	75	8.5	152	17.3	439	49.9	214	24.3	880	2.90	0.87
Speed	40	4.5	307	34.3	391	43.6	158	17.6	896	2.74	0.80
Oral test results	117	13.3	234	26.5	368	41.7	163	18.5	882	2.65	0.93
Homework evaluation	290	32.9	270	30.6	254	28.8	67	7.6	881	2.11	0.95
Essay test results	335	38.4	261	29.9	193	22.1	84	9.6	873	2.03	1.00
Local standardized test results	469	56.7	161	19.5	147	17.8	50	6.0	827	1.73	0.96
State standardized test results	511	63.7	142	17.7	120	15.0	29	3.6	802	1.59	0.87

* 1-Not used, 2-Of some importance, 3-Important, 4-Very important

vocational teachers. It is interesting that 38 percent of the instructors claim they never use essay examinations.

Standardized tests play a negligible role in the evaluation of students. The majority of instructors report that they never use such tests. Indeed, the writer is inclined to wonder if those who claim to attach importance to such tests did not misunderstand what was meant by the term, standardized test . The implication that almost 40 percent of the instructors use standardized tests does not ring right.

Homework, too, is a minor evaluation factor. About 38 percent claim that homework is not considered in the evaluation of students. It is possible that a large percent do not give homework assignments of the kind that are turned in for teacher evaluation.

As might be expected, there are considerable individual differences among teachers concerning the importance attached to the evaluation factors. Based upon their ratings and the weights described earlier, a mean score was calculated for each teacher. The range of scores was from less than 1.9 to more than 3.5. A later section of the chapter will indicate what relationship such scores have with the vocational outcomes.

- How do vocational and comprehensive schools compare in terms of the evaluation factors stressed by their vocational teachers? Table 11 provides the comparative data.

None of the paired means are significantly different at the .01 level of confidence. The relative importance attached to the different evaluation factors is essentially the same in both schools.

TABLE 11. COMPARATIVE DATA ON T&I VOCATIONAL TEACHER OPINIONS OF THE IMPORTANCE OF DIFFERENT STUDENT EVALUATION FACTORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

EVALUATION FACTORS *	TYPE OF SCHOOL					
	VOCATIONAL			COMPREHENSIVE		
	N	MEAN	S.D.	N	MEAN	S.D.
Essay test results	573	2.05	1.01	300	2.00	0.96
Objective test results	579	2.89	0.90	301	2.92	0.80
Oral test results	585	2.66	0.93	297	2.64	0.94
Homework evaluation	583	2.10	0.97	298	2.13	0.93
Quality of shopwork	594	3.82	0.46	306	3.79	0.50
Project or job evaluation	580	3.62	0.69	303	3.61	0.72
Speed	594	2.79	0.79	302	2.66	0.82
Accuracy	598	3.69	0.52	306	3.66	0.54
Conduct	597	3.46	0.67	306	3.53	0.65
Attitudes	596	3.60	0.66	305	3.64	0.58
Local standardized test results	541	1.76	0.98	286	1.69	0.90
State standardized test results	524	1.58	0.89	278	1.59	0.84

* 1-Not used, 2-Of some importance, 3-Important, 4-Very important

• How do vocational and academic teachers compare in terms of relative importance attached to selected student evaluation methods? Table 12 provides the data.

The academic teachers lay greater emphasis, as one might expect, on written examination results. It is also clear that objective examinations are stressed more heavily by both types of teachers than are essay examinations. Academic teachers also place more emphasis on homework evaluation than do the vocational teachers. Vocational teachers, on the other hand, put more emphasis on conduct and attitudes when evaluating their students. Considerations of shop safety and efficiency may account for part of the difference. Also, the shop instructors are aware that they are preparing their students for the world of work in which attitudes and conduct often spell the difference between success and failure.

The above differences between vocational and academic teachers, and other differences in the area of instructional methods and equipment, point out that the vocational and academic students spend their time in two different worlds. One stresses individual freedom to proceed at one's own pace, a more personal student-teacher relationship, greater emphasis on action performance, and demand for appropriate behavior and attitudes. The other stresses the group's moving forward together, a less personal student-teacher relationship, greater emphasis on paper and pencil performance, and less concern for attitudes. See Appendix Section 8 for additional data on evaluation factors.

TABLE 12. COMPARATIVE DATA ON T&I VOCATIONAL AND ACADEMIC SUBJECT TEACHER OPINIONS OF THE IMPORTANCE OF DIFFERENT STUDENT EVALUATION FACTORS

EVALUATION FACTORS *	TYPE OF TEACHER					
	VOCATIONAL			ACADEMIC		
	N	MEAN	S.D.	N	MEAN	S.D.
Essay test results	873	2.03	1.00	223	2.61	1.08
Objective test results	880	2.90	0.87	227	3.38	0.66
Oral test results	882	2.65	0.93	229	2.61	0.91
Homework evaluation	881	2.11	0.95	226	2.80	0.76
Conduct	903	3.49	0.66	224	2.90	0.96
Attitudes	901	3.61	0.63	224	3.14	0.92

* 1-Not used, 2-Of some importance, 3-Important, 4-Very important

OTHER DATA RELATED TO INSTRUCTION

Experimental Instruction

The 100 school principals were asked if their schools employed any type of experimental instructional program in vocational education in the past five years. Twenty-seven percent claimed they had some such program, although not necessarily a continuing program.

An examination of what the 27 principals called an experimental instructional program suggested that some were guided by a very loose definition of an experimental program. These include two who claimed the introduction of an overhead projector as an experimental program, one who claimed the acceptance of some students from a nearby parochial school as an experimental program, three who claimed increased use of individual instruction by shop teachers as an innovation, and two who claimed the introduction of a new T&I course as an experiment. If these schools are eliminated from those reporting some type of experimental instructional program, then 19 percent of the schools had some such program in the five years preceding the survey.

What kinds of experimental programs were explored?

•Closed circuit television	5
•Team teaching in vocational subject	3
•Use of a programmed instruction device	3
•Team teaching in academic subject	3
•Exploratory shops program	2
•Study-hall occupation information classes	1
•Lower Course admission standard	1
•Use of teacher to develop instructional material	1
•Change from small to large shop project (Class builds a house)	1
•Special English-for-living course	1
•Multi-subject industrial arts program	1
•One week speed reading course	1
•One hour reduction in shop duration	1
•Shop math converted to separate subject	1
•Special slow learner program	1

The twenty-six experimental programs occurred in nineteen schools. It is quite possible that the results would have been different had a closed end question been used which listed different types of programs considered to be experimental. Nevertheless, it seems fair to conclude that the great majority of schools do little in the way of instructional methods experimentation in their vocational programs. (Perhaps more is done informally at the instructor level.)

Provisions for Exceptional Learners in Vocational Programs

One can think of two types of exceptional learners, the rapid learners and the very slow learners. Each can be a problem unless there are some special provisions to adjust the school process to them. The school principals were asked to indicate which of a list of provisions were made to accommodate both types of students.

• What provisions do schools report for rapid learners? Table 13 provides the data.

TABLE 13. COMPARATIVE DATA ON PROVISIONS FOR RAPID LEARNERS REPORTED BY VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPES OF PROVISIONS FOR RAPID LEARNERS REPORTED BY SCHOOLS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Special assignments in shop work	57	60.0	30	63.8	27	56.3
Enriched program of math, science	38	40.0	18	38.3	20	41.7
Responsible for instruction of others	36	36.0	19	40.4	17	35.4
Permitted wider range of electives	31	31.0	13	27.7	18	37.5
Elect challenging vocational course	27	27.0	14	29.8	13	27.1
Grouped for special instruction	23	23.0	12	25.5	11	22.9
Encouraged to participate in coop program	21	21.0	11	23.4	10	20.8
Special after-school projects	18	18.0	9	19.1	9	18.8
Advanced guided reading program	17	17.0	9	19.1	8	16.7
Other than above	18	18.0	7	14.9	11	22.9

The rapid learner provisions are shown in the order of their frequency of use. Heading the list is the use of special assignments in shop work, claimed by 60 percent of the school principals. Second is an enriched program of mathematics and science, claimed by 40 percent of the principals. Third is the technique of using the rapid learner to assist in the instruction of others. At the bottom, claimed by 17 percent of the schools, was use of a guided program of advanced reading. With the exception of special shop assignments, none of the provisions listed are endorsed by a majority of the schools.

• How many of the different provisions for rapid learners do schools report using as a combination effort? Table 14 provides the data.

The average school reported the use of some combination of 2.8 rapid learner provisions. There was no difference in the mean number of provisions reported by vocational and comprehensive schools. About 24

TABLE 14. DISTRIBUTION DATA ON NUMBER OF PROVISIONS FOR RAPID LEARNERS REPORTED BY VOCATIONAL AND COMPREHENSIVE SCHOOLS

PROVISIONS FOR RAPID LEARNERS REPORTED BY SCHOOLS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
7	3	3.2	3	6.4	0	0.0
6	9	9.7	2	4.3	7	15.2
5	11	11.8	6	12.8	5	10.9
4	15	16.1	8	17.0	7	15.2
3	11	11.8	6	12.8	5	10.9
2	13	14.0	7	14.9	6	13.0
1	9	9.7	4	8.5	5	10.9
0	22	23.7	11	23.4	11	23.9
NUMBER	93		47		46	
MEAN	2.8		2.8		2.8	
MEDIAN	3		3		3	
S.D.	3.4		3.4		3.4	

percent of the schools reported no special provisions for rapid learners in vocational subjects. Considering that the principals responded to a list of such provisions, one must conclude that a very substantial percentage of schools (or principals) seem to be unresponsive to the problems of the rapid learner.

●How do vocational and comprehensive schools compare in terms of rapid learner provisions?

The percentage differences shown in Table 15 are not impressive, except for three provisions: (1) Comprehensive schools are more likely to provide a wider range of elective subjects, (2) The vocational schools are more likely to make use of special shop assignments, (3) The vocational schools make greater use of rapid learners as instructors of others in their shop classes. These differences reflect the leanings of the two types of schools.

The mean number of rapid learner provisions reported by vocational and comprehensive schools is 2.8 and 2.8 respectively. In quantitative terms, the two types of schools are alike in making provisions for rapid learners.

●What provisions do schools report for slow learners? Table 15 provides the data.

TABLE 15. COMPARATIVE DATA ON PROVISIONS FOR SLOW LEARNERS REPORTED BY VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPES OF PROVISIONS FOR SLOW LEARNERS REPORTED BY SCHOOLS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Special assignments in shop work	47	49.5	27	56.3	20	42.6
Elect less demanding vocational course	45	46.9	30	61.2	15	31.9
Assigned to remedial reading classes	36	37.5	22	44.9	14	29.8
Lower general education subject standards	35	36.5	16	32.7	19	40.4
General education subjects modified	35	36.5	15	30.6	20	42.6
Individual diagnostic/remedial counseling	34	35.4	17	34.7	17	36.2
Diagnostic aptitude testing program	24	25.0	13	26.5	11	23.4
Participate in "work experience" program	13	13.5	8	16.3	5	10.6
Assigned to study skills classes	7	7.3	3	6.1	4	8.5
Other than above	12	12.5	8	16.3	4	8.5

The slow learner provisions reported by the school principals are shown in the order of claimed use. Again, special shop assignments seem to be the most widely endorsed method of dealing with the slow learner. Half of the schools claimed to use this method.

Some of the methods claimed are essentially diagnostic or remedial in some specific skill sense. They include diagnostic aptitude testing (25%), diagnostic counseling (35%), remedial reading classes (37%), and assignment to a study skills class (7%).

Some methods lower standards. About 36 percent of the schools reported that academic subject standards were lowered for the slow learner. That does not mean different kinds of assignments in such subjects. It usually mean[s] a lower grading standard is applied. However, 36 percent of the schoo[ls] so claimed some change in the content of academic subjects to accommo[date] the slow learner.

Then there are the methods that attempt to separate the student from his problem. About 47 percent of the schools report that slow learners are encouraged to take a less demanding vocational course. Only a very small percentage of schools (13%) reported that slow learners were encouraged to participate in work experience programs. Cooperative programs are usually reserved for the best students, not those with problems.

•How many different slow learner provisions do the schools use in combination? Table 16 provides the data.

The average school has 3.0 provisions for slow learners, and the vocational schools report a slightly higher number than the comprehensive schools. Numbers do not, however, say anything about the quality or effectiveness of such provisions.

TABLE 16. DISTRIBUTION DATA ON NUMBER OF PROVISIONS FOR SLOW LEARNERS REPORTED BY VOCATIONAL AND COMPREHENSIVE SCHOOLS

PROVISIONS FOR SLOW LEARNERS REPORTED BY SCHOOLS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
9	1	1.0	0	0.0	1	2.1
8	2	2.1	1	2.1	1	2.1
7	7	7.3	3	6.2	4	8.3
6	5	5.2	4	8.3	1	2.1
5	7	7.3	2	4.2	5	10.4
4	12	12.5	7	14.6	5	10.4
3	17	17.7	10	20.8	7	14.6
2	20	20.8	13	27.1	7	14.6
1	11	11.5	5	10.4	6	12.5
0	14	14.6	3	6.2	11	22.9
NUMBER	96		48		48	
MEAN	3.0		3.2		2.9	
MEDIAN	3		3		2	
S.D.	3.7		3.8		3.7	

About 14 percent of the schools reported that they had no special provisions for slow learners. These were mainly comprehensive schools. Another 12 percent reported only one provision for slow learners from the total list presented in Table 15. Thus, more than a quarter of the schools surveyed had only one provision, or none at all, for slow learners. This is hardly a picture of schools responding to student needs. The disadvantaged learner is substantially on his own in a large percentage of secondary schools.

●How do vocational and comprehensive schools compare in terms of types of provisions for slow learners?

Some interesting differences appear in Table 15. The comprehensive schools are more likely to lower grading standards in academic subjects (40 vs. 33 percent) and modify the content of such subjects (43 vs. 31 percent). The vocational schools, in turn, are more likely to employ special shop assignments (56 vs. 42 percent) to encourage the student to elect a less demanding course (62 vs. 32 percent) or to assign the student to a remedial reading class (45 vs. 30 percent). The differences on the other provisions for slow learners are negligible.

* * * * * * *

The data related to school provisions for exceptional learners leaves the writer somewhat uncomfortable. It is possible, and perhaps even probable, that the principals were guided more by their sense of what should be than what actually was the case in their schools. The present data only superficially scratches the surface of an important problem area.

SUMMARY OF FINDINGS

Instructional Methods Use

1. Methods most frequently used. The four most frequently used methods of instruction, based on teacher reports in terms of a four point scale*, are individual instruction (3.6), skill demonstrations (3.5), theory demonstrations (3.2) and discussion (3.2).

2. Methods least frequently used. Based upon the same scale*, the four least frequently used methods of instruction are movie film presentation (2.1), film strip or slide presentations (2.0), field trips (1.7) and use of guest speakers (1.5).

3. Vocational vs. comprehensive schools. There is no impressive overall difference in the instructional methods used by vocational teachers in either type of school.

4. Vocational vs. academic teachers. Vocational teachers employ a greater range of instructional methods than academic teachers, a reflection more of differences in subject-matter than training.

5. Relation with criteria. Range of instructional methods used varies widely among vocational teachers, but does not correlate significantly with course holding power and the post-graduation experiences of former students.

Instructional Equipment Use

1. Relative equipment use. The common chalkboard is the most frequently used item of equipment. About 93 percent of the teachers use it daily or very often. In contrast, all other equipment is infrequently used. The following percentages reported that they seldom or never used the listed instructional equipments: movie projector (67%), slide projector (75%), opaque projector (92%), tape recorder (97%), closed circuit television (99%), teaching machines (94%) and overhead projector (88%).

2. Vocational vs. comprehensive schools. There is no impressive difference in the two types of schools. Excluding the chalkboard, most equipment is seldom or never used by instructors.

3. Vocational vs. academic teachers. Although the differences are not great, academic teachers tend to use instructional equipment more frequently than vocational teachers.

4. Relation with criteria. Range of instructional equipment use varies widely among vocational teachers, but does not correlate significantly with course holding power or the post-graduation experiences of former students.

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* 1-Never, 2-Seldom, 3-Often, 4-Daily

Instructional Equipment Availability

1. Schools reporting equipment. The percentages of schools reporting different types of instructional equipment available were: sound movie projector (100%), slide projector (98%), tape recorder (97%), overhead projector (95%), record player (91%), opaque projector (88%), public channel television (47%), closed circuit television (17%) and teaching machine devices (17%).

2. Equipment student ratios. The mean equipment per 100 student ratios were as follows: movie projector (0.8), slide projector (0.9), tape recorder (0.6), overhead projector (0.4), record player (0.6), opaque projector (0.3), public television (0.1), teaching machine devices (0.4) and closed circuit television.

3. Availability and use. It is clear that lack of availability does not account for the very high percentage of teachers who seldom or never use the more common types of instructional equipment.

Examination Policy

1. Frequency of examinations. More than a quarter of the schools had no policy regarding the use of written examinations. A slight majority required a final examination or a mid-term examination and a final examination. Beyond that, the use of examinations was left up to the instructors.

2. Type of examinations. The majority of schools had no policy as to type of examinations, i.e. essay, objectives, etc., to be used. Such decisions were left to the discretion of the instructors.

3. Vocational vs. comprehensive schools. There was little difference between the two types of schools on school examination policies.

Student Evaluation Factors

1. Major evaluation factors. The T&I vocational teachers regarded quality of shopwork, conduct and attitudes as more important for student evaluation than written examination results or homework assignments. This explains in part the relatively infrequent use of examinations by many vocational teachers.

2. Vocational vs. comprehensive schools. The relative importance attached to various student evaluation factors is basically the same in both types of schools.

3. Vocational vs. academic teachers. The academic teachers place greater emphasis on written examination results and less on attitudes and conduct when evaluating students. They also stress homework assignments more than do vocational teachers.

Experimental Instruction

1. Prevalence of experimental instructional methods. Only 19 percent of the schools surveyed had what could be called some type of

experimental instructional program during the five year period preceding the survey. Seventy-three percent claimed no such program, and eight percent reported activities or changes that could not be considered an experimental approach to anything.

2. Type of experimental methods reported. The three most frequently reported experimental teaching methods were closed circuit television (5), use of team teaching in a vocational subject (3) and use of programmed instruction machines(3).

Provisions for Exceptional Learners

1. Rapid learner provisions. The percentages of schools making such provisions were as follows: special shopwork assignments (60%), enriched program of mathematics and science (40%), use as student instructor (36%), greater range of electives (31%), encouragement to take more challenging vocational courses (27%), grouping for special instruction (23%), encouragement to enter cooperative program (18%) and guided program of advanced reading (17%).

2. Multiple provisions for rapid learners. The average school reported 2.8 provisions for rapid learners. About 24 percent reported no provisions whatever for rapid learners.

3. Slow learner provisions. The percentages of schools making such provisions were as follows: special shopwork assignments (50%), remedial reading classes (38%), lower academic subject standards (36%), diagnostic and remedial counseling (35%), encouragement to elect less demanding vocational course (47%), modified control of academic subject (36%), diagnostic aptitude testing (25%), encouragement to participate in work experience program (13%) and assignment to special study skills class (7%).

4. Multiple provisions for slow learners. The average school reported 3.0 provisions for slow learners. Fourteen percent of the schools reported no provisions whatsoever for slow learners. Twelve percent reported only one of the above listed provisions.

SOME TENTATIVE RECOMMENDATIONS

The following recommendations are made primarily to stimulate discussion. The writer acknowledges that he does not have the complete data picture for the problem areas to which the recommendations apply.

Research on Factors Related to Instructional Equipment Use

The data shows that most vocational (and academic) teachers seldom or never use instructional hardware, and that the relatively low level use is not the result of such equipment being unavailable in the schools. There are apparently many not clearly identified factors which restrict the use of teaching equipment. In view of the greater mechanization of education that appears on the horizon, it seems desirable to research more thoroughly the factors that predispose teachers to use or to reject the use of such equipment. The immediate answer that comes to mind when the question of why such equipment is used so infrequently is that teachers don't want to take the trouble. This is probably a naive oversimplification. If such equipment can be used to improve the rate or amount of learning that takes place--and this remains to be convincingly demonstrated--it behooves educators to do the research necessary to show what must be done to implement the use of such equipment.

The specific recommendation is that the U. S. Office of Education support a research effort to identify and establish the relative importance of factors related to wider and more intensive use of instructional equipment. With the greater availability of federal, state and local funds for vocational education, there will be great pressures in the school systems to increase purchases of such equipment, particularly equipment of the showpiece kind. With the present level of use, one can question the wisdom of substantial expenditures in this area before more is known about why teachers fail to use the equipment.

Provisions for the Exceptional Learners

A large percentage of schools have little or no provisions for either the exceptionally rapid or slow learners in vocational programs (and probably non-vocational programs as well). Three recommendations are made:

First, school district administrators are urged to take a more critical look at what provisions their schools make for exceptional learners in all programs, particularly for the so-called slow learners. Clearly, there is much that can be done that does not require great expenditures of money. What is required is some imagination and determination to render a more adequate service to student needs.

Second, more intensive research is needed to both describe and evaluate exceptional learner provisions that are now employed. The present study took only a superficial look at the problem area. It reports only what principals reported. Clearly, a much closer look is needed at what schools claim they do. This is the kind of research that the U.S. Office of Education will do well to support.

Third, schools should be encouraged and provided with the resources to try experimental approaches to the problem of dealing with the exceptional learners. The best ideas will probably come from the schools. What is needed is the stimulus to action and the funds. The writer advocates greater use of seed grants to schools to stimulate interest and problem-solving with one proviso, mainly that basic principles of experimental methodology be applied in the design and execution of such experimental or demonstrational projects. One should be able to evaluate the outcomes of what has been done.

9 THE COUNSELOR AND COUNSELING SERVICES

INTRODUCTION

The Role of the Guidance Counselor

The guidance counselor is a type of modern medicine man who is expected to perform miracles with student problems that most others in the educational community could not solve even if they were so inclined. Among other duties, many of which are unrelated to guidance, the counselors are expected to diagnose and counsel low achievers; handle disciplinary problems; provide vocational guidance; counsel the emotionally disturbed; head off would-be dropouts; advise on vocational course selections; give aid and comfort to the physically handicapped and the culturally deprived; advise students on the selection of colleges and post-high school, non-college institutions; counsel parents about their wayward children; assist students in finding jobs and, in general, have a ready solution to the myriad of problems that students bring to counselors. Not surprisingly, counselors often fail to meet the standards of perfection expected of them by those who think in terms of instant miracles--like straightening out a hostile underachiever who is the product of years of parental negligence and incompetence in one or two thirty minute counseling sessions. In some respects, the present concept of the high school counselor is excessively optimistic and naive, particularly when one considers the counselor-student ratios that prevail, the encroachment of non-counseling duties and the lack of professional referral services that prevail in most school systems.

The primary purpose of this chapter is to provide a census-type description of what high school counselors claim they do in their counseling programs and to describe the kinds of backgrounds they have that qualify them to do all that they claim to do.

A second and related objective is to provide comparative counseling program and counselor data for vocational and comprehensive schools. It has been widely stated that counselors in the latter schools pay little attention to the vocational students, that their purpose in life is to put pins in maps where the colleges are located that will be attended by their college-bound clients.

A third objective is to determine whether there is any relationship between what this study could measure about counseling programs and counselors, and such criteria as school holding power and the vocational outcomes experienced by graduates.

Some Basic Questions

The basic questions answered in this chapter are as follows:

1. What types of changes in personnel, facilities, record keeping, psychological testing and referral services have characterized high school guidance programs in recent years?

2. How much time do counselors spend in personal counseling? To what extent are personal conferences with students required? How do they get initiated? What is the relative frequency of counseling problems that are the subject of personal counseling?

3. How much psychological testing is done by counselors? Who administers and interprets the tests? For what purposes are the test results used? How qualified are counselors to use tests?

4. To what extent do counselors conduct parental consultations in person or by telephone? What is the relative frequency of problems that are the subject of parental consultations?

5. To what extent do counselors conduct group guidance activities? What types of topics are most frequently covered in group guidance sessions?

6. In addition to the aforementioned activities, what else do counselors do and with what frequency?

7. What are the personal characteristics of school counselors, such as socio-economic origins and age, educational background, occupational experiences in and out of schools, and guidance experience? What are their earnings as counselors?

8. What non-counseling activities do counselors report? How many hours per week are spent in such activities? To what extent do such activities interfere with counseling activities?

9. What recommendations do counselors make for improving the student counseling services?

10. To what extent are counselor and guidance program characteristics related to school and course holding power and the occupational experiences of vocational graduates?

About the Sample and the Data

The data presented in this chapter comes from the S-6 data form shown in Appendix Section 1. Where there was more than one counselor at the school, the data form completed by the senior counselor provided the basis for describing the school program. Five of the 100 schools did not have a counselor. These were area vocational schools and their students were presumably serviced by the counselors in their home schools.

Table 1 shows how the ninety-five counseling programs surveyed were distributed by region, type of school and school vocational enrollment. About 79 percent were east of the Mississippi, which reflects the greater proportion of the universe of secondary schools being in that half of the United States. The split between vocational and comprehensive schools was 45-50 for the reason explained above. The split of the programs among schools with less than 300 and more than 300 vocational students was 46-49.

TABLE 1. DISTRIBUTION OF COUNSELING PROGRAMS IN THE STUDY SAMPLE BY REGION, TYPE OF SCHOOL AND VOCATIONAL ENROLLMENT

TYPE OF SCHOOL	VOCATIONAL ENROLLMENT	EAST		WEST		U.S.	
		N	%	N	%	N	%
VOCATIONAL	<300	13	13.8	0	0.0	13	13.8
	>300	25	26.3	7	7.4	32	33.7
	TOTAL	38	40.0	7	7.4	45	47.4
COMPREHENSIVE	<300	23	24.2	10	10.5	33	34.7
	>300	14	14.7	3	3.2	17	17.9
	TOTAL	37	38.9	13	13.9	50	52.6
COMBINED	<300	36	37.9	10	10.5	46	48.4
	>300	39	41.1	10	10.5	49	51.6
	TOTAL	75	78.9	20	21.1	95	100.0

Table 2 shows how the 123 counselors were distributed. The distribution characteristics are essentially the same as for the counseling programs. Data from all counselors was used only in regard to questions of counselor characteristics, i.e. age, education, prior experience, and so on.

TABLE 2. DISTRIBUTION OF COUNSELING PERSONNEL IN THE STUDY SAMPLE BY REGION, TYPE OF SCHOOL AND VOCATIONAL ENROLLMENT

TYPE OF SCHOOL	VOCATIONAL ENROLLMENT	EAST		WEST		U.S.	
		N	%	N	%	N	%
VOCATIONAL	<300	13	10.6	0	0.0	13	10.6
	>300	33	26.8	13	10.6	46	37.4
	TOTAL	46	37.4	13	10.6	59	48.0
COMPREHENSIVE	<300	30	24.4	12	9.8	42	34.1
	>300	19	15.4	3	2.4	22	17.9
	TOTAL	49	39.8	15	12.2	64	52.0
COMBINED	<300	43	35.0	12	9.8	55	44.7
	>300	52	42.3	16	13.0	68	55.3
	TOTAL	95	77.2	28	22.8	123	100.0

* * * * * * * * * * *

The reader is reminded that much of the data in this chapter is what counselors claim or report about their school programs. There may be an occasional slip between what is claimed and what is the case. However, there are internal consistencies in the data that suggest that the counselors reported conscientiously as they saw it.

GUIDANCE PROGRAM CHARACTERISTICS

There are significant differences between guidance programs in comprehensive and vocational schools because of differences in the type of students served. Programs in the comprehensive schools are heavily geared to serve the college-oriented academic curriculum students. Those in vocational schools reflect the special needs of their employment-oriented students.

Personal Counseling

All schools reported that personal counseling conferences with students are a basic feature of the guidance program.

- What is the number and duration of personal counseling conferences per week reported by counselors? Table 3 provides the data.

The average counselor conducts 37.2 personal counseling sessions per week at an average duration of 23 minutes per session. That would represent about 12 hours of personal conference time, or two school days per week. Seventy-three percent of the counselors reported that they kept a record of each such conference.

TABLE 3. COMPARATIVE DATA ON PERSONAL COUNSELING PROGRAM FEATURES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

FEATURES OF PERSONAL COUNSELING PROGRAM	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
Number of conferences per week	92	37.2	25.6	42	36.8	30.2	50	37.5	21.2
Duration of conferences (minutes)	94	23.0	10.3	44	20.2	9.4	50	25.6	10.4
Record kept of conferences	67	72.8	-	31	72.1	-	36	73.5	-
School policy on student conferences	44	47.3	-	19	44.2	-	25	50.0	-
Number of student conferences required by school policy	40	1.72	1.36	16	1.38	0.62	24	1.96	1.65

The number of personal conferences by counselors in vocational and comprehensive schools is about the same, although the duration of conferences is slightly greater in the comprehensive schools. There is no difference in the percentage of counselors who keep records of such conferences in the two types of schools.

•To what extent do schools require one or more personal conferences per student per year?

Only 47 percent of the schools claimed such a policy. The mean and median number of such conferences per student is 1.7 and 2 respectiveiy. Presumably, this policy exists to make certain that all students have at least one exposure to the school counselor each year. In the other 53 percent of the schools, the students are either referred to the counselor by school personnel or contact the counselor on their own volition.

The comprehensive schools are more likely to have a personal conference requirement than the vocational schools (50 vs. 44 percent) and the number of such conferences required per student per year is greater in comprehensive schools (2.0 vs. 1.4). This does not necessarily mean that vocational students are better served in the comprehensive schools where the main interest of the guidance programs is directed at the academic students.

•What is the relative frequency of counseling problems that are the subject of personal conferences with the counselor? Table 4 provides the data as reported by the senior school counselor.

The mean values associated with each problem were obtained by weighting the answer frequencies as shown at the bottom of the table. The counseling problems are shown in the order ranging from most to least frequent as determined by the weighted means.

The six most frequently occurring counseling problems are:

•Counseling low achievers	(3.3)
•College education guidance	(3.2)
•Non-college education guidance	(3.1)
•Vocational program selection guidance	(3.0)
•Counseling on family problems	(2.9)
•Counseling changes in programs	(2.9)

The five least frequently occurring counseling problems are:

•Counseling physically handicapped	(2.0)
•Dealing with discipline problems	(2.2)
•Guidance in extracurricular activities	(2.3)
•Counseling emotionally disturbed students	(2.5)
•Counseling highly talented students	(2.6)

Some of the percentages are interesting because they represent school counseling programs and indicate potential problems:

- About 37 percent of the counselors report dealing with disciplinary problems often or daiiy. Is this desirable? What are the implications for counselor-student rapport?

TABLE 4. FREQUENCY OF COUNSELING PROBLEMS RELATED TO PERSONAL CONFERENCES REPORTED BY COUNSELORS

TYPE OF COUNSELING PROBLEMS	FREQUENCY OF OCCURRENCE								MEAN RATING *		
	NEVER		SELDOM		OFTEN		DAILY				
	N	%	N	%	N	%	N	%	N	MEAN	S.D.
Counseling low achievers	1	1.1	6	6.5	54	58.1	32	34.4	93	3.26	0.62
Guidance related to college education	4	4.3	14	15.1	34	36.6	41	44.1	93	3.20	0.85
Guidance related to other post-high school education	0	0.0	15	16.1	54	58.1	24	25.8	93	3.10	0.64
Guidance on vocational program selection	1	1.1	15	16.0	59	62.8	19	20.2	94	3.02	0.64
Guidance on family or home problems	3	3.2	15	16.1	59	63.4	16	17.2	93	2.95	0.68
Counseling those who wish to change programs	1	1.1	22	23.4	54	57.4	17	18.1	94	2.93	0.68
Counseling would-be dropouts	0	0.0	25	26.6	59	62.8	10	10.6	94	2.84	0.59
Guidance on post-high school job placement	8	8.6	26	28.0	37	39.8	22	23.7	93	2.78	0.91
Counseling high IQ or specially talented students	8	8.6	26	28.0	54	58.1	5	5.4	93	2.60	0.72
Guidance on military service obligation	6	6.5	35	37.6	46	49.5	6	6.5	93	2.56	0.71
Counseling emotionally disturbed students	7	7.4	45	47.9	34	36.2	8	8.5	94	2.46	0.76
Counseling on extra-curricular activities	9	9.8	52	56.5	26	28.3	5	5.4	92	2.29	0.72
Dealing with disciplinary problems	33	35.5	25	26.9	17	18.3	18	19.4	93	2.22	1.13
Counseling physically handicapped	23	24.5	51	54.3	20	21.3	0	0.0	94	1.97	0.68

* 1-Never, 2-Seldom, 3-Often, 4-Daily

- About 37 percent report that they seldom or never counsel high I.Q. or specially talented students. Should not all counselors have a program to identify and check with such students?

- About 27 percent of the counselors report that they seldom counsel would-be dropouts. Should not all such cases by considered if available for counseling?

- About 55 percent report they seldom or never counsel emotionally disturbed students. Is this because there are so few such students? Or, is it because counselors can't handle them?

When one excludes dealing with discipline problems and counseling physically handicapped, there is no problem area on the list that does not engage ninety percent or more of the counselors at varying frequencies from seldom to daily. The data tends to confirm the earlier statement that counselors deal with a wide variety of student problems.

Of particular interest to vocational education are the findings that 64 percent of the counselors report they are often or daily involved in guidance related to post-high school job placement, and 82 percent report a similar frequency of involvement in helping students select their vocational course. It is interesting to recall that only 5 percent of the graduates reported their school counselor helped them in finding their first job after graduation, and that only 12 percent of the graduates credited a school counselor with helping them to decide what vocational course to follow. While not necessarily contradictory, the apparent discrepancy does make one wonder.

The relative frequency with which guidance counselors are involved in the different type of counseling problems in vocational and comprehensive schools is shown in Table 5.

The comprehensive school counselors are significantly more frequently involved in personal conferences dealing with the following problems:

• Guidance on post-school job placement	(2.9 vs. 2.4)
• Counseling low achievers	(3.4 vs. 3.1)
• Counseling program changes	(3.1 vs. 2.8)
• College education guidance	(3.6 vs. 2.7)
• Non-college education guidance	(3.4 vs. 2.7)
• Counseling high I.Q. students	(2.8 vs. 2.4)
• Military service guidance	(2.7 vs. 2.4)
• Counseling on family problems	(3.1 vs. 2.8)

The vocational school counselors reported more frequent involvement in disciplinary problems. The general impression one gains from the data is that comprehensive school guidance counselors are more frequently involved in almost all personal conference problem areas than are their colleagues in the vocational schools. However, this again does not mean that vocational students in comprehensive schools receive the same amount of counselor attention as do the academic students.

TABLE 5. COMPARATIVE DATA ON FREQUENCY OF COUNSELING PROBLEMS RELATED TO PERSONAL CONFERENCES REPORTED BY COUNSELORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPE OF COUNSELING PROBLEMS		FREQUENCY OF OCCURRENCE								MEAN RATING *		
		NEVER		SELDOM		OFTEN		DAILY				
		N	%	N	%	N	%	N	%	N	MEAN	S.D.
Guidance on post-high school job placement	V	7	15.9	12	27.3	16	36.4	9	20.5	44	2.61	0.99
	C	1	2.0	14	28.6	21	42.9	13	26.5	49	2.94	0.80
Counseling low achievers	V	1	2.3	2	4.5	31	70.5	10	22.7	44	3.14	0.59
	C	0	0.0	4	8.2	23	46.9	22	44.9	49	3.37	0.64
Counseling would-be dropouts	V	0	0.0	13	29.5	28	63.6	3	6.8	44	2.77	0.56
	C	0	0.0	12	24.0	31	62.0	7	14.0	50	2.90	0.61
Counseling physically handicapped	V	15	34.1	23	52.3	6	13.6	0	0.0	44	1.80	0.67
	C	8	16.0	28	56.0	14	28.0	0	0.0	50	2.12	0.66
Counseling those who wish to change programs	V	0	0.0	16	36.4	22	50.0	6	13.6	44	3.77	0.68
	C	1	2.0	6	12.0	32	64.0	11	22.0	50	3.06	0.65
Guidance on vocational program selection	V	0	0.0	10	22.7	22	50.0	12	27.3	44	3.04	0.71
	C	1	2.0	5	10.0	37	74.0	7	14.0	50	3.00	0.57
Counseling emotionally disturbed students	V	4	9.1	22	50.0	16	36.4	2	4.5	44	2.36	0.72
	C	3	6.0	23	46.0	18	36.0	6	12.0	50	2.54	0.79
Guidance related to college education	V	4	9.3	12	27.9	20	46.5	7	16.3	43	2.69	0.86
	C	0	0.0	2	4.0	14	28.0	34	68.0	50	3.64	0.56
Guidance related to other post-high school education	V	0	0.0	15	34.9	24	55.8	4	9.3	43	2.74	0.62
	C	0	0.0	0	0.0	30	60.0	20	40.0	50	3.40	0.50
Counseling high IQ or specially talented students	V	6	14.0	16	37.2	19	44.2	2	4.7	43	2.40	0.79
	C	2	4.0	10	20.0	35	70.0	3	6.0	50	2.78	0.62
Counseling on extra-curricular activities	V	8	19.0	21	50.0	11	26.2	2	4.8	42	2.17	0.79
	C	1	2.0	31	62.0	15	30.0	3	6.0	50	2.40	0.64
Guidance on military service obligation	V	6	13.6	17	38.6	19	43.2	2	4.5	44	2.39	0.78
	C	0	0.0	18	36.7	27	55.1	4	8.2	49	2.71	0.61
Guidance on family or home problems	V	3	6.8	8	18.2	27	61.4	6	13.6	44	2.82	0.76
	C	0	0.0	7	14.3	32	65.3	10	20.4	49	3.06	0.59
Dealing with disciplinary problems	V	12	27.3	12	27.3	9	20.5	11	25.0	44	2.43	1.15
	C	21	42.9	13	26.5	8	16.3	7	14.3	49	2.02	1.09

* 1-Never, 2-Seldom, 3-Often, 4-Daily

Some of the individual percentages are disturbing. About 43 percent of the vocational school counselors reported they were seldom or never involved in guidance related to post-high school job placement, whereas only 30 percent of the comprehensive school counselors so reported.

About 28 percent of vocational school counselors reported they were seldom involved in vocational course selection guidance. One would think that counselors would touch base on this important topic with all vocational students.

•How do personal counseling sessions get initiated? Table 6 provides the data.

Each counselor estimated the percentage of his personal counseling sessions that were initiated by six listed sources. Table 6 presents the mean percentages for each source.

According to counselors, 34 percent of the personal conferences are initiated by students. About 20 percent are a requirement of the school program, 17 percent are initiated by the counselors independently of the required conferences, and 14 percent originate with a teacher's request. The small percentage that originate at the request of a parent may be deceptive. Many of the conferences initiated by students may be the result of parental prodding.

In vocational schools, a higher percentage of the counseling conferences are the result of a teacher's request (17 vs. 12 percent), whereas a much lower percentage of the conferences are initiated at the request of the student (27 vs. 40 percent). The latter may well be a reflection of the greater traffic in college counseling in the comprehensive schools. It can not be interpreted as a reflection on counselor-student rapport in vocational schools. However, the percentage of conferences initiated at the request of school personnel, i.e. teacher, counselor or administrator, is significantly greater in the vocational schools (45 vs. 32 percent). It is difficult to place an interpretation on this difference. Are school personnel

TABLE 6. COMPARATIVE DATA ON PERCENTAGES OF PERSONAL COUNSELING SESSIONS INITIATED BY VARIOUS SOURCES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

INITIATING SOURCES OF PERSONAL COUNSELING	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
Teacher's request	94	14.1	11.0	44	16.8	13.2	50	11.8	8.1
Student's request	94	33.9	21.1	44	26.7	16.7	50	40.3	22.6
School administrator's request	94	7.3	8.3	44	9.3	10.9	50	5.5	4.4
Parent's request	94	7.2	4.6	44	7.3	4.9	50	7.1	4.4
Requirement of program	94	19.8	19.0	44	19.8	19.2	50	19.8	19.1
Request of the counselor	94	16.6	12.7	44	19.0	14.1	50	14.5	11.1
Other than above	94	1.1	2.9	44	1.3	2.9	50	0.9	3.0

quicker to make counseling referrals in vocational schools? Are the vocational school students in need of more counseling referrals than those in comprehensive schools? Or, is the difference a reflection of the greater percentage of student-initiated converences in comprehensive schools? The study provides no answer.

Psychological Tests

All counselors reported that psychological testing was a regular feature of the school guidance program. The counselors are mainly responsible for administering and irterpreting such standardized tests. About 98 percent reported they administered or supervised the administration of intelligence, aptitude, achievement and other tests, and 96 percent claimed that they were responsible for the scoring and interpretation of such tests.

Counselors report heavy use of psychological test data for personal counseling. About 58 percent of the counselors reported that they almost always refer to test data in such cases, and 41 percent claimed that they used test data frequently for guidance purposes.

About 95 percent of the counselors indicated they had formal training in psychological testing at the undergraduate and graduate college level. The amount of such training is considerable. The average counselor has had about 12 college credits in courses directly related to test administration and use, plus additional course work in guidance to provide a framework for the use of psychological tests. From a standpoint of formal course work, counselors appear to be adequately trained in the basic principles and concepts of testing. Almost all have had a college-level course in tests and measurements. Such formal training, however, does not necessarily assure that tests are being used intelligently as a counseling tool.

- How do vocational and comprehensive schools compare in terms of psychological test use? Table 7 provides the data.

The percentage of vocational school counselors who administer or interpret psychological tests is less than is the case for comprehensive school counselors. This may be a reflection of the greater use of tests in comprehensive schools where both college and non-college oriented students are served.

There is no impressive difference between the two types of schools in terms of claimed frequency of test data use. Counselors in both schools claim heavy use of test data. How intelligently the test data is used is another matter.

The percentage of counselors claiming formal training in test administration and use is essentially the same for both schools.

- What use do counselors make of psychological test data? Table 8 provides the data.

The answer categories shown were derived by classifying the write-in responses of the counselors. About 64 percent of the counselors claimed that they used tests as a general aid in counseling activities. This is

TABLE 7. COMPARATIVE DATA ON PSYCHOLOGICAL TESTING FEATURES OF GUIDANCE PROGRAMS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

PSYCHOLOGICAL TESTING FEATURES	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Testing a regular program feature	94	100.0	44	100.0	50	100.0
Guidance counselor administers tests	92	97.9	42	95.4	50	100.0
Guidance counselor interprets tests	90	95.7	40	90.9	50	100.0
Frequency of test data use						
• Almost never	0	0.0	0	0.0	0	0.0
• Infrequently	1	1.1	1	2.3	0	0.0
• Frequently	38	41.3	18	41.9	20	40.8
• Almost always	53	57.6	24	55.8	29	59.2
Counselor training in psychological testing	88	94.6	41	93.2	47	95.9

hardly illuminating and raises some doubts about the correctness of test use. There are apparently all sorts of hypotheses among counselors about what high, middle and low scores mean on the many tests used.

About 41 percent reported that test data was used to separate students into classes by ability and achievement levels; 33 percent indicated tests were used to screen applicants for specific vocational courses; 17 percent claimed tests were used to provide guidance for post-high school education; 12 percent indicated tests were used to screen applicants for admission to the school and 12 percent said that tests were used to provide teachers with information about students. Undoubtedly, these percentages would have been different had the counselors reacted to a question which listed the potential uses for psychological tests. However, the percentages may be more meaningful as cited because they represent what counselors pulled out of their heads to describe their test use.

Table 8 also shows the differences in test data use by counselors in vocational and comprehensive schools. A greater percentage of the comprehensive school counselors claim to use tests to group students into classes on the basis of test performance (48 vs. 33 percent). This does not necessari mean that the two schools differ in ability grouping as applied to vocational students. The comprehensive school counselors are reporting the purpose of test use as applied to all students, not merely vocational students.

TABLE 8. COMPARATIVE DATA ON COUNSELOR REPORTED USE OF PSYCHOLOGICAL TESTS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

USE MADE OF PSYCHOLOGICAL TESTS AS REPORTED BY GUIDANCE COUNSELORS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Used as general aid in counseling activities	58	63.7	22	51.2	36	75.0
Used to group students in classes by ability	37	40.7	14	32.6	23	47.9
Used to screen applicants for specific vocational courses	30	33.0	18	41.9	12	25.0
Used to guide students in post-high school education	16	17.6	9	20.9	7	14.6
Used to screen applicants for enrollment in school	11	12.1	11	25.6	0	0.0
Used to provide teachers with information about students	11	12.1	6	14.0	5	10.4
Used in connection with recommending students for jobs	8	8.8	4	9.3	4	8.3
Used to develop school norms	6	6.6	3	7.0	3	6.3
Used to diagnose behavior problems	2	2.2	0	0.0	2	4.2
Used to provide information to school psychologists	1	1.1	0	0.0	1	2.1
Other than above	20	22.0	7	16.3	13	27.1

A larger percentage of comprehensive school counselors (75 vs. 51 percent) report using tests as a general aid in counseling activities. A possible explanation may be the greater involvement in college selection counseling in the comprehensive schools and the need to refer to achievement and aptitude test data during such counseling.

The purposes for using test data cited more frequently by counselors in vocational schools are highly revealing. About 26 percent of the vocational school counselors reported that tests were used to screen applicants to the vocational schools. This use of tests did not occur in the comprehensive schools for the obvious reason that such schools must accept all students. Further evidence of greater selectivity in vocational schools is in the finding that 42 percent of their counselors reported the use of tests to screen vocational course applicants. Only 25 percent of the comprehensive school counselors reported that they used tests for this purpose. This finding is consistent with earlier data which showed that comprehensive school vocational instructors recommended increased test use to screen course applicants.

Vocational school counselors also report more use of tests in connection with guidance related to post-high school, non-college education. One explanation might be that they do more such counseling than their colleagues in the comprehensive schools. But why should that be? More than half of the academic curriculum graduates in most schools do not go to college, and these are more in need of post-high school education counseling than vocational graduates.

The school principals also indicated what use was made of psychological tests. Table 9 provides the data.

First, a word about the apparent discrepancies between data from the principals and the counselors. The principals responded to a list of potential uses for tests. The counselors had an open-ended question, and their responses were classified into the same categories to which the principals responded. This explains in part why a greater percentage of schools appear to use the tests in the ways indicated when principals are the source of information than when counselors are the source of information. However, there may also be an element of wishful thinking in the data obtained from the principals. For convenience of comparison, the results from the two sources are listed below:

	Principals	Counselors
•General aid in counseling	92%	64%
•Provide information to teachers	83	12
•Post-high school education guidance	71	18
•Vocational course selection guidance	70	-
•Group students into ability classes	60	40
•Screen vocational course applicants	55	33
•Provide data to school psychologists	55	11
•Diagnose behavior problems	52	2
•Recommend students for jobs	50	9
•Screen applicants to the school	44	12
•Provide information to employers	43	0
•Used to develop school norms	40	7

TABLE 9. COMPARATIVE DATA ON PRINCIPAL REPORTED USE OF PSYCHOLOGICAL TESTS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

USE MADE OF PSYCHOLOGICAL TESTS AS REPORTED BY SCHOOL PRINCIPALS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Used as general aid in counseling activities	83	92.2	39	88.6	44	95.7
Used to provide teachers with information about students	75	83.3	34	77.3	41	89.1
Used to guide students in post-high school education	64	71.1	25	56.8	39	84.8
Used to guide students in selection of vocational courses	63	70.0	31	70.5	32	69.6
Used to group students in classes by ability	54	60.0	20	45.5	34	73.9
Used to screen applicants for specific vocational courses	50	55.6	26	59.1	24	52.2
Used to provide information to school psychologists	50	55.6	25	56.8	25	54.3
Used to diagnose behavior problems	47	52.2	23	52.3	24	52.2
Used in connection with recommending students for jobs	45	50.0	15	34.1	30	65.2
Used to screen applicants for enrollment in school	40	44.4	29	65.9	11	23.9
Used to provide employers with information about students	39	43.3	15	34.1	24	52.2
Used to develop school norms	36	40.0	14	31.8	22	47.8
Other than above	46	50.5	25	54.3	21	45.7

The large discrepancies between the sources of information about how tests are used are not explained solely by the difference between closed and open-ended questions. The writer is inclined to be guided by what counselors reported rather than what the principals reported.

From a psychologist's viewpoint, there are several disturbing features about the data. First, there is the widespread use of tests in connection with virtually any type of guidance problem, including problems for which test validities have yet to be demonstrated. The psychological tests have become the modern medicine man's bag of diagnostic bones. He invariably takes a reading, no matter what the problem. One must worry a bit when one thinks of the unverified hypotheses that are being incorporated into test data interpretation. Second, there is very little concern with developing local normative data. Surely the many graduate-level college courses dealing with tests that were claimed by the counselors pointed out the desirability of developing local norms on achievement and scholastic aptitude tests. Third, there does not seem to be any concern for establishing validity data. Heavy use is made of tests to guide students into vocational courses consistent with their capabilities, but virtually none of the counselors reported that they had established or were in the process of establishing the necessary test validity estimates.

It is the writer's judgment that most school counselors are using tests in some very unsophisticated ways despite their very considerable formal training.

Parental Consultations

About 90 percent of the schools claimed that parental consultations were a regular feature of the guidance program. The average counselor claims 4.8 hours per week in consultation with parents and 4.5 hours per week in telephone consultations with parents. (See Appendix Section 9 for distribution data.) Thus, about nine hours per week are involved with parental consultations. Added to the 12 hours per week claimed for personal counseling sessions, a total of 21 hours on the average are spent with individual student problems. This does not include consultations with other sources about individual students with problems.

- How do vocational and comprehensive schools compare in counselor time spent with parental consultations? Table 10 provides the data.

Parental consultations are more likely to be a regular feature of comprehensive school guidance programs. However, the vocational school counselors seem to spend more hours per week in both personal and phone contacts with parents than do the comprehensive school counselors. One possible explanation may be a greater incidence of infractions in the vocational schools which require parental contacts. Data presented in Chapter 3 (page 3-59) indicates that vocational schools have a higher rate of school suspensions and school dropouts than do comprehensive schools. This could account, in part, for the greater time that counselors in such schools spend in parental contacts.

TABLE 10. COMPARATIVE DATA ON PARENTAL CONSULTATIONS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

PARENTAL CONSULTATIONS	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	M-%	S.D.	N	M-%	S.D.	N	M-%	S.D.
Parental consultation, part of program	86	90.5	-	39	86.7	-	47	94.0	-
Hours per week, personal contact	82	4.8	4.2	37	5.5	4.3	45	4.2	4.0
Hours per week, telephone contact	78	4.5	3.9	35	5.5	4.5	43	3.7	3.1

• What kinds of student problems require parental contacts? What is the relative frequency in which problems involve parental contacts? Table 11 provides the data.

The guidance counselors ranked the five most frequent problems that required parental contact. The data provided a basis for determining the average rank given to each problem and the percent of counselors who reported each problem among the five most frequent reasons for parental contacts. Both types of data are shown in Table 11.

When the reasons for parental contacts are ranked in terms of the percentage of counselors who reported them among the five most frequent reasons, the result is as follows:

• Underachievement or failing grades	80%
• Personal adjustment problems	67
• Class or subject scheduling problems	50
• College placement information	38
• Absenteeism or tardiness	34
• Disciplinary problems	32
• Vocational/occupational information	24
• School dropout problems	13
• Post-graduation job placement	12

A higher percentage of the comprehensive school counselors reported the following as frequent reasons for parental contacts:

• Underachievement	(86 vs. 73 percent)
• Subject scheduling problems	(54 vs. 47 percent)
• College placement information	(54 vs. 20 percent)
• Personal adjustment problems	(76 vs. 58 percent)

TABLE II. COMPARATIVE DATA ON REASONS FOR PARENTAL CONSULTATIONS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

REASONS FOR PARENTAL CONSULTATIONS	UNITED STATES SAMPLE				TYPE OF SCHOOL							
					VOCATIONAL				COMPREHENSIVE			
	N	%	MEAN	S.D.	N	%	MEAN	S.D.	N	%	MEAN	S.D.
Class placement or schedule	48	50.2	2.94	1.28	21	46.7	3.14	1.42	27	54.0	2.78	1.16
Underachievement	76	80.0	1.62	0.78	33	73.3	1.61	0.83	43	86.0	1.63	0.76
Summer school, remedial help	5	5.3	3.60	1.82	5	11.1	3.60	1.82	0	0.0	-	-
Test interpretation	6	6.3	4.00	0.89	3	6.7	4.00	1.00	3	6.0	4.00	1.00
Vocational information	23	24.2	3.30	1.26	9	20.0	3.33	1.41	14	28.0	3.29	1.20
College placement information	36	37.9	2.64	1.50	9	20.0	2.78	1.86	27	54.0	2.59	1.39
Summer job placement	3	3.2	4.00	1.00	2	4.4	4.50	0.71	1	2.0	3.00	0.00
Job placement after graduation	11	11.6	3.54	1.51	6	13.3	4.00	1.41	5	10.0	3.00	1.58
Other post-high school placement	9	9.5	4.44	1.59	5	11.1	4.80	1.92	4	8.0	4.00	1.16
Attendance problems	33	34.7	2.91	1.72	19	42.2	2.84	1.64	14	28.0	3.00	1.88
Discipline problems	30	31.6	2.53	1.31	20	44.4	2.70	1.34	10	20.0	2.20	1.23
Dropout problems	12	12.6	3.25	1.54	6	13.3	3.67	1.21	6	12.0	2.83	1.84
Personal adjustment	64	67.4	3.19	1.31	26	57.8	2.77	1.28	38	76.0	3.47	1.27
Other than above	8	8.4	4.12	1.13	3	6.7	4.33	0.58	5	10.0	4.00	1.41

A higher percentage of vocational school counselors reported the following as frequent reasons for parental contacts:

- Attendance problems (42 vs. 28 percent)
- Disciplinary problems (44 vs. 20 percent)

When the reasons for parental contacts are ranked according to the mean rank given by the counselors for frequency of occurrence, a slightly different rank order emerges:

• Underachievement or failing grades	1.6
• Discipline problems	2.5
• College placement information	2.6
• Absenteeism or tardiness	2.6
• Subject scheduling problems	2.9
• Personal adjustment problems	3.2
• Vocational/occupational information	3.3
• School dropout problems	3.3
• Post-school job placement	3.5

To use the vernacular, the counselor usually contacts the parents when the student is in "hot water" for underachievement, or school infractions, or a combination of both. The study has no data on how effective such contacts are in solving the problems that are the source of the complaint.

Group Guidance Activities

Increasingly, guidance counselors use group methods to communicate a guidance message. About 78 percent of the schools claimed that group guidance was a regular feature of the school guidance program. The average senior counselor spends 10.7 hours per month in group guidance sessions. Some of this time is used for outside speakers from industry and other sources to provide career information. About 25 percent of the schools claimed they made use of outside speakers in this way. Table 12 provides vocational and comprehensive school comparative data on the variables indicated above. The prominent difference is that vocational schools make less use of group guidance than the comprehensive schools.

TABLE 12. COMPARATIVE DATA ON GROUP GUIDANCE ACTIVITIES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

GROUP GUIDANCE ACTIVITIES	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	M-%	S.D.	N	M-%	S.D.	N	M-%	S.D.
Group guidance a program feature?	74	77.9	-	30	66.7	-	44	88.0	-
Hours per month on group guidance	63	10.7	11.6	25	9.24	8.01	38	11.6	13.4
Use of outside speakers	72	84.7	-	33	86.8	-	39	83.0	-

• What kinds of topics are most frequently covered in group guidance sessions? Table 13 provides the data.

The guidance counselors ranked the six most frequent group session subjects in order of their frequency of occurrence. The data permits a determination of the percentage of counselors who mentioned each subject ranked among the top six subjects and also a mean rank for each subject. Both kinds of data are shown in Table 13.

Other Counselor Activities

The preceding sections indicated that, assuming a thirty-five hour week, 33 percent of the average counselor's time is taken up with individual student consultation, 25 percent is involved with parental consultation and about 8 percent is relegated to various types of group guidance or counseling sessions. That leaves about 34 percent of the counselor's time (12 hours) unaccounted for.

To further describe what counselors do, they were asked to respond to a list of 15 kinds of counseling activities by indicating how frequently they were involved in such activities. Table 14 provides the data. A weighted mean was obtained by weighting the response categories as follows: 1-never, 2-seldom, 3-often and 4-daily. Ranked on the basis of the obtained weighted mean frequencies, the miscellaneous counselor activities are as follows:

•Maintaining student records	3.6
•Consulting with teachers or students	3.5
•Providing vocational opportunity information	3.5
•Providing college information	3.4
•Relating counseling activities to school personnel	3.1

All other activities occurred at a mean frequency of less than 3, the value equivalent to an activity which occurs often. A look at some of the relatively infrequent activities is interesting. The percentages refer to the counselors who reported that they were seldom or never involved in such activities:

•Placement of students in coop programs	56%
•Referring students to outside agencies	55
•Conducting follow-up studies	50
•Providing job placement services	47
•Communicating counseling to community	43
•Assisting students in finding jobs (part-time)	41
•Arranging college representative visits	40

The same percentages also indicate that a sizable percentage of counselors are often engaged in such activities. One is inclined to wonder whether counselors should be engaged in some of these activities, and if being so engaged does not detract from activities that counselors are uniquely qualified to do. For example, if those who are often involved in arranging visits for college representatives, conducting follow-up studies, placing students in cooperative programs, and other essentially non-counseling activities, were less so involved, would they be more involved with,

TABLE 13. COMPARATIVE DATA ON SUBJECTS COVERED IN GROUP GUIDANCE IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

SUBJECTS COVERED IN GROUP GUIDANCE	UNITED STATES SAMPLE				TYPE OF SCHOOL							
					VOCATIONAL				COMPREHENSIVE			
	N	%	MEAN	S.D.	N	%	MEAN	S.D.	N	%	MEAN	S.D.
Course selection planning	33	44.6	2.27	1.26	13	43.3	2.23	1.42	20	45.5	2.30	1.17
Career plans -- job placement	41	55.4	2.51	1.31	20	66.7	2.50	1.40	21	47.7	2.52	1.25
Career plans -- college	30	40.5	2.27	0.83	14	46.7	2.43	0.76	16	36.4	2.12	0.88
Disciplinary problems	10	13.5	2.70	1.16	5	16.7	2.20	1.10	5	11.4	3.20	1.10
General school orientation	57	77.0	2.14	1.38	24	80.0	2.29	1.68	33	75.0	2.03	1.13
Personal family problems	26	35.1	3.04	1.71	10	33.3	3.50	1.90	16	36.4	2.75	1.57
Student-teacher problems	2	2.7	3.00	1.41	1	3.3	4.00	0.00	1	2.3	2.00	0.00
Test interpretation	28	37.8	2.86	1.46	10	33.3	3.10	1.66	18	40.9	2.72	1.36
Career plans -- others	19	25.7	3.37	1.30	8	26.7	3.38	1.30	11	25.0	3.36	1.36
Other than above	6	8.1	4.00	0.89	4	13.3	4.00	0.82	2	4.5	4.00	1.41

TABLE 14. FREQUENCY OF GUIDANCE ACTIVITIES REPORTED BY COUNSELORS

TYPES OF GUIDANCE OR COUNSELING ACTIVITY	FREQUENCY OF ACTIVITY								MEAN FREQUENCY *		
	NEVER		SELDOM		OFTEN		DAILY				
	N	%	N	%	N	%	N	%	N	MEAN	S.D.
Maintaining student test, grade and other records	3	3.3	4	4.4	24	26.4	60	65.9	91	3.55	0.73
Consulting with teachers on problem students	0	0.0	5	5.3	39	41.1	51	53.7	95	3.48	0.60
Providing information about vocational opportunities	1	1.1	2	2.1	43	45.7	48	51.1	94	3.47	0.60
Providing information about colleges and universities	2	2.1	10	10.6	30	31.9	52	55.3	94	3.40	0.77
Relating counseling activities to school personnel	1	1.1	10	10.9	61	66.3	20	21.7	92	3.09	0.60
Providing job placement services for students	14	15.4	29	31.9	30	33.0	18	19.8	91	2.60	0.98
Assisting students in finding part-time jobs	12	13.3	25	27.8	44	48.9	9	10.0	90	2.56	0.85
Maintaining contacts with potential employers	17	18.5	23	25.0	38	41.3	14	15.2	92	2.53	0.97
Communicating counseling activities to community	10	10.6	31	33.0	51	54.3	2	2.1	94	2.[illegible]	0.71
Arranging visits of college representatives	16	17.0	22	23.4	52	55.3	4	4.3	94	2.47	0.83
Referral of students to outside agencies	9	9.6	42	44.7	41	43.6	2	2.1	94	2.38	0.69
Conducting follow-up studies on graduates	17	18.9	28	31.1	42	46.7	3	3.3	90	2.34	0.82
Arranging post-high school representatives' visits	19	20.7	42	45.7	29	31.5	2	2.2	92	2.15	0.77
Placement of students in cooperative programs	34	38.2	16	18.0	32	36.0	7	7.9	89	2.13	1.02
Conducting plant trips for vocational students	37	42.0	33	37.5	17	19.3	1	1.1	88	1.79	0.79

* 1-Never, 2-Seldom, 3-Often, 4-Daily

say, working with under-achievers or potential dropouts. Or, would they merely be doing more of some other types of non-counseling activities? Are guidance programs suffering from counselors being drawn into an excessive amount of non-counseling activities?

Table 15 provides the comparative data on vocational and comprehensive school counselors in terms of miscellaneous counselor activities. Those in comprehensive schools are more frequently involved in:

- Providing college information (3.8 vs. 3.0)
- Communicating with the community (2.6 vs. 2.3)
- Arranging college representative visits (2.9 vs. 2.0)
- Arranging non-college representative visits (2.4 vs. 1.9)

Those in the vocational schools are more frequently involved in:

- Providing job placement services (2.8 vs. 2.4)
- Maintaining potential employer contacts (2.8 vs. 2.3)
- Conducting plant trips for vocationals (2.0 vs. 1.6)

Such differences are not unexpected in view of the types of students served in the two schools. However, the data also raises the possibility that the vocational student is not as adequately served by the comprehensive school guidance program. It is inevitable that unless comprehensive school counselors are specifically assigned to service vocational students, their main thrust will be toward the majority of academic students, not toward the vocational students and their problems.

- To what extent do schools offer pre-high school vocational curriculum orientation and counseling for the benefit of those in elementary and junior high schools? How are such programs conducted? How much counselor time is involved?

About 78 percent of the schools reported some type of vocational program orientation and counseling for students not presently in their schools. The vocational schools, because of their greater enrollment reliance on student decisions made in the feeder schools, almost always have some form of such programs. Ninety-six percent of the vocational schools surveyed claimed this type of program, whereas only sixty percent of the comprehensive schools claimed pre-admission vocational program orientation and counseling. Many of the latter schools have so few course offerings that the need for orientation programs for students in their feeder schools is not considered essential.

The approaches taken by the two schools reflect their concern for vocational students. The vocational schools take a more activist approach. The majority send their counselors into their feeder schools with plans for group orientation about the vocational school and its offerings and for interviews with interested students and parents. Such visits are often combined with open-house days at the vocational schools. The comprehensive schools take a more passive approach. There is much greater reliance on the counselors at the feeder schools to provide the necessary orientation about the high school vocational program, although some do send their counselors to feeder schools.

TABLE 15. COMPARATIVE DATA ON FREQUENCY OF GUIDANCE ACTIVITIES REPORTED BY COUNSELORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPES OF GUIDANCE OR COUNSELING ACTIVITY		FREQUENCY OF ACTIVITY								MEAN FREQUENCY *		
		NEVER		SELDOM		OFTEN		DAILY				
		N	%	N	%	N	%	N	%	N	MEAN	S.D.
Maintaining student test, grade and other records	V	1	2.3	4	9.3	11	25.6	27	62.8	43	3.49	0.77
	C	2	4.2	0	0.0	13	27.1	33	68.8	48	3.60	0.71
Consulting with teachers on problem students	V	0	0.0	3	6.7	19	42.2	23	51.1	45	3.44	0.62
	C	0	0.0	2	4.0	20	40.0	28	56.0	50	3.52	0.58
Providing information about vocational opportunities	V	1	2.3	1	2.3	22	55.0	20	45.5	44	3.39	0.66
	C	0	0.0	1	2.0	21	42.0	28	56.0	50	3.54	0.54
Providing information about colleges and universities	V	2	4.5	9	20.5	21	47.7	12	27.3	44	2.98	0.82
	C	0	0.0	1	2.0	9	18.0	40	80.0	50	3.78	0.46
Relating counseling activities to school personnel	V	1	2.4	5	11.9	28	66.7	8	19.0	42	3.02	0.64
	C	0	0.0	5	10.0	33	66.0	12	24.0	50	3.14	0.57
Providing job placement services for students	V	6	14.3	9	21.4	13	31.0	14	33.3	42	2.83	1.06
	C	8	16.3	20	40.8	17	34.7	4	8.2	49	2.35	0.86
Assisting students in finding part-time jobs	V	4	9.5	11	26.2	26	61.9	1	2.4	42	2.57	0.70
	C	8	16.7	14	29.2	18	37.5	8	16.7	48	2.54	0.97
Maintaining contacts with potential employers	V	5	11.6	9	20.9	20	46.5	9	20.9	43	2.77	0.92
	C	12	24.5	14	28.6	18	36.7	5	10.2	49	2.33	0.97
Communicating counseling activities to community	V	7	15.9	17	38.6	20	45.5	0	0.0	44	2.30	0.73
	C	3	6.0	14	28.0	31	62.0	2	4.0	50	2.64	0.66
Arranging visits of college representatives	V	16	36.4	14	31.8	14	31.8	0	0.0	44	1.96	0.83
	C	0	0.0	18	16.0	38	76.0	4	8.0	50	2.92	0.49
Referral of students to outside agencies	V	4	8.9	24	53.3	17	37.8	0	0.0	45	2.29	0.63
	C	5	10.2	18	36.7	24	29.0	2	4.1	49	2.47	0.74
Conducting follow-up studies on graduates	V	8	19.0	9	21.4	24	57.1	1	2.4	42	2.43	0.83
	C	9	18.8	19	39.6	18	37.5	2	4.2	48	2.27	0.82
Arranging post-high school representatives' visits	V	14	31.8	20	45.5	10	22.7	0	0.0	44	1.91	0.74
	C	5	10.4	22	45.8	19	39.6	2	4.2	48	2.38	0.73
Placement of students in cooperative programs	V	16	39.0	7	17.1	15	36.6	3	7.3	41	2.12	1.03
	C	18	37.5	9	18.8	17	35.4	4	8.3	48	2.15	1.03
Conducting plant trips for vocational students	V	10	25.0	20	50.0	9	22.5	1	2.5	40	2.02	0.77
	C	27	56.3	13	27.1	8	16.7	0	0.0	48	1.60	0.76

* 1-Never, 2-Seldom, 3-Often, 4-Daily

The orientation work done by the high school vocational counselors in the feeder schools usually involves an intensive effort over a four to eight week period in the spring. The average annual feeder school orientation involves about 150 hours of counselor time. The total hours so spent vary considerably from school to school because of the number of feeder schools involved. Some counselors reported visiting twenty to thirty feeder schools.

• What percentage of counselors report an active role in helping students decide what vocational curriculum to follow? What is the nature of that role?

About 83 percent of the counselors claimed that they helped students to decide what vocational curriculum to follow. In vocational schools, 96 percent of the counselors provide this type of guidance.

The counselors who reported such guidance were asked to describe generally the nature of the guidance provided. The short essay answers did not lend themselves to classification. However, several patterns emerged:

1. The vocational schools describe a much more intensive effort to guide vocational course selection, e.g. use of tests to guide course selection, use of exploratory shop programs, giving individual as well as group occupational information, interviews with parents, planned talks by shop instructors, assessments of school records and biographical data forms, and so on. In comparison, the comprehensive school counselors described relatively thin guidance efforts in this area. Indeed, many who claimed to provide such guidance indicated that they relied mainly on the junior high school counselors to aid students in selecting vocational courses.

2. There is a heavy reliance on the use of tests to guide vocational course selection. This is particularly true in the vocational schools. One can not help but wonder about how valid tests have proven in making vocational course selection decisions. Where is the evidence that tests warrant the emphasis they seem to get?

3. Many counselors, particularly in the comprehensive schools, feel that they should leave the matter of vocational course choice wholly to the student. They are inclined to adapt a passive role, largely one of answering questions. Quite a few reported that the students generally have made their decision before contact with the counselor is made, and that little guidance is required.

Non-counseling Activities

Counselors were asked to list regular duties which were unrelated to counseling or guidance work, and to indicate the average hours per week spent in such activities. They were also asked to indicate to what extent such activities interfered with their counseling activities.

• What duties do counselors report as non-counseling activities? How many hours per week are spent in such activities? To what extent do

counselors feel such activities interfere with counseling? Table 16 provides the data.

The open-ended responses of the counselors were classified as shown in Table 16. About 49 percent of the counselors reported school administrative responsibilities which required 5.3 hours per week for the average counselor with such duties.

About 44 percent reported supervision of school activities as part of their duties, with a weekly involvement of 1 hour for the average counselor with such duties.

About 40 percent reported proctoring or monitoring duties, at an expenditure of 1.5 hours per average counselor with such duties. Twenty-two percent had some type of teaching responsibility, and the average counselor among this group spent 2.6 hours per week teaching. Other regular duties mentioned by counselors included attendance duties (7%), disciplinary duties (14%) and clerical activities (17%). The percentages with respect to the latter two are misleading because some of the counselors regarded such duties as part of their counseling responsibilities and did not report them as non-counseling activities.

The average counselor spends 12.5 hours per week in what he regards as non-counseling activities. About 33 percent reported spending in excess of 14 hours per week in such activities. It is easy to see how such duties may accumulate and encroach on the counselor's main purpose, i.e. counseling students. About 32 percent of the counselors reported that such duties interfered seriously or considerably with their counseling activities. One must assume that these counselors--almost a third of all surveyed--are not exaggerating the problem. If counselors are spending an average of 36 percent of their school week in activities unrelated to guidance or counseling, then their talents are possibly being misdirected.

Table 16 also reveals differences between the vocational and comprehensive schools. Counselors in vocational schools are more likely to be involved in attendance duties, disciplinary activities and clerical routines than those in comprehensive schools. The average vocational school counselor puts in 13.3 hours per week in non-counseling activities versus 11.8 for his counterpart in the comprehensive school. The percentage of counselors who claimed such activities interfered considerably or seriously with counseling was about the same for both types of schools.

Miscellaneous Data about Guidance Programs

1. Guidance program evaluation. The counselors indicated whether the school guidance program had been evaluated by an outside group since 1950, and if so, by what type(s) of evaluation group(s).

About 66 percent reported one or more such evaluations since 1950. However, there was a marked difference between the two types of schools. Whereas 80 percent of the comprehensive schools reported evaluation by an outside group, only 50 percent of the vocational schools reported such evaluations.

TABLE 16. COMPARATIVE DATA ON NON-COUNSELING DUTIES AND CLAIMED INTERFERENCE WITH COUNSELING IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

NON-COUNSELING DUTIES	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	%	MEAN	N	%	MEAN	N	%	MEAN
School administrative responsibility	35	48.6	5.3	17	47.2	4.2	18	50.0	6.2
Teaching responsibility	16	22.2	2.6	8	22.2	3.1	8	22.2	2.2
Supervision of school activities/clubs	32	44.4	1.0	15	41.7	0.6	17	47.2	1.3
Attendance duties	5	6.9	0.2	5	13.9	0.4	0	0.0	0.0
Disciplinary duties	10	13.9	0.7	6	16.7	0.7	4	11.1	0.7
Financial duties (student loans)	1	1.4	0.0	1	2.8	0.0	0	0.0	0.0
Clerical duties	12	16.7	0.9	8	22.2	0.8	4	11.1	1.0
Proctor duties	29	40.3	1.5	15	41.7	2.0	14	38.9	1.0
Other than above	3	4.2	0.5	1	2.8	0.5	2	5.7	0.5
ALL NON-COUNSELING DUTIES	58	-	12.5	27	-	13.3	31	-	11.8
CLAIMED INTERFERENCE WITH COUNSELING	N	%		N	%		N	%	
· No interference	25	29.1		13	31.0		12	27.3	
· Slight interference	33	38.4		15	35.7		18	40.9	
· Considerable interference	21	24.4		9	21.4		12	27.3	
· Serious interference	7	8.1		5	11.9		2	4.5	

The types of evaluating groups include state committees (43 percent), regional committees (49 percent) and other groups (8 percent). Of those schools that reported such evaluation, an average of 3.4 years had elapsed since the last guidance program evaluation by an outside group.

2. Special provisions for vocational students. Only 12 of the 50 comprehensive schools reported that they had a special guidance program for vocational students. Only eight of the 50 comprehensive schools reported use of a counselor specifically for vocational students. These percentages confirm the general impression that guidance programs in comprehensive schools are geared primarily to service the majority of non-vocational students.

GUIDANCE STAFF AND FACILITIES

Guidance Personnel and Man-hours

Staff man-hours is one element to be considered in assessing the adequacy of a school's guidance program. The average school surveyed had 2.2 full-time counselors, 1.5 part-time counselors and 1.1 secretarial or clerical assistants. The comprehensive schools had a greater number of counseling staff personnel. However, in terms of school reported counselor-student ratios, there was no difference between the mean counselor-student ratios obtained for each type of school. The average counselor-student ratio, based on what schools reported directly, was 1 counselor for every 515 students. All schools, excluding five area schools, had a counseling staff that included one or more full-time counselors, part-time counselors and clerical assistants. The five area schools were serviced by the counseling staffs of the home schools in which the vocational students spent part of their time. Thus, all schools had counseling services.

The average counselor-student ratios are misleading because of the wide range in counselor-student ratios reported by the schools. Table 17 provides the distribution data.

TABLE 17. DISTRIBUTION DATA ON REPORTED COUNSELOR-STUDENT RATIOS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

REPORTED STUDENT-COUNSELOR RATIOS	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	%	C%	N	%	C%	N	%	C%
1300 - 1499	2	2.2	100.0	2	4.5	100.0	0	0.0	-
1100 - 1299	3	3.2	97.8	2	4.5	95.5	1	2.0	100.0
900 - 1099	2	2.2	94.6	0	0.0	91.0	2	4.1	98.0
700 - 899	9	9.7	92.4	2	4.5	91.0	7	14.3	93.9
500 - 699	24	25.8	82.7	12	27.3	86.5	12	24.5	79.6
300 - 499	41	44.0	56.9	18	40.9	59.2	23	46.9	55.1
100 - 299	12	12.9	12.9	8	18.3	18.3	4	8.2	8.2
NUMBER	93			44			49		
MEAN	515.6			518.0			513.4		
MEDIAN	450			450			461		
S.D.	253.5			292.4			215.9		

The median counselor-student ratio is 450 students to 1 counselor. However, almost 18 percent of the schools surveyed had in excess of a 1 to 700 ratio. Previous data presented in this chapter suggested that the average counselor spends about 28 percent of his week in individual contacts with students. Assuming a 36 week, work year at 35 hours per week, the estimate of hours spent in personal conferences based upon the 28 percent figure comes to 352 hours per year. If one cares to assume that the counselors in the schools with counselor-student ratios in excess of 700 spend about the same amount of their work week in personal conferences as do those in schools with smaller ratios, one would come to the conclusion that in 18 percent of the schools the annual personal conference time per student is about 30 minutes. In actual practice, of course, not all students see the counselor in a school year except where a mandatory conference program is in effect. Even so, the counselor ratios in excess of 700 seem high in terms of the above calculation. To double the average 30 minute per pupil per year conference time would involve a jump from 28 to 56 percent of the counselor's work week devoted to personal conferences. By these calculations, it is apparent that almost one-fifth of the schools can not provide adequate counseling services with their present student-counselor ratios.

A second check of counselor man-hours per number of students was made by crediting full-time counselors with a 40 hour week and part-time counselors with a 20 hour week to arrive at an estimated total counselor man-hours per week. This, in turn, was expressed in terms of counselor man-hours per week per 100 pupils. Table 18 shows the distribution of this unorthodox, albeit descriptive measure.

The mean and median counselor man-hours per week per 100 pupils were respectively 13.5 and 8 man-hours per week. That would be about 290 counselor man-hours per 100 students per school year or 2.9 hours per student per year. Again, assuming 28 percent of the counselor's time is devoted to personal conferences, the personal conference time per student per year would be about 45 minutes. This amount of time would vary downward if one assumed a more realistic work week of about 35 hours per week for counselors.

It should be noted that the vocational schools have substantially more counselor man-hours per week per 100 students than do the comprehensive schools. With the vocational students in comprehensive schools being in the minority, their potential exposure to counselor man-hours is much smaller than is the case for vocational students in vocational schools.

Guidance Facilities

The facilities available to guidance counselors may be of general interest to those concerned with secondary school guidance programs. It is unlikely, however, that facilities as such have a determining role in the effectiveness of a school guidance program.

- What type of facilities do guidance counselors have? As judged by the counselors, how adequate are their facilities? Table 19 provides the data.

TABLE 18. DISTRIBUTION OF COUNSELOR MAN-HOURS PER WEEK PER 100 STUDENTS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

MAN-HOURS PER WEEK (PER 100 STUDENTS)	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	%	C%	N	%	C%	N	%	C%
>40	4	4.2	100.0	3	6.4	100.0	1	2.1	100.0
36 - 40	6	6.3	95.8	5	10.6	93.6	1	2.1	97.9
31 - 35	1	1.1	89.5	1	2.1	83.0	0	0.0	95.8
26 - 30	0	0.0	88.4	0	0.0	80.9	0	0.0	95.8
21 - 25	0	0.0	88.4	0	0.0	80.9	0	0.0	95.8
16 - 20	8	8.4	88.4	6	12.8	80.9	2	4.2	95.8
11 - 15	13	13.7	80.0	5	10.6	68.1	8	16.6	91.6
6 - 10	46	48.4	66.3	21	44.7	57.5	25	52.1	75.0
1 - 5	17	17.9	17.9	6	12.8	12.8	11	22.9	22.9
NUMBER	95			47			48		
MEAN	13.5			17.3			9.7		
MEDIAN	8.0			10.0			8.0		
S.D.	13.9			17.1			8.5		

TABLE 19. AVAILABILITY AND ADEQUACY OF COUNSELING FACILITIES

TYPE OF FACILITY	NOT AVAILABLE		AVAILABLE BUT INADEQUATE		AVAILABLE AND ADEQUATE	
	N	%	N	%	N	%
Room for individual testing	10	11.1	27	30.0	53	58.9
Room for group testing	11	12.1	32	35.2	48	52.7
Room for private student conferences	3	3.2	20	21.5	70	75.3
Bulletin board for guidance materials	5	5.3	22	23.4	67	71.3
Room for student group conferences	13	14.0	26	28.0	54	58.1
Office equipment	2	2.1	17	18.1	75	79.8
Storage space for materials	6	6.4	36	38.3	52	55.3
Racks for guidance materials	17	18.1	26	27.7	51	54.3
Audio-visual aids	8	8.6	21	22.6	64	68.8

With the exception of the racks for the display of guidance literature, all of the facilities listed are available to 85 percent or more of the counselors. However, many are available but inadequate according to the counselors. When ranked by percentage, the facilities judged to be inadequate were:

•Storage space for materials	38%
•Room for group testing	35
•Room for individual testing	30
•Room for group conferences	28
•Rack for guidance materials	28
•Audio-visual aids	23
•Room for private conferences	21

There were no impressive differences between vocational and comprehensive schools in availability of facilities. Of the facilities that were available and inadequate, the comprehensive schools reported a greater percentage of the following as inadequate:

•Individual testing rooms	(33 vs. 26 percent)
•Bulletin boards	(32 vs. 13 percent)
•Storage facilities	(42 vs. 32 percent)

Vocational schools reported a greater percentage of the following as inadequate:

•Group conference rooms	(32 vs. 24 percent)
•Office equipment	(23 vs. 14 percent)

No significance is attached to such differences. One can not conclude that one or the other type of school has an overall advantage in facilities provided for counselors.

GUIDANCE PROGRAM CHANGES

The counselors were asked to indicate the type of changes that took place in the school guidance programs over the past five years. Specifically, they were asked to indicate changes related to personnel, facilities, records, testing, referral services and other major changes, including policy changes. The purpose was to assess what innovations and changes have been taking place in secondary school guidance programs.

A guidance program of some type had been in operation for an average of 17.4 years in the ninety-five schools with a program. The average school had a full-time counselor 11.1 years. These facts are cited to establish that counseling and guidance programs are not a relatively recent installation in the schools surveyed. Virtually all schools surveyed have had sufficient years of experience with such programs so as to evolve a program suitable to the student needs. There can be no claim that they have had insufficient time to develop their programs. Most of the problems that such programs encounter have been experienced over many years.

• In terms of broad areas, what type of changes have characterized the guidance programs in recent years? How do vocational and comprehensive schools compare? Table 20 provides the data.

The percentages indicate that there has been considerable change in guidance programs. About 73 percent of the schools reported changes in counselor staffing; 73 percent claimed a change in the school testing program; 68 percent indicated a major change in guidance facilities; 57 percent wrote that there were changes in record keeping procedures; and 47

TABLE 20. COMPARATIVE DATA ON RECENT COUNSELING PROGRAM CHANGES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

RECENT GUIDANCE PROGRAM CHANGES	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Personnel changes	69	73.4	29	65.9	40	80.0
Facility changes	64	68.1	25	56.8	39	78.0
Record keeping changes	54	57.4	24	54.5	30	60.0
Testing program changes	69	73.4	32	72.7	37	74.0
Referral services changes	44	46.8	19	43.2	25	50.0
Other major changes	38	40.4	18	40.9	20	40.0

percent made changes in student referral services. The nature of these changes is described later. The same percentages also imply a lack of change in many schools. Almost 25 percent of the schools reported no guidance staff changes in the past five years. Thirty percent claimed no change in guidance facilities. One can not say whether such percentages reflect that there is no need for change in so many schools or that school administrators are sitting on their status quos.

A greater percentage of comprehensive schools report changes in almost all categories. This may mean that the need for change has been greater in such schools or that such schools are more responsive to the need for change. The reader may have a plausible explanation.

- What kinds of guidance personnel changes have characterized the schools? Table 21 provides the data.

Almost all schools have found it necessary to increase their guidance personnel. About 64 percent reported an increase in full-time guidance personnel. Another 35 percent reported an increase in part-time guidance personnel. Twenty percent also reported increases in clerical staff to assist guidance personnel. Only five schools reported a decrease in full-time counseling staff. The reasons for the decrease were not determined.

The increase in guidance staff is more widespread in the comprehensive schools, possibly because the need is greater in such schools. Thus, 72 percent of the comprehensive schools reported an increase in full-time counselor staff, whereas only 52 percent of the vocational schools reported such increases. The percentage of comprehensive schools that increased their part-time counselor staff and their supporting clerical staff is also greater.

TABLE 21. COMPARATIVE DATA ON RECENT KINDS OF GUIDANCE PERSONNEL CHANGES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

KINDS OF GUIDANCE PERSONNEL CHANGES	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Increased professional staff, f-t	44	63.8	15	51.7	29	72.5
Increased professional staff, p-t	24	34.8	9	31.0	15	37.5
Increased clerical staff	14	20.3	3	10.3	11	27.5
Counselor promoted	9	13.0	5	17.2	4	10.0
Decreased professional staff, f-t	2	2.9	0	0.0	2	5.0
Decreased clerical staff	1	1.4	1	3.4	0	0.0
Other than above	1	1.4	1	3.4	0	0.0

•What kinds of guidance facility changes have characterized the schools? Table 22 provides the data.

As might be expected, with increases in guidance staff, there have been increases in space allotted to the guidance staff. About 77 percent of the schools reported more space was provided. Eighteen percent reported the addition of a waiting room. Sixteen percent reported the addition of private counseling rooms. Fifteen percent reported the addition of new storage equipment.

A greater percentage of comprehensive schools reported providing more space for the guidance personnel. This follows from the greater increase in guidance personnel in such schools.

TABLE 22. COMPARATIVE DATA ON RECENT KINDS OF GUIDANCE FACILITY CHANGES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

KINDS OF GUIDANCE FACILITY CHANGES	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
More space, in general	49	76.6	17	68.0	32	82.1
Private counseling/conference rooms added	10	15.6	3	12.0	7	17.9
Waiting room added	12	18.8	5	20.0	7	17.9
Storage equipment added, purchased	10	15.6	5	20.0	5	12.8
Group counseling/conference rooms added	3	4.7	0	0.0	3	7.7
Other than above	4	6.3	3	12.0	1	2.6

•What kinds of record keeping changes were reported by the school counselors? Table 23 provides the data.

TABLE 23. COMPARATIVE DATA ON RECENT KINDS OF GUIDANCE PROGRAM RECORD KEEPING CHANGES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

KINDS OF RECORD KEEPING CHANGES	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Counselor now keeps (maintains) records	17	31.5	8	33.3	9	30.0
Records no longer maintained by counselor	4	7.4	3	12.5	1	3.3
Computer processes used in record keeping	8	14.8	2	8.3	6	20.0
Change in format to facilitate completion	29	53.7	10	41.7	19	63.3
Counseling interview records now required	2	3.7	0	0.0	2	6.7
File developed on special cases (dropouts)	3	5.6	2	8.3	1	3.3
Other than above	2	3.7	1	4.2	1	3.3

Fifty-seven percent of the schools reported a major record keeping change. Of these, 54 percent reported changing the format of the student record card to facilitate completion, 32 percent reported that counselors now maintained a student record card and 15 percent reported use of computers to keep student records. A few schools dropped the requirement that the counselor maintain a student record card.

• What kind of psychological testing program changes were reported by the counselors? Table 24 provides the data.

TABLE 24. COMPARATIVE DATA ON RECENT KINDS OF PSYCHOLOGICAL TESTING PROGRAM CHANGES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

KINDS OF TESTING PROGRAM CHANGES	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Additional test added to program	59	85.5	28	87.5	31	83.8
Elimination of tests from program	15	21.7	5	15.6	10	27.0
Administration supervised by counselor	2	2.9	1	3.1	1	2.7
More control of testing program	1	1.4	0	0.0	1	2.7
Other than above	5	7.2	2	6.2	3	8.1

About 73 percent of the schools reported such changes. Of these, 85 percent reported adding additional tests to those already used, 21 percent reported eliminating tests and 3 percent reported that a counselor now supervised the administration of the tests. The question was unproductive in eliciting answers that had to do with changes in the use of tests for different purposes. The trend is toward greater test use.

• What kind of referral service changes were reported by the counselors? Table 25 provides the data.

Referral services have reference to school initiated referrals to outside specialists, usually specialists associated with the school district education structure. About 34 percent of the schools reported increased availability or use of educational therapists to deal with maladjusted students who are beyond the school counselor's skills. About 45 percent reported the increased availability or use of a psychologist to deal with students with adjustment problems. About 45 percent reported an improvement in referral procedure that, presumably, resulted in greater referral services. About 11 percent reported increased use of referrals to deal with would-be dropout cases. The percentages are not mutually exclusive.

These changes suggest that there is a growing recognition of the need for professionally trained specialists to deal with some of the maladjustment problems. This would indicate that the school counselor will assume more and more the role of a general practitioner who sends his "problem" cases off to the specialist. It appears to be one more example of the growth of specialization.

TABLE 25. COMPARATIVE DATA ON RECENT KINDS OF REFERRAL SERVICE CHANGES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

KINDS OF REFERRAL SERVICES CHANGES	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Increase in availability and/or use of educational therapists	15	34.1	9	47.4	6	24.0
Increase in availability and/or use of psychologists	20	45.5	7	36.8	13	52.0
Procedure for referral revised or improved	20	45.5	8	42.1	12	48.0
Decrease in availability of referral services	2	4.5	0	0.0	2	8.0
Increase in special case services (dropouts)	5	11.4	2	10.5	3	12.0
Other than above	1	2.3	1	5.3	0	0.0

• What other major changes were reported by the counselors? Table 26 provides the data.

Only 40 percent of the schools reported major changes other than those previously covered. It could be that the counselors became pencil-weary. Percentages are based upon the 38 schools who reported such changes.

TABLE 26. COMPARATIVE DATA ON OTHER MAJOR GUIDANCE PROGRAM CHANGES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

OTHER MAJOR CHANGES	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Centralization of guidance services	8	21.1	1	5.6	7	35.0
More emphasis on vocational guidance	6	15.8	4	22.2	2	10.0
More emphasis on college-bound guidance	3	7.9	3	16.7	0	0.0
More emphasis on counseling/group guidance	12	31.6	7	38.9	5	25.0
Discipline relegated to non-counselors	3	7.9	2	11.1	1	5.0
Discipline added to counselor's duties	1	2.6	0	0.0	1	5.0
Other than above	12	31.6	6	33.3	6	30.0

About 31 percent reported greater use of group counseling and guidance. This may be the result of a more rapid growth of student problems than of counseling staff. The reasons for the change were not established.

About 21 percent reported the centralization of guidance services in the school district. (A school district guidance director functioned to give direction to the school counselor's activities.)

Only 16 percent reported a greater emphasis on vocational guidance. This seems to be a very small step in the right direction, unless one cares to assume that vocational guidance is now adequately emphasized in most schools.

The data also hints at a trend to remove disciplinary cases from the realm of the counselor. Such a change does not necessarily preclude the counselor having a role in such cases.

Changes Recommended By Guidance Counselors

The last question asked of the counselors was, "What changes, if any, do you recommend to improve the student counseling services rendered by your school?" The answers to the open-ended question were classified. Table 27 reports the percentages. Such percentages can not be interpreted as reflecting what all counselors would endorse if each item had appeared in a closed question.

Two problems stand out. First, there is a strongly felt need for more counseling staff. About 61 percent of the counselors recommended one or more additional full-time counselors. Thirty-three percent reported the need for more clerical staff. Some chose an indirect way of expressing the need for more staff. Eleven percent wrote that they needed more time to perform their counseling services and 16 percent called for the reduction or elimination of non-guidance duties.

Facilities seemed to be the second major problem. About 25 percent reported the need for more space, equipment or specialized facility.

The recommendations from the vocational and comprehensive school counselors are remarkably similar. More of the comprehensive school counselors feel the need for a classification of their duties. This may reflect a tendency to use the counselor whenever a problem occurs that requires the attention of school personnel.

TABLE 27. COMPARATIVE DATA ON GUIDANCE PROGRAM CHANGES RECOMMENDED BY COUNSELORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPES OF RECOMMENDED CHANGES	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Additional full-time counselor	53	60.9	23	59.0	30	62.5
Additional clerical staff	29	33.3	12	30.8	17	35.4
Additional facilities	22	25.3	9	23.1	13	27.1
Time to perform services	10	11.5	5	12.8	5	10.4
More group guidance	9	10.3	3	7.7	6	12.5
Reduction of non-guidance duties	14	16.1	6	15.4	8	16.7
Follow-up of graduates	4	4.6	1	2.6	3	6.3
Better counselor-teacher coordination	6	6.9	3	7.7	3	6.3
Support for professional development	8	9.2	2	5.1	6	12.5
Additional guidance materials	3	3.4	2	5.1	1	2.1
Revision of testing policy	3	3.4	1	2.6	2	4.2
Expansion of social services	6	6.9	3	7.7	3	6.3
Addition of placement duties	5	5.7	2	5.1	3	6.3
Salary increase	5	5.7	2	5.1	3	6.3
Coordination with feeder schools	5	5.7	3	7.7	2	4.2
Record keeping changes	10	11.5	4	10.3	6	12.5
Classification of duties	7	8.0	1	2.6	6	12.5

SPECIAL-NEED STUDENT SERVICES

There are a wide variety of special-need student services in the schools today. These range from remedial programs designed to remedy student underachievement in a skill area, such as reading or mathematics, to the professional services of psychologists and physicians. This section explores the need, availability and adequacy of such student services.

The principals of the schools surveyed were asked to indicate the availability and adequacy of each of a list of 15 student services. Some of the services are related to counselor responsibilities and for that reason the section on student services is included in this chapter.

Need and Availability of Student Services

• To what extent are student special-need services available? If not available, to what extent are such special services needed according to school principals? Table 28 provides the data.

When ranked according to the percentage of schools who do not have such services, the list of unavailable services is as follows:

• Individual remedial tutoring programs	77%
• Remedial mathematics classes	55
• Periodic dental examinations	55
• Psychiatric student services	46
• Remedial reading classes	44
• Periodic medical examinations	43
• Summer classes for new subjects	39
• Remedial speech services	38
• Family social worker services	35
• Psychological student services	27
• Summer classes for repeat subjects	26
• Student job placement services	22
• Counseling for post-high school education	19

The unavailability of such services in some schools does not necessarily mean that principals feel such services are needed. Table 28 indicates the percentage of principals who felt a non-available service was not needed. Others in the school hierarchy may not necessarily share the opinions of these principals.

When the services are ranked according to the percentage not available and needed, a different order emerges:

- Individual remedial tutoring program 45%
- Remedial mathematics classes 40
- Remedial reading classes 36
- Periodic dental examinations 26
- Student psychiatric services 26
- Job placement services 22
- Remedial speech services 22
- Student psychological counseling 19
- Family social work services 17
- Counseling for post-high school education 13

Assuming that the principals are correct in their assessments of what is needed, it is clear that large percentages of schools are not offering needed student services. The extra cost burden of such services is undoubtedly the major reason why so many school systems do not provide these special services. The picture is hardly that of an affluent society.

The service that is most lacking is also the least costly to innovate, i.e. individual remedial tutoring. For every student in need of such tutoring, there are probably several who are willing and potentially capable of tutoring a fellow student. With a minimum amount of training, such volunteers could probably do an excellent job of tutoring a less capable student. Undoubtedly, both the tutors and the tutored would benefit. All that is required is an imaginative administrator to organize the volunteers and coordinate the program. Schools should look to their Future Teachers of America Clubs for such activities.

TABLE 28. SPECIAL STUDENT SERVICES NOT AVAILABLE AND NEEDED AS REPORTED BY SCHOOL PRINCIPALS

SPECIAL STUDENT SERVICES	NOT AVAILABLE		NOT AVAILABLE NOT NEEDED		NOT AVAILABLE NEEDED	
	N	%	N	%	N	%
Counselor-given vocational guidance	5	5.1	0	0.0	5	5.1
Post-high school educational counseling	19	19.4	6	6.1	13	13.3
Psychological counseling	25	26.9	7	7.5	18	19.4
Psychiatric services	41	45.6	18	20.0	23	25.6
Social worker family services	33	35.1	17	18.1	16	17.0
Job placement services for students	21	21.9	7	7.3	14	14.6
Job placement services for alumni	41	43.6	20	21.3	21	22.3
Periodic medical examinations	41	44.1	25	26.9	16	17.2
Periodic dental examinations	51	54.8	27	29.0	24	25.8
Remedial speech services	36	37.5	15	15.6	21	21.9
Remedial reading classes	43	44.3	8	8.2	35	36.1
Remedial mathematics classes	53	55.2	15	15.6	38	39.6
Individual remedial tutoring	69	76.7	28	31.1	41	45.6
Summer classes for repeat subjects	25	26.0	15	15.6	10	10.4
Summer classes for new subjects	37	39.4	25	26.6	12	12.8

• How do vocational and comprehensive schools compare in terms of availability of special-need student services? Table 29 provides the data.

The comprehensive schools are more likely to have the following student services available:

• Summer classes for repeat subjects	81%
• Family social worker services	75
• Remedial speech services	72
• Summer classes for new subjects	65
• Remedial reading classes	61
• Remedial mathematics classes	52
• Periodic dental examinations	50

The only service the vocational schools are more likely to offer is job placement for former students. The general conclusion is that comprehensive schools offer special-need student services to a greater degree than do the vocational schools. More than half of the vocational schools had no remedial reading, mathematics or individual tutoring programs. More than a third of the vocational schools offered no summer program for new or repeat subjects, no dental or medical examination services, and no psychiatric or family social services. More than a fifth of the vocational schools offered no counseling for post-high school education, no psychological counseling services and no placement services for their students.

A look at the percentages of principals who felt the various types of services were needed shows that both types of schools claim to need many of these student services. More than 25 percent of the vocational school principals felt the following services were needed:

• Remedial math classes	44%
• Remedial reading classes	40
• Individual tutoring	39
• Remedial speech services	28

Also, more than 25 percent of the comprehensive school principals felt these services were needed:

• Individual tutoring programs	52%
• Remedial mathematics classes	35
• Remedial reading classes	33
• Psychiatric services	33
• Job placement services (alumni)	31
• Periodic dental examinations	25

The percentages refer to schools that do not now offer such services, yet feel a need to provide such services.

TABLE 29. COMPARATIVE DATA ON SPECIAL STUDENT SERVICES NOT AVAILABLE AND NEEDED AS REPORTED BY PRINCIPALS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPES OF STUDENT SERVICES	TYPE OF SCHOOL							
	VOCATIONAL				COMPREHENSIVE			
	NOT AVAILABLE		NEEDED		NOT AVAILABLE		NEEDED	
	N	%	N	%	N	%	N	%
Counselor-given vocational guidance	4	8.2	4	8.2	1	2.0	1	2.0
Post-high school educational counseling	11	22.4	5	10.2	8	16.3	8	16.3
Psychological counseling	14	29.2	9	18.8	11	24.4	9	20.0
Psychiatric services	21	47.7	8	18.2	20	43.5	15	32.6
Social worker family services	21	45.7	9	19.6	12	25.0	7	14.6
Job placement services for students	10	20.0	6	12.0	11	23.9	8	17.4
Job placement services for alumni	14	28.6	7	14.3	27	60.0	14	31.1
Periodic medical examinations	20	42.5	5	10.6	21	45.6	11	23.9
Periodic dental examinations	28	59.5	12	25.5	23	50.0	12	26.1
Remedial speech services	23	46.0	14	28.0	13	28.2	7	15.2
Remedial reading classes	24	50.0	19	39.6	19	38.8	16	32.7
Remedial mathematics classes	30	62.6	21	43.8	23	47.9	17	35.4
Individual remedial tutoring	35	72.9	19	39.6	34	81.0	22	52.4
Summer classes for repeat subjects	16	32.6	6	12.2	9	19.1	4	8.5
Summer classes for new subjects	21	43.8	6	12.5	16	34.7	6	13.0

Adequacy of Student Services

• Where special-need student services are available, to what extent are they considered to be adequate? Table 30 provides the data.

The percentages shown represent the number of schools in each category as a percentage of all schools, not merely of those that had the service available. Hence, they do not add up to one hundred percent.

To better illustrate the magnitude of the inadequate services problem, the services are ranked in the order of claimed inadequacy. A given service may have been rated inadequate either because the man-hours of service for the student enrollment was considered insufficient, or because the quality of the service being rendered was considered less than satisfactory. The study unfortunately made no distinction. The available but inadequate services are as follows:

•Counselor vocational guidance	29%
•Student job placement services	23
•Student psychological counseling	22
•Family social worker services	20
•Psychiatric services	19
•Remedial reading classes	19

TABLE 30. AVAILABILITY AND ADEQUACY OF SPECIAL STUDENT SERVICES REPORTED BY SCHOOL PRINCIPALS

SPECIAL STUDENT SERVICES	AVAILABLE ADEQUATE		AVAILABLE INADEQUATE	
	N	%	N	%
Counselor-given vocational guidance	65	66.3	28	28.6
Post-high school educational counseling	66	67.3	13	13.3
Psychological counseling	48	51.6	20	21.5
Psychiatric services	32	35.6	17	18.9
Social worker family services	42	44.7	19	20.2
Job placement services for students	53	55.2	22	22.9
Job placement services for alumni	40	42.6	13	13.8
Periodic medical examinations	46	49.5	6	6.5
Periodic dental examinations	34	36.6	8	8.6
Remedial speech services	49	51.0	11	11.5
Remedial reading classes	36	37.1	18	18.6
Remedial mathematics classes	32	33.3	11	11.5
Individual remedial tutoring	15	16.7	6	6.7
Summer classes for repeat subjects	67	69.8	4	4.2
Summer classes for new subjects	52	55.3	5	5.3

All other available student services were rated inadequate by less than 15 percent of the principals. The above percentages represent the negative side of the coin. There is also a positive side. Large percentages of school principals report many of the listed services as both available and adequate. See Table 30 for the details.

● How do vocational and comprehensive schools compare in terms of the adequacy of special student services that are available? Table 31 provides the data.

The reader is reminded that the data represents the opinions of the principals. The overall impression given by Table 31 data is that a greater percentage of the comprehensive schools see their available student services as inadequate. For example, 34 percent of the comprehensive school principals reported job placement services as available but inadequate versus 12 percent of the vocational school principals. It is difficult to draw a conclusion about the adequacy of services in the two schools from such data. One can not be sure that the principals of both schools apply the same mental standards of what constitutes an adequate service. However, if one wanted to risk a tentative conclusion, one might say that where the services are available, they are more adequate in the vocational schools.

TABLE 31. COMPARATIVE DATA ON AVAILABILITY AND ADEQUACY OF SPECIAL STUDENT SERVICES REPORTED BY PRINCIPALS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPES OF AVAILABLE STUDENT SERVICES	TYPE OF SCHOOL							
	VOCATIONAL				COMPREHENSIVE			
	ADEQUATE		INADEQUATE		ADEQUATE		INADEQUATE	
	N	%	N	%	N	%	N	%
Counselor-given vocational guidance	33	67.3	12	24.5	32	65.3	16	32.7
Post-high school educational counseling	32	65.3	6	12.2	34	69.4	7	14.3
Psychological counseling	26	54.2	8	16.7	22	48.9	12	26.7
Psychiatric services	19	43.2	4	9.1	13	28.3	13	28.3
Social worker family services	21	45.7	4	8.7	21	43.8	15	31.3
Job placement services for students	34	68.0	6	12.0	19	41.3	16	34.8
Job placement services for alumni	29	59.2	6	12.2	11	24.4	7	15.6
Periodic medical examinations	25	53.2	2	4.3	21	45.7	4	8.7
Periodic dental examinations	16	34.0	3	6.4	18	39.1	5	10.9
Remedial speech services	24	48.0	3	6.0	25	54.3	8	17.4
Remedial reading classes	16	33.3	8	16.7	20	40.8	10	20.4
Remedial mathematics classes	12	25.0	6	12.5	20	41.7	5	10.4
Individual remedial tutoring	9	18.8	4	8.3	6	14.3	2	4.8
Summer classes for repeat subjects	31	63.3	2	4.1	36	76.6	2	4.3
Summer classes for new subjects	24	50.0	3	6.3	28	60.9	2	4.3

THE GUIDANCE COUNSELORS

The present section provides a brief description of the guidance counselors, i.e. their ages and socio-economic origins, educational backgrounds and occupational experiences. Such information may be of general interest to those concerned with high school guidance programs.

Socio-economic Origins and Other Data

Table 32 provides a summary of counselor data related to sex, age, marital status, dependents and male parent education and occupation. Each category is briefly discussed below:

Sex. About 30 percent of the head counselors were female and 11 percent of the schools had only a female counselor. At the risk of being accused of sex discrimination, a question can be raised about how well a female counselor can provide guidance, particularly vocational guidance, to T&I vocational students.

Thirty-five percent of all counselors surveyed, including part-time counselors, were female. The data on Table 32 makes no distinction between male and female counselors. The reader who wishes to assess the differences between male and female counselors is referred to Appendix Section 9 for comparative data.

The percentage of female counselors was slightly greater in the comprehensive schools (38 vs. 32 percent). The difference is not that great that one could account for the vocational-comprehensive school differences in terms of differences in the ratio of male to female counselors.

Age. The average age of the counselors surveyed is 48 years. About 42 percent of the counselors were over fifty years of age. About 9 percent were over sixty. Some may be inclined to raise a question about student-counselor rapport where counselors are over a given age. However, the present study found that counselor age was unrelated to the guidance program characteristics discussed in the preceding section. Indeed, age was inversely correlated with the time required by vocational graduates to get jobs, meaning graduates got jobs sooner when from schools with the older counselors.

The mean age of counselors in the vocational schools is 48.5 years contrasted with 46.6 years for the comprehensive school counselors. The two-year difference is of no practical significance.

The mean age of the female counselors who gave their age (less than half did) was 50.9 years versus 44.5 years for the male counselors. Undoubtedly, the lack of response by so many female counselors on this variable had a biasing effect.

TABLE 32. COMPARATIVE SOCIO-ECONOMIC AND OTHER DATA FOR COUNSELORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

SOCIO-ECONOMIC ORIGINS AND OTHER DATA	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	M-%	S.D.	N	M-%	S.D.	N	M-%	S.D.
Age Category	92	47.5	9.7	44	48.5	8.1	48	46.6	11.0
26 - 30	1	1.1	-	0	0.0	-	1	2.0	-
31 - 35	12	13.0	-	3	7.0	-	9	18.4	-
36 - 40	12	13.0	-	2	4.7	-	10	20.4	-
41 - 45	16	17.4	-	12	27.9	-	4	8.2	-
46 - 50	13	14.1	-	10	23.3	-	3	6.1	-
51 - 55	18	19.6	-	7	16.3	-	11	22.4	-
56 - 60	12	13.0	-	6	14.0	-	6	12.2	-
Over 60	8	8.7	-	3	7.0	-	5	10.2	-
Marital Status									
Single	22	23.4	-	5	11.4	-	17	34.0	-
Married	67	71.3	-	37	84.1	-	30	60.0	-
Widowed	1	1.1	-	1	2.3	-	1	2.3	-
Separated or divorced	4	4.3	-	1	2.3	-	3	6.0	-
Number of Children	71	1.9	1.9	39	1.8	1.6	32	1.9	2.2
Male Parent Education	88	9.8	3.7	39	9.2	3.0	49	10.4	4.1
Male Parent Occupation Level									
Major professionals, etc.[1]	11	12.9	-	1	2.6	-	10	21.3	-
Middle professionals, etc.[2]	4	4.7	-	3	7.9	-	1	2.1	-
Minor professionals, etc.[3]	9	10.6	-	5	13.2	-	4	8.5	-
Clerical, sales and technical	14	16.5	-	9	23.7	-	5	10.6	-
Skilled occupations	21	24.7	-	7	18.4	-	14	29.8	-
Semi-skilled occupations	13	15.3	-	8	21.1	-	5	10.6	-
Unskilled occupations	8	9.4	-	4	10.5	-	4	8.5	-
Miscellaneous	5	5.9	-	1	2.6	-	4	8.5	-

1 - Large company owners and officers, professional occupations
2 - Medium company owners, also managers
3 - Small proprietors, also administrators

Marital status. As might be expected, the majority (71%) are married. The smaller percentage of married counselors in comprehensive schools is attributable to a greater percentage of unmarried female counselors in such schools. The present study has no data that relates marital status to effectiveness of vocational counseling.

Of the female counselors who indicated their marital status (many did not), about three-quarters were single. The balance were widowed, separated or divorced. None were presently married.

Number of children. The average married counselor has 2 children. Considering the age of counselors, one can say that the majority of counselors have had years of experience dealing with children at different age levels--their own children. Such experience should transfer to their role as counselors.

Socio-economic origins. The male parents of counselors have an average of 9.8 years of formal education or 2.2 years less than a complete high school education. The male parents of counselors from comprehensive schools have a full year more of formal education than do those of counselors from vocational schools. It is possible that differences are attributable to the higher male parent education found among the female counselors.

About half of the male parents of counselors are (were) employed in unskilled, semi-skilled and skilled occupations. Almost 30 percent of the male parents were employed in major, middle and minor professional occupations. The percentages indicate that the male parents of counselors in vocational and comprehensive schools are about equally represented in the unskilled to skilled occupations as a group. There is no evidence that the socio-economic origins of counselors have any bearing on their effectiveness as counselors.

Educational Background

The educational background of guidance counselors is summarized in Table 33. The table also provides comparative data on vocational and comprehensive high school counselors.

About 96 percent of the counselors pursued an academic curriculum in high school. The percentage is a little higher for those in comprehensive schools (98%) and slightly lower for those in vocational schools (93%). Perhaps there should be more counselors in the latter schools who have experienced the kind of education that the vocational students are getting, but there is no data to support this view. The high school grade average reported by the counselors generated a mean grade average of 3.0 for all counselors. Stated differently, the average counselor was a solid B student in high school.

All counselors attended college and received at least one degree. About 2 percent reported they had a Doctorate, 88 percent reported they had a Master's degree and ten percent had a Bachelor's degree only. Undoubtedly some of the latter were working toward a Master's degree. A higher percentage of the comprehensive school counselors had an advanced degree (94 vs. 84 percent). (This does not imply that guidance programs are necessarily

TABLE 33. COMPARATIVE EDUCATIONAL BACKGROUND DATA REPORTED BY COUNSELORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

EDUCATIONAL BACKGROUND	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	M-%	S.D.	N	M-%	S.D.	N	M-%	S.D.
Graduated from High School	94	100.0	-	44	100.0	-	50	100.0	-
Grade Average in High School	95	3.0	0.6	45	2.9	0.6	50	3.2	0.6
Type of High School Course Taken									
Academic - general	88	95.7	-	40	93.0	-	48	98.0	-
Vocational - technical	3	3.3	-	3	7.0	-	0	0.0	-
Business - commercial	1	1.1	-	0	0.0	-	1	2.0	-
Reported Attending College	94	100.0	-	44	100.0	-	50	100.0	-
College Degrees Reported									
Bachelors	9	9.6	-	6	13.6	-	3	6.0	-
Masters	83	88.3	-	37	84.1	-	46	92.0	-
Doctorate	2	2.1	-	1	2.3	-	1	2.0	-
Major Course in College									
Education, unspecified	25	28.7	-	12	28.6	-	13	28.9	-
Education, vocational	10	11.5	-	7	16.7	-	3	6.7	-
Humanities	21	24.1	-	9	21.4	-	12	26.7	-
Social science	14	16.1	-	5	11.9	-	9	20.0	-
Biological science	4	4.6	-	2	4.8	-	2	4.4	-
Physical science	4	4.6	-	1	2.4	-	3	6.7	-
Other than above	9	10.3	-	6	14.3	-	3	6.7	-
Grade Average in College	92	2.9	0.5	43	2.8	0.5	49	3.0	0.5
Other Formal Education	41	58.6	-	19	63.3	-	22	55.0	-
Vocational trade school	5	12.5	-	4	21.1	-	1	4.8	-
Business commercial school	3	7.5	-	1	5.3	-	2	9.5	-
Apprenticeship program	1	2.5	-	0	0.0	-	1	4.8	-
Military service school	21	52.5	-	10	52.6	-	11	52.4	-
Correspondence courses	1	2.5	-	0	0.0	-	1	4.8	-
Teacher workshops, institutes	10	25.0	-	4	21.1	-	6	28.6	-
Company course	2	5.0	-	2	10.5	-	0	0.0	-
Other than above	3	7.5	-	2	10.5	-	1	4.8	-
Number Other Courses Taken	39	1.6	0.9	19	1.7	0.9	20	1.5	0.8
Number Other Courses Completed	37	4.0	14.9	17	1.7	0.9	20	6.0	20.2
Certifications Held									
Teacher	94	100.0	-	44	100.0	-	50	100.0	-
Counselor	83	89.2	-	36	81.8	-	47	95.9	-

better for vocational students in comprehensive schools.) The average grade performance of counselors in college subjects was 2.9 for all counselors. Again, those in comprehensive schools reported a slightly higher grade average than those in vocational schools (3.0 vs. 2.8).

The undergraduate majors of the counselors reflect their initial interest in humanities and social studies. About 40 percent had an education major; 24 percent majored in humanities; and 16 percent majored in social sciences. More of those in vocational schools reported a vocational education major and more of those in comprehensive schools reported a social science major. Only a small percentage majored in biological or physical sciences. The pattern of college majors is not unlike that of the academic teacher, with the exception that a greater percentage of the counselors completed an education major.

About 58 percent reported a variety of other education and training experiences. About 52 percent claimed they attended a military specialist school, 25 percent reported attendance at teacher workshops, 12 percent indicated they had taken a post-high school vocational course, and one has even completed an apprenticeship program. Counselors as a group are less active in post-high school, non-college forms of education than are teachers, particularly vocational teachers.

One hundred percent of the counselors reported certification as a teacher and almost 90 percent indicated certification as a counselor.

Non-counseling Employment

The occupational experiences of counselors are of interest because of the potential bearing such experiences have on capability for counseling vocational students on problems related to the non-teaching world of work.

Table 34 provides a summary of the conglomerate of occupational experiences.

Teaching experience. Almost all counselors have had some teaching experience. The average counselor reported 15.5 years of teaching experience. Those in vocational schools had about one year more of teaching experience than their comprehensive school colleagues. About 77 percent indicated academic subject teaching experience only. Thirteen percent taught a T&I vocational course, and 9 percent taught both vocational and academic subjects. With a few exceptions, all counselors that reported vocational subject teaching experience were in vocational schools. Indeed, 40 percent of the vocational school counselors reported some experience teaching a vocational subject versus 8 percent of the comprehensive school counselors.

Non-school occupational experience. The average counselor has had 3.6 years of non-school occupational experience. Those in vocational schools reported an average of 4.5 years of non-school, full-time employment versus 2.8 years reported by counselors in comprehensive schools.

About one-third of all counselors have had less than one year of full-time, non-school employment. One might say that those counselors have had very little direct experience with the world of work outside of school.

TABLE 34. COMPARATIVE OCCUPATIONAL BACKGROUND DATA REPORTED BY COUNSELORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

OCCUPATIONAL BACKGROUND	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	M-%	S.D.	N	M-%	S.D.	N	M-%	S.D.
Years of Teaching Experience	96	15.5	10.1	46	16.0	9.4	50	15.0	10.9
Types of Subjects Taught									
T&I courses only	13	13.7	-	10	22.2	-	3	6.0	-
Academic courses only	72	75.8	-	27	60.0	-	45	90.0	-
Both types of courses	9	9.5	-	8	17.8	-	1	2.0	-
No teaching experience	1	1.1	-	0	0.0	-	1	2.0	-
Years Non-school Employment	90	3.6	3.1	43	4.5	3.4	47	2.8	2.6
Years T&I Related Employment	90	1.4	2.7	43	2.1	3.3	47	0.8	1.9
Presently Hold Part-time Job	24	25.3	-	18	40.0	-	6	12.0	-
Relatedness of Part-time Job									
T&I related	4	16.7	-	4	22.2	-	0	0.0	-
Non-T&I related	20	83.3	-	14	77.8	-	6	100.0	-
Part-time Job Hours	21	14.4	14.4	15	15.5	15.5	6	11.7	12.2

Only 25 percent of the counselors had full-time employment in occupations that had any relation to the type of curriculums offered in T&I programs. Thus, not only do most counselors have very little non-school employment experience, but even what experience they have had has not been, for most counselors, in the fields into which the T&I vocational graduates enter. Whether this has any bearing on the excellence of guidance received by vocational students, the study is not prepared to say.

About 25 percent of the counselors hold a part-time job in addition to their regular school job. They average about fourteen hours per week with such work. Very few hold part-time jobs in occupations that are related to the occupations commonly represented in T&I vocational programs.

Counseling Experience and Earnings

• How many years of experience have counselors had as counselors? How long have they been in their present positions? What are their annual earnings as counselors? Table 35 provides the data.

The average counselor has had 8.4 years of experience as a counselor. Those in comprehensive schools have had about two years more experience on the average than those in vocational schools.

The average counselor has also been in his present position for about seven years. Again those in comprehensive schools have been in their present position longer. They have served as counselors in 1.3 schools

versus 1.6 schools for the vocational school counselors. Like their teacher colleagues, counselors evidence considerable school stability. There is not much movement from one school system to another.

Based upon the mid-point of the annual salary class intervals shown in Table 35, the median income for counselors is about $8,500 per year. Considering the amount of formal education that counselors have, the earnings of a sizable percentage seem low. The class interval data in Table 35 tells the earnings story more precisely.

TABLE 35. COMPARATIVE DATA ON COUNSELOR EXPERIENCE AND PRESENT POSITION EARNINGS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

COUNSELOR EXPERIENCE AND PRESENT POSITION EARNINGS	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	M-%	S.D.	N	M-%	S.D.	N	M-%	S.D.
Years in Present Position	95	7.1	5.2	45	5.7	4.5	50	8.3	5.5
Years Experience As a Counselor	95	8.4	5.8	45	7.4	6.1	50	9.4	5.4
No. of Schools Served As Counselor	93	1.4	0.8	44	1.6	0.9	49	1.3	0.6
Annual Salary As Counselor									
$4,000 to 4,999	4	4.3	-	0	0.0	-	4	8.0	-
5,000 to 5,999	9	9.6	-	5	11.4	-	4	8.0	-
6,000 to 6,999	15	16.0	-	4	9.1	-	11	22.0	-
7,000 to 7,999	17	18.1	-	10	22.7	-	7	14.0	-
8,000 to 8,999	22	23.4	-	11	25.0	-	11	22.0	-
9,000 to 9,999	14	14.9	-	9	20.5	-	5	10.0	-
More than $10,000	13	13.8	-	5	11.4	-	8	16.0	-

CORRELATIONAL ANALYSES

The present section concerns the intercorrelations among the counseling program and counselor variables, and also the relationships between such variables and the vocational outcomes experienced by the 1962 vocational graduates from the schools whose counseling programs and counselors have been described.

Definition of Variables

The following counseling program and counselor variables were subjected to correlational analyses. The reader interested in the distribution data for the variables is referred to Appendix Section 9.

1. Reported student-counselor ratio. The number of students per counselor as reported by the school. Presumably, the number of counselors was divided into the student enrollment.

2. Counselor man-hours per 100 students. The number of counselor man-hours per week per 100 students where a full-time counselor equaled 40 man-hours and a part-time counselor equaled 20 man-hours. The measure is essentially a variation on a student-counselor ratio.

3. Personal contact man-hours per month per 100 students. The average number of personal conferences with students per week and the average duration of such conferences reported by counselors was used to calculate an estimate of counselor man-hours per month that went into personal conferences with students. The total man-hours was expressed on a per 100 student basis. The measure presumably reflects the counselor personal conference output and provides a basis for comparing schools on this type of activity in a way that takes into account variation in number of counselors and total number of students.

4. Parental contact hours per month per 100 students. The calculation is the same as described for the personal contact hours per month measure, with the exception that parental contact hours were fed into the calculation.

5. Group guidance hours per month. The calculation is the same as that described for the personal contact hours per month measure, with the exception that group contact hours were fed into the calculation.

6. Range of counseling activities. The school's counseling program was credited one point for each of the following that were acknowledged as almost daily or very often occuring activities by the counselor:

- Guidance on post-high school job placement
- Counseling low achievers
- Counseling would-be dropouts
- Guidance on vocational program selection

- Counseling students who wish to change programs
- Guidance related to non-college education
- Providing information about vocational opportunities
- Providing job placement services for students
- Maintaining contacts with potential employers
- Conducting follow-up studies on graduates
- Assisting students to find part-time jobs
- Consulting with teachers on problem students
- Conducting plant trips for vocational students
- Placement of students into coop programs
- Orienting pre-high schoolers on vocational programs

All of the above activities could potentially benefit vocational students. Thus, a high score meant a guidance program that had the potential for a wide range of guidance services to vocational students.

7. Number of available student services. The head counselor indicated which of 15 student special-need services were available at the school. Range: 0-15. See Table 28, page 9-41 for a list of the services.

8. Number of adequate student services. The head counselor indicated which of 15 student special-need services were available and adequate. Range: 0-15. See Table 30, page 9-44 for a list of the services.

9. Number of adequate counseling facilities. The counselor indicated which of a list of counseling facilities were available and adequate. Range: 0-9. See Table 19, page 9-31 for a list of the facilities.

10. Counselor socio-economic origins index. See page 4-12 for a definition of this measure as it applied to teachers. The same measure was applied to counselors.

11. Age of counselor. Self-explanatory.

12. Amount of formal education. Counselors were credited points as follows: 4-college, no degree; 6-B.A. or equivalent degree only; 8-M.A. or equivalent degree; and 10-Ed.D. or equivalent degree.

13. Years of teaching experience. The total years of teaching experience reported by the counselor.

14. Years of counselor experience. Self-explanatory.

15. Years of non-school employment. Years of experience in full-time employment unrelated to school systems.

16. Years of T&I related employment. Years of experience in occupations the same as or related to the occupations commonly found in T&I vocational programs.

17. School holding power. The number of vocational students who were still in school at the end of the 1964 school year expressed as a percentage of those who were enrolled at the start of the school year. The measure does not recognize the different reasons students have for dropping out of the school. It is therefore not a precise holding power measure.

Counseling Variable Intercorrelations

Table 36 provides the intercorrelation coefficients for the variables defined in the preceding section. Several generalizations can be drawn.

1. Counselor man-hours. The available counselor man-hours per 100 students is inversely related to total school enrollment. The larger the school, the fewer the counselor man-hours per 100 students.

Counselor man-hours per 100 students is significantly related to counselor hours per month spent per 100 pupils on personal conferences, parental contacts and group guidance. This is what one would expect. The fewer the counselor man-hours, the less the counseling activities.

2. Student special-need services. The number and adequacy of special student services correlate significantly with student enrollment and population of cities served. The larger school systems in major cities offer a greater range of special-need student services.

3. School holding power. None of the counseling program variables or counselor variables correlate significantly with school holding power. There may be counseling program variables that are related to course and school holding power (See page 5-64), but this study has failed to identify them.

4. Adequacy of counseling facilities. The adequacy of such facilities, as rated by counselors, has a significant relationship with such counselor output variables as personal contact hours, parental contact hours, group guidance hours or any other counselor activities measured in this study. They apparently make do with what they have.

5. Personal characteristics. The personal characteristics of counselors, e.g. age, education, socio-economic origins, years of experience as a counselor, etc., are not related to their man-hour output in such activities as personal conferences, parental contacts, group guidance, or the degree to which they are involved in vocationally related counseling.

Correlations with Vocational Outcomes Reported by Graduates

Table 37 shows the correlation coefficients that were obtained when counselor and counseling program variables were correlated with the occupational outcomes reported by the 1962 vocational graduates. Only 4 of the 144 correlations were significant at the .01 percent level of confidence, and of those only two are of interest.

There is a significant but low relationship between the years of T&I related employment experience reported by counselors and the relatedness of jobs held by graduates from their schools to the vocational courses studied. Graduates who came from schools where the counselors have considerable experience in occupations related to T&I occupations seem to enter occupations in their field of training more frequently than graduates whose counselors

TABLE 36. GUIDANCE PROGRAM VARIABLE INTERCORRELATION COEFFICIENTS

	GUIDANCE COUNSELOR VARIABLE INTERCORRELATIONS	1 COUNSELOR-STUDENT RATIO	2 COUNSELOR HOURS PER 100 STUDENTS	3 PERSONAL CONTACT HOURS PER MONTH	4 PARENTAL CONSULTATION HOURS PER MONTH	5 GROUP GUIDANCE HOURS PER MONTH	6 DEGREE VOCATIONALLY RELATED COUNSELING	7 NUMBER OF STUDENT SERVICES AVAILABLE	8 NUMBER OF SATISFACTORY STUDENT SERVICES	9 ADEQUACY OF COUNSELING FACILITY	10 SOCIO-ECONOMIC ORIGIN INDEX	11 AGE OF COUNSELOR	12 AMOUNT OF FORMAL EDUCATION	13 YEARS OF TEACHING EXPERIENCE	14 YEARS EXPERIENCE AS A COUNSELOR	15 YEARS NON-SCHOOL EMPLOYMENT	16 YEARS OF T&I RELATED EMPLOYMENT	17 TOTAL ENROLLMENT	18 VOCATIONAL ENROLLMENT	19 CITY POPULATION	20 SCHOOL HOLDING POWER
1	Reported counselor-student ratio	—	-.18	.19	-.24*	-.16	.12	.06	-.06	-.13	.12	.21*	.16	.05	.01	-.14	-.02	-.09	.18	-.02	-.16
2	Counselor man-hours per 100 students	92	—	.23*	.23*	.26*	.18	-.17	-.04	.05	-.10	-.14	.13	.12	-.01	-.04	-.17	-.38**	.09	-.12	.09
3	Personal contact hours per month	85	84	—	.30**	.21	.18	.18	.17	.27	-.23	-.06	.13	-.05	-.02	.04	-.24*	.03	-.14	-.03	.01
4	Parental consultation hours per month	83	83	82	—	.05	.38**	.10	.34**	.02	-.20	-.08	.14	.11	.03	.14	.03	-.07	.07	.02	.13
5	Group guidance hours per month	78	79	78	76	—	-.16	.13	.02	.22	.00	.01	-.07	.17	.14	-.08	-.06	.10	-.04	-.19	.15
6	Degree of vocationally related counseling	92	93	86	84	81	—	.19	.23	-.02	-.18	.02	-.02	.09	.09	.05	-.13	.19	.20*	.16	.05
7	Number of student services available	90	92	83	82	78	92	—	.76**	-.21	-.10	.12	-.01	.05	.10	-.09	-.02	.31**	.39**	.35**	.12
8	Number of satisfactory student services	89	91	83	81	78	92	96	—	-.26	-.18	.05	.05	.14	-.02	.00	.09	.13	.33**	.29	.07
9	Adequacy of counseling facility	90	92	84	83	80	92	94	93	—	-.05	.08	.16	.01	.01	.14	-.17	.03	-.03	-.13	.17
10	Socio-economic origin index	60	61	54	54	53	61	61	60	61	—	.10	.16	-.19	.05	.05	.04	-.08	-.14	-.15	.02
11	Age of counselors	89	90	83	81	78	92	89	89	89	58	—	-.01	.57**	.34**	.20	.17	.10	.20	.26*	-.16
12	Amount of formal education	91	92	85	84	80	94	91	91	91	60	91	—	-.01	.07	-.08	-.14	-.00	.07	-.10	.15
13	Years of teaching experience	93	94	86	85	81	95	93	92	93	62	92	94	—	.15	.07	.01	.08	.21*	.24*	-.01
14	Years of experience as a counselor	92	93	85	84	80	94	92	91	92	61	91	93	95	—	-.04	-.04	.26**	-.02	-.04	.08
15	Years of non-school employment	87	88	81	82	77	89	87	86	87	58	86	89	90	89	—	.54**	-.05	.14	.22*	-.01
16	Years of T&I related employment	87	88	81	82	77	89	87	86	87	58	86	89	90	89	90	—	-.12	.14	.08	-.07
17	School Holding Power	92	94	85	85	80	94	95	94	95	61	91	93	89	94	89	89	.07	.06	.04	—

* Significant at .05 level of confidence

** Significant at .01 level of confidence

TABLE 37. CORRELATION COEFFICIENTS FOR RELATIONSHIP BETWEEN COUNSELING PROGRAM VARIABLES AND THE OCCUPATIONAL OUTCOMES EXPERIENCED BY THE 1962 T&I GRADUATES

	GUIDANCE COUNSELOR VARIABLES	1962 VOCATIONAL GRADUATE OCCUPATIONAL OUTCOMES								
		1	2	3	4	5	6	7	8	9
		PLACEMENT TIME	FIRST JOB RELATEDNESS	FIRST JOB SATISFACTION	INITIAL EARNINGS	PRESENT JOB RELATEDNESS	PRESENT JOB SATISFACTION	PRESENT EARNINGS	PERCENTAGE EARNINGS INCREASE	EMPLOYMENT SECURITY
1	Reported counselor-student ratio	.09 93	-.22 93	-.21 93	-.21 93	-.30* 93	-.10 93	-.23 93	-.08 93	-.11 93
2	Counselor man-hours per 100 students	.15 95	-.01 95	-.08 95	.07 95	.02 95	-.04 95	-.06 95	-.16 95	.08 95
3	Personal contact man-hours per month	-.11 86	-.06 86	-.12 86	.12 86	-.06 86	.04 86	.18 86	.03 86	-.04 86
4	Parental consultation man-hours per month	.07 85	-.02 85	-.07 85	.14 85	.12 85	-.04 85	.14 85	-.05 85	-.08 85
5	Group guidance man-hours per month	.10 81	-.10 81	.02 81	-.01 81	.01 81	.02 81	-.06 81	.02 81	.06 81
6	Degree of vocationally related counseling	-.06 95	.03 95	.04 95	.12 95	.05 95	.14 95	.17 95	-.02 95	.10 95
7	Number of student services available	-.05 97	-.13 97	-.07 97	.09 97	-.06 97	.03 97	.16 97	.14 97	.03 97
8	Number of satisfactory student services	-.01 96	-.11 96	-.02 96	.04 96	-.07 96	-.05 96	.06 96	.04 96	.04 96
9	Adequacy of counseling facility	.06 95	.11 95	.13 95	-.04 95	.12 95	.13 95	-.07 95	.04 95	.02 95
10	Socio-economic origin index	.11 62	-.04 62	-.06 62	-.22 62	-.01 62	-.04 62	-.21 62	.02 62	.02 62
11	Age of counselor	-.28* 92	.20 92	.01 92	-.03 92	.12 92	.08 92	.11 92	.18 92	.02 92
12	Amount of formal education	.01 94	-.07 94	.06 94	.10 94	-.00 94	.02 94	-.04 94	-.14 94	.08 94
13	Years of teaching experience	-.10 96	.03 96	.11 96	-.05 96	-.00 96	-.03 96	.02 96	-.10 96	.23 96
14	Years of experience as a counselor	-.10 95	.09 95	.00 95	.04 95	.09 95	.14 95	.08 95	-.06 95	.03 95
15	Years of non-teaching experience	.05 90	.11 90	.02 90	.11 90	.17 90	-.03 90	.17 90	.10 90	.04 90
16	Years of T&I related experience	-.08 90	.30* 90	.12 90	.12 90	.36* 90	.17 90	.17 90	.10 90	.06 90

* Significant at .01 level of confidence

have had little or no such experience. The possibility of a cause-effect relationship is real because counselors do, in many schools, assume partial responsibility for helping graduates find jobs. The significant correlation would suggest that counselors with experience in the non-school world of work, particularly in the occupation commonly found in T&I programs, are more likely to be successful in improving a school's performance of placing its graduates into their field of training.

The other correlation of interest shows a significant relationship between the reported student-counselor ratio and the relatedness of present job held, two years after graduation for the 1962 graduates. The correlation is -.30 and indicates that, the greater the number of students per counselor, the fewer the graduates placed into their field of training. The correlation of the student-counselor ratio with the relatedness of the first job held to the course of study also indicated an inverse relationship, but the coefficient just missed significance at the .05 percent level of confidence. The suggestion is that a high student-counselor ratio adversely influences placement of vocational graduates into the field for which trained. It is possible that the two variables are correlated only through the operation of a third, unknown mediating variable. However, it seems plausible that where counselors are expected to assist vocational graduates in finding jobs, the higher the student-counselor ratio, the more thinly spread will be the counselor's efforts, and the more likely will the placement function suffer. About 83 percent of the counselors claimed they were involved with the placement of graduates.

SUMMARY OF FINDINGS

Personal Counseling

1. Counselor involvement. The average counselor spends 12 hours per week in personal conferences with students. He averages about 37 such counseling sessions per week at about an average of 23 minutes per session. The efforts take up 34 percent of his time.

2. School requirements. Only 47 percent of the schools have a policy of so many personal conferences per student per year, under which each student must have one or more conferences with the counselor. Of those that do, the median number of conferences per year is two per student.

3. Type of student problems. The six most frequently reported student problems that require personal counseling are: (1) counseling low achievers, (2) college education guidance, (3) non-college education guidance, (4) vocational program guidance, (5) family problem counseling and (6) counseling changes in programs. All are reported to be daily or very frequent counseling problems.

4. Counselor involvement in placement services. About 64 percent of the counselors reported that they were often or daily involved in guidance related to post-high school job placement.

5. Vocational versus comprehensive schools. There are substantial differences between the two types of schools in terms of type of student problems that are the subject of personal conferences, but not in terms of frequency of personal conferences. The comprehensive schools reflect strongly the college-oriented majority in their counseling programs.

Psychological Tests

1. Counselor involvement. About 98 percent of the counselors reported that they administer a psychological testing program, and 96 percent claimed that they were responsible for scoring and interpreting such tests. Counselors place heavy reliance upon the use of tests in their personal conferences with students.

2. Specific test uses reported. Counselors use tests for virtually all counseling problems. The most frequently reported uses were: general counseling aid (67%), ability grouping of students (41%), vocational course applicant screening (33%) and educational counseling (17%). The percentages resulted from the classification of open-ended responses and are therefore lower than what is probably the case.

3. Counselor training. The average counselor has had about 12 credits of graduate course work related to test theory, administration and interpretation. Despite his formal training, he seems to place an excessive reliance upon test data to guide his counseling.

4. Vocational versus comprehensive schools. While both types of schools make heavy use of psychological tests, the comprehensive schools stress tests more heavily as a general aid to counseling and for use to group students according to ability. The vocational schools make greater use of tests to screen school applicants and to screen specific vocational course applicants.

Parental Contacts

1. Counselor involvement. About 90 percent of the counselors reported parental contacts as a regular feature of the guidance program. The average counselor claims about nine hours a week are spent in personal and telephone contacts with parents and in the preparations associated with such contacts. This effort takes up 26 percent of his time.

2. Type of student problems. The six most frequent reasons for parental contacts in terms of the percentage of counselors who reported such reasons are underachievement or failing grades (80%), personal student adjustment problems (67%), class or subject scheduling problems (50%), college placement information (38%), absenteeism or tardiness (34%) and disciplinary problems (32%).

3. Vocational versus comprehensive schools. A higher percentage of vocational school counselors reported attendance and disciplinary problems among the top five reasons for contacting parents. A higher percentage of comprehensive schools reported underachievement and personal adjustment problems among the top five reasons for contacting parents. There were also substantial differences in other categories.

Group Guidance Activities

1. Counselor involvement. About 78 percent of the schools reported a program of group guidance activities. The average counselor spends 2.7 hours a week in some type of group guidance activity. This amounts to about 8 percent of his time. Group guidance efforts are on the increase.

2. Type of group guidance topics. The six most frequent subjects for group counselor-student contacts are underachievement (80%), personal adjustment (67%), class placement or scheduling (50%), college placement information (38%), attendance problems (35%) and discipline problems (33%).

Range of Counselor Activities

1. Most frequent counselor activities. The five most frequently reported counselor activities are maintaining student records, consulting with teachers about students, providing college placement information, relating counseling activities to school personnel and providing job placement services for students.

2. Least frequent counselor activities. The five least frequent listed counselor activities are conducting plant trips for vocational students, placement of students in coop programs, arranging visits by post-high school representatives, conducting graduate follow-up surveys and referral of students to outside agencies.

3. Range of student problems. A large percentage of counselors report involvement in each of a wide array of student problems. The counselor's role seems to be analogous to that of a general practitioner. Everything comes to his doorstep.

Guidance Personnel Staffing

1. Reported student-counselor ratios. The average student-counselor ratio was 515 students to 1 counselor. The student-counselor ratios ranged from 120 students to 1,485 students per counselor. Almost 20 percent of the schools had a student-counselor ratio in excess of 700 students per counselor.

2. Counselor staff. The average school surveyed had 2.2 full-time counselors, 1.5 part-time counselors and 1.1 secretarial or clerical assistants.

3. Counselor man-hours per week per 100 students. The mean and median counselor man-hours available per 100 students per week is 13.5 and 8 man-hours respectively. Calculations were made to support the interpretation that the available man-hours were insufficient to do the job that counselors are expected to do.

4. Vocational versus comprehensive schools. Counselor man-hours per 100 students are much greater in vocational schools than comprehensive schools.

Guidance Facilities

1. Availability of facilities. Reacting to a list of different types of facilities, the majority of counselors reported most facilities were available. A minor facility that was frequently lacking was a guidance material display rack.

2. Adequacy of available facilities. The following were reported available but inadequate by the percentages of counselors indicated: material storage space (38%), group testing room (35%), individual testing room (30%), group conference room (28%), racks for guidance material (28%) and private conference rooms (21%).

3. Vocational versus comprehensive schools. There were no impressive differences in the availability of guidance facilities. However, a greater percentage of the comprehensive schools reported inadequate facilities in most of the listed categories. It is doubtful whether the quality of guidance services is different in the two schools because of the differences in adequacy of facilities.

Recent Guidance Program Changes

1. Personnel. Most schools found it necessary to increase their guidance personnel in the past five years. About 64 percent reported an increase in full-time guidance personnel; 35 percent reported an increase in part-time guidance personnel; and 20 percent increased their guidance clerical staff.

2. Facilities. Consistent with increases in personnel, about 77 percent reported increases in space and other facilities allotted to the guidance department. The growth in facilities does not appear to have kept pace with the growth in students.

3. Record keeping. The major record keeping changes include changes in the format of student record cards (54%), added requirements that counselors maintain student record cards (32%) and use of computers to maintain student records (15%). The changes reflect conflicting trends to increase paper work and to combat this increase in paper work.

4. Psychological testing. Changes in testing programs were reported by 73 percent of the schools. The trend is toward more testing. Of those reporting changes, 85 percent reported adding tests to those already used and only 21 percent reported dropping tests.

5. Specialist referral services. The trend is toward increased availability of specialists to whom counselors may send cases that are beyond their skills. They include psychologists, psychiatrists and industrial problem specialists such as dropout counselors. Many schools also reported changes in referral procedures that improved such services.

Counselor Recommendations

1. The two most frequent requests. About 61 percent of the counselors recommended an increase in the full-time counseling staff. Most claimed that the counseling staff was insufficient to carry out the guidance program. About a third of the counselors also recommended an increase in secretarial or clerical help. The need for more guidance staff was indirectly reflected by the recommendation that non-guidance duties be curtailed or eliminated. About 26 percent of the counselors expressed this idea.

The second most frequent recommendation was for an expansion of guidance facilities and additional equipment. About 25 percent recommended additional facilities.

2. Some less frequent recommendations. Other recommendations included increases in group guidance (10%), better counselor-teacher-administr[illegible] coordination (7%), more school support for counselor professional [illegible]opment (9%), changes in record keeping to reduce paper work (12%) and [illegible]ification of counselor duties (8%). Only 6 percent recommended an increase in salary as a factor to improve the program.

Special-need Student Services

1. Availability of special services. The percentages of schools reporting special student services as unavailable were as follows:

• Individual remedial tutoring programs	77%
• Remedial mathematics classes	55
• Periodic dental examinations	55
• Psychiatric student services	46
• Remedial reading classes	44
• Periodic medical examinations	43

- Summer classes for new subjects 39%
- Remedial speech services 38
- Family social worker services 35
- Psychological student services 27
- Summer classes for repeat subjects 26
- Student job placement services 22
- Counseling for post-high school education 19

2. Adequacy of special services. The percentages of schools reporting special services as available but inadequate were as follows:

- Counselor vocational guidance 29%
- Student job placement services 23
- Student psychological counseling 22
- Family social worker services 20
- Psychiatric services 19
- Remedial reading classes 19

Counselor Characteristics

1. Personal characteristics. The average counselor was 48 years old, married with 2 children, and had a male parent with 9.8 years of formal education.

2. Educational background. About 96 percent of the counselors pursued an academic curriculum in high school and achieved a mean grade point average of 3.0.

All counselors had at least a Bachelor's or an equivalent degree. About 88 percent had a Master's degree. About 40 percent majored in education, 24 percent in humanities and 16 percent in social studies in their under-graduate work.

All counselors reported certification as a teacher, and 90 percent indicated certification as a counselor.

3. Employment experience. The average counselor has had 15.5 years of teaching experience, 8.4 years of experience as a counselor and 3.6 years of non-school employment.

About one-third of all counselors have had less than one year of non-school employment. Only 25 percent of the counselors had work experience in occupations the same as or related to those commonly found in T&I vocational programs.

About 25 percent of the counselors held a part-time job, and they averaged about 14 hours per week at such work.

4. Earnings. The median income of counselors is about $8,500 per year. About 14 percent earn less than six thousand dollars.

Relation with Vocational Outcomes

1. Counselor characteristics. Of the several counselor characteristics that were checked for a relationship with the vocational outcomes experienced by graduates, only one correlated significantly at the .01 percent level of confidence with relatedness of first job to course studied, namely the years of T&I occupation related experience claimed by the counselor. This was considered an important finding because 53 percent of the counselors claimed they were frequently involved in job placement activities or guidance. Apparently, the more experience the counselors have in occupations the same as or related to the occupations commonly found in T&I programs, the better the placement of graduates into the fields for which trained.

2. Guidance program characteristics. The student-counselor ratio was the only guidance program variable that correlated significantly at the .01 percent level of confidence with the school's success in placing vocational graduates into the field for which trained. The more favorable the ratio, the better the placement performance of the school.

SOME TENTATIVE RECOMMENDATIONS

The reader is reminded that the recommendations which follow, like all other recommendations in this report, are offered primarily to focus attention on a problem.

Task Analysis of Counselor Activities

It is recommended that the U.S. Office of Education support a task analysis of counselor activities as a necessary first step toward a broad set of recommendations for the more efficient use of counselor time and greater effectiveness in counseling programs. The present report does not provide the intensive study of counselor functions necessary to make recommendations with confidence. However, it does suggest: (1) that there is excessive use of counselor time in essentially non-counseling and guidance activities, (2) that counselors are being confronted with unnecessary paper work, (3) that counselor activities are not being managed as efficiently as they could be and (4) that the counselor staff is too small to do all that needs to be done.

The answer is not merely to increase counseling staffs. The first step is to maximize the efficiency of present counseling staffs. An intensive task and methods analysis of counselor activities is the first step toward establishing guidance program operation guidelines to make more efficient use of present counseling staffs.

Management by Exception Principle

Schools that require counselors to call in every student at least once or twice a year are wasting the time of the counseling staff. The aim of the requirement is laudable, namely that no student with a problem is over-looked. However, it would be more efficient to develop procedures for the rapid identification of potential problem students and to call in those students who have given evidence of a potential or actual problem. Essentially, this is the principle of management by exception used to great advantage in industry. With modifications, the same principle can be employed to lessen the personal conference load of counselors. This would in no way conflict with the concept of encouraging students to see their counselor of their own volition. It would eliminate many counseling sessions that are essentially social sessions because the student has no problem to bring to the counselor and the counselor has no reason to see the student other than the school requirement that he see every student one or more times per year.

It is specifically recommended that the U.S. Office of Education support a research and development effort to establish low cost, low effort procedures to identify students in need of counselor contact.

Elimination of Disciplinary Function

There are many counselors, particularly in vocational schools, who are required to handle disciplinary problems. This responsibility is not only incompatable with the concept of the counselor as the person students go to when they have a problem, but runs the risk of developing counselor attitudes that may be incompatable with helping students with problems. Most schools seem to have recognized the inherent contradictions in the dual role of counselor and disciplinarian. Many have yet to do so.

Special Service for Vocational Students

In most comprehensive schools, the vocational student is not getting the counseling service that is tailored to his world and his problems. His counselors are invariably persons who have had no formal vocational education, who have taught only academic subjects, who exhibit the value systems that are associated with college education, and who have had little or no experience in the non-school world of work. Their main interest is the academic student, particularly the college-bound student.

It is recommended that all such schools either have or make provisions for sharing a counselor whose interests, knowledge and skills are directed toward servicing vocational students. Consideration should be given to exploring such possibilities as special training to develop counselor capabilities in vocational teachers, use of a visiting counselor who may be shared by several schools in one school district or even several school districts and special training for present counselors to increase their capability to service vocational students.

More Intelligent Use of Psychological Tests

There are many factors in the present study that suggest psychological tests, e.g. intelligence, achievement, aptitude, interest and even so-called personality tests, are not being used in accordance with recognized principles of correct test usage. Test validities are ignored. Local norms are not developed. Test data is recorded on school records so as to be unusable later. By counselor claims, test data is heavily used as a general counseling aid for all types of problems. To the writer, it all adds up to excessive reliance upon tests as well as unintelligent use of tests.

The specific recommendation is that school systems develop guidelines and controls to minimize the misuse and possible abuse of standardized tests. It would also be helpful if counselors who are many years removed from a course, workshop or seminar on the use of tests be provided with the opportunity to refresh their thinking about the role of tests in a guidance program.

Reduction of Non-counseling Duties

The high student-counselor ratios coupled with the heavy loads of non-counseling duties make adequate counseling services difficult, if not impossible, in many schools. Reading between the lines of the data, one gets the impression that school principals are counselors for any and every activity for which no one else is available. There appears to be an excessive amount of duties and activities unrelated to counseling and guidance. The average counselor in this study reported 12.5 hours per week in non-counseling activities. One-third of the counselors reported such activities interfered with their counseling activities. The evidence suggests a problem, even when one allows for possible exaggeration in the data.

The specific recommendation is that school officials take a critical look at what their counselors are doing, and ask the question of whether the counselor should be so engaged in each type of activity. What is needed is a position description of essential responsibilities and duties to remind both counselors and their school supervisors as to what counselors are expected to do (and by implication, what they are not expected to do). The basic fault lies at the school district superintendent level. It is this level that must take steps to assure that counseling staffs are protected against unreasonable demands on their time which remove them from their main task, counseling students.

Greater Participative Counseling

The student plays much too passive a role in his contacts with the counselor. The counselor assumes the role of the authority, the expert, and the student is the subject of advice or guidance. In general, this describes the relationship. There is a need for counselors to explore methods which assign a more active role to the student. It may be that student experience, in the process of arriving at an understanding of the problem and what needs to be done, is more important than the solution or "answer" to the problem. There is, perhaps, too much advising, telling, influencing and even pushing. Most couselors will, of course, disagree. Part of the problem lies in their concept of their role. To guide or counsel implies an activist role. Part of the difficulty lies with the time pressures. Problems have to be dispatched quickly because there are more waiting outside the door.

As an example of what is meant, guiding a student to an occupational choice may involve the student more actively if he is required to go to various sources to collect and assess relevant information about a career. Perhaps it is a mistake to tell a student anything that he can dig out for himself. The counselors' role may be better as a stimulator to information-gathering, as a teacher of data sources, as a provoker of questions that should be raised by students in making career choices. It is not he that needs to be the problem-solver.

Individual Tutoring Programs

The schools are neglecting their major tutoring resource, namely their many capable students. Most school officials acknowledge a need for

individual tutoring as a remedial effort. However, they think in terms of teachers, counselors and remedial teaching experts. The unavailability of such persons virtually rules out individual tutoring programs. The answer is to recognize the tutoring capabilities of students. For every student who can benefit from individual tutoring, there is a student who, with some instruction, could be an effective tutor.

It is not necessary to spell out the details. The educator who sees the potential in the student tutor concept will develop his own approaches. Attention should be given to such problems as selecting student tutors, matching them with those who need tutoring, training tutors in the do's and don'ts of individual instruction, providing psychological rewards for student tutors, and maintaining longer team relationships between tutors and the tutored.

10 THE GRADUATE PLACEMENT SERVICES

INTRODUCTION

Placement Service Responsibility

If one agrees that schools with vocational programs have a responsibility to place their graduates into the fields for which trained, one automatically has agreed that schools have a responsibility for providing effective placement services. Most of the schools included in this survey recognized, in principle if not always in terms of effort expended, that they shared in the responsibility for helping graduates and other vocational students to find employment in their field of training. Indeed, it has been traditional for T&I vocational instructors to help their graduates find jobs. This is true even in schools that do not have a coordinated placement program under the direction of one person.

However, there is reason to believe that much of the responsibility for the large percentage of vocational graduates that do not enter their field of training may be laid at the doorstep of inadequate placement services by the schools. This is much like manufacturing a salable product and then having no sales force to sell it. For the class years of 1953, 1958 and 1962 respectively, 29, 39 and 36 percent of the vocational program graduates who sought full-time work in their field of study reported that they could not get a job in their field because they could find no such jobs. This suggests the possibility of inadequate placement services in many schools. The only other alternative to the latter interpretation is that such graduates were not qualified to enter the field for which trained or that there were no such jobs in the communities served by the school. Neither of these alternatives reflects favorably on the schools. The first suggests that an excessive number of non-qualified graduates are being turned out. The second suggests that schools are turning out an excess of graduates for the available opportunities. While there may be some partial truth to both of these possibilities, the more likely interpretation is that an improvement is needed in the effectiveness of school placement services. This chapter provides the supporting evidence.

Some Basic Questions

Some of the more basic questions for which the chapter provides data are as follows:

1. What percentage of schools have a placement coordinator? How many are full-time and how many are part-time coordinators? Who are the school personnel who serve as part-time placement coordinators? Who are the school personnel who assist the placement coordinators?

2. What is the role of the shop teacher in placing vocational course graduates? What percentage of graduates are placed by teachers as reported by teachers? What percentage of graduates are placed by teachers as reported by placement coordinators? What percentage of graduates are placed by teachers as reported by graduates? What sources of placement

help, other than T&I teachers, do the vocational graduates acknowledge?

3. To what extent are there substantial differences between schools in terms of the percentage of vocational graduates who acknowledge school personnel help in obtaining their first full-time job? How do vocational and comprehensive schools compare?

4. What type of placement-related activities do the placement coordinators report as a regular part of their placement program? What information sources do placement coordinators report to get information about job opportunities?

5. To what extent are employer contacts to check on the progress of graduates a regular feature of the follow-up program? How are such contacts made? What percentage of the schools do follow-up studies on their vocational graduates? How often are such surveys done?

6. To what extent are special efforts made to place underachievers in the vocational program? What kinds of special efforts are reported?

7. How effective are school placement services as viewed by their placement coordinators? What suggestions do the coordinators offer for the improvement of school placement services?

8. What are the relevant characteristics of placement coordinators that may have a bearing on the effectiveness of placement services?

9. What relationships, if any, exist between placement service variables and the occupational outcome variables as derived from graduate follow-up data?

About the Sample and the Data

The placement coordinator questionnaire was completed by the person at each school who was in charge of coordinating the placement services. There were relatively few full-time placement coordinators. The placement coordinator was usually a teacher, counselor or administrator who gave a relatively small part of his total time to function as a placement coordinator.

Table 1 shows how the 79 placement coordinators were distributed by type of school (vocational versus comprehensive), geographic region (East versus West) and school vocational enrollment (less than 300 versus more than 300). About 83 percent of the coordinators were in schools east of the Mississippi. That was not considered to be a serious geographic overrepresentation. Seventy-nine of the 100 schools surveyed were located east of the Mississippi to reflect the geographic distribution of the population of schools offering three or more T&I courses at the time of the survey.

About 54 percent of the coordinators came from vocational schools whereas 46 percent came from comprehensive schools. Thus, the sample is weighted more heavily by the vocational schools. That is because a greater

TABLE 1. DISTRIBUTION OF SCHOOL PLACEMENT COORDINATORS IN THE STUDY SAMPLE BY REGION, TYPE OF SCHOOL AND SCHOOL VOCATIONAL ENROLLMENT

TYPE OF SCHOOL	VOCATIONAL ENROLLMENT	EAST		WEST		U.S.	
		N	%	N	%	N	%
VOCATIONAL	<300	12	15.2	1	1.3	13	16.4
	>300	25	31.6	5	6.3	30	38.0
	TOTAL	37	46.8	6	7.6	43	54.4
COMPREHENSIVE	<300	17	21.5	5	6.3	22	27.8
	>300	12	15.2	2	2.5	14	17.7
	TOTAL	29	36.7	7	8.8	36	45.5
COMBINED	<300	29	36.7	6	7.6	35	44.3
	>300	37	46.8	7	8.8	44	55.7
	TOTAL	66	83.5	13	16.4	79	100.0

percentage of the comprehensive schools had no placement coordinator. Since the latter schools are in the great majority in the United States, the statistics herein presented are not wholly correct as parameter estimates. However, the reader who wishes more precise estimates has the basis for weighting the parameter estimates obtained for each type of school in order to arrive at a better United States parameter estimate.

About 44 and 56 percent of the coordinators respectively, came from schools with T&I vocational enrollments below and above 300 students. Thus, both small and large schools are reasonably well represented.

About the data itself, two points should be made: (1) While it must be assumed that the coordinators gave frank and correct answers to the best of their ability, it is always possible that some answers were in the direction of putting the school's best foot forward. The reader must always keep in mind that the data is what people say about the school placement services, not the placement services as they necessarily are. (2) Some of the data conflicts with data obtained from other sources. For example, teachers claimed that they placed a much higher percentage of graduates than the percentage of graduates who acknowledged the help of teachers in getting their first full-time job. Such conflicts create an interpretation problem. The writer is inclined to follow the principle of placing the greatest confidence in the primary data source. However, the reader must decide for himself how to interpret such discrepancies.

PLACEMENT PERSONNEL AND PERFORMANCE

Placement Personnel

Vocational teachers have traditionally provided informal placement services for their students and graduates. The present concern is whether the school provides some type of organized or coordinated placement service. To a degree, the presence or absence of a placement coordinator at the school tells whether there is an organized effort.

•To what extent do schools have full-time or part-time placement coordinators? How do vocational and comprehensive schools compare? Table 2 provides the data.

Only eight percent of the schools had a full-time placement coordinator. Six of these coordinators were in vocational schools and two were in comprehensive schools. Two of the eight served the school district, not merely one school. Excluding one school, those that were serviced by a full-time placement coordinator had total pupil enrollments that ranged between 1,000 and 3,800 students. Six of the eight schools were located in major cities. The other two were located near major cities.

TABLE 2. COMPARATIVE DATA ON PLACEMENT SERVICE PERSONNEL IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

PLACEMENT PERSONNEL	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	M-%	S.D.	N	M-%	S.D.	N	M-%	S.D.
Full-time	8	8.0	-	6	12.0	-	2	4.0	-
Part-time	71	71.0	-	37	74.0	-	34	68.0	-
No coordinator	21	21.0	-	7	14.0	-	14	28.0	-
Assisting coordinators									
Administrative	14	23.0	-	7	22.6	-	7	23.4	-
Counselors	20	32.6	-	7	22.6	-	13	43.3	-
Teachers, T&I	29	47.5	-	19	61.3	-	10	33.3	-
Teachers, academic	19	31.1	-	8	25.8	-	11	36.7	-
Coop coordinators	12	19.7	-	6	19.4	-	6	20.0	-
Other than above	2	3.3	-	1	3.2	-	1	3.3	-
Part-time coordinator placement man-hours per week	52	7.6	6.7	28	9.5	7.4	24	5.2	5.0

Twenty-one percent of the schools had no placement coordinator. No person as such was in charge of a coordinated or organized placement effort in these schools. This does not imply that there were no placement services. Both teachers and counselors in most of these schools made efforts to help vocational graduates find jobs. The comprehensive schools were less likely to have a placement coordinator than the vocational schools. About 14 percent of the latter did not have a placement coordinator in contrast with 28 percent of the comprehensive schools.

The majority of schools (71%) had a part-time placement coordinator. These were:

•Guidance counselors	40.3%
•School administrators	25.4
•Coop program coordinators	20.9
•Vocational teachers	13.4

The placement activities of the part-time placement coordinators required only a small percentage of their total time. The average part-time placement coordinator reported 7.6 hours per week in placement activities. This suggests that their placement activities are somewhat limited in scope. Those in vocational schools put in almost twice the hours per week as those in comprehensive schools. It must be recalled, however, that the vocational enrollment in vocational schools is about one and one-half times as great on the average as the enrollment in comprehensive schools.

The placement coordinators were asked to indicate what other school personnel assisted them in their placement work. The claimed assistants ranged from teachers to school principals as follows:

•Vocational teacher	47.5%
•Guidance counselor	26.2
•Administrator/principal	23.0
•Coop program coordinator	19.7
•Academic teacher	19.7

The percentages would undoubtedly be higher if the response had been to a closed-end question which listed all categories. Nevertheless, it is clear that placement responsibility of one kind or another may involve all kinds of school personnel, including the non-vocational teacher. The nature and effectiveness of their efforts is another matter.

Teacher Role in Graduate Placement Services

Very few schools have a well-managed, organized placement effort under the direction of one person who is responsible for planning, organizing, leading and controlling a placement program. In short, placement programs tend to be a collection of individual and independent efforts rather than organized approaches with planned division of responsibilities and procedures for assessing progress as the school year draws to a close. This is not necessarily ineffective. Indeed, if the individual efforts of

school personnel are highly motivated, it is conceivable that they may be more effective than tightly organized programs.

Let's then examine the placement role of the vocational shop teacher more closely. He remains the predominant source of placement services for vocational students, graduates and former students.

According to placement coordinator data, 73 percent of the schools expected their vocational teachers to help their students who were about to graduate to find jobs. The vocational schools were more demanding in this respect than the comprehensive schools (75 versus 70 percent). It can be said that this expectation was very loosely controlled in most schools. Very few of the placement coordinators, or principals for that matter, required teachers to report regularly on the progress that was being made in placing those due to graduate at the end of the school year. The matter was pretty well left up to the teachers, possibly because the school heads were aware of how little they contributed to help teachers in their individual efforts. (Numerous teachers complained to the writer that they received neither time nor money reimbursement for employer contacts. Many pointed to out-of-pocket expenditures for gasoline and other expenses related to employer contacts.)

When teachers were asked whether they tried to place their graduates, the results were even more favorable. About 83 percent of the vocational teachers reported that they tried to place their graduates. Again, there was a difference between the two types of schools. About 87 percent of the vocational school T&I teachers reported that they helped graduates find jobs whereas only 76 percent of those from comprehensive schools reported doing so.

●What percent of their graduates do T&I teachers claim to place into full-time jobs? Table 3 provides the data.

The average percent claimed placed by the shop instructors is about 54 percent. The percent placed by vocational school instructors is slightly higher than that reported by the comprehensive school instructors. Those claimed placed by the instructors were not necessarily placed in their field of training.

When the placement coordinators were asked to indicate their estimate of the percentage of graduates placed by shop instructors, a less favorable picture emerged. The average percent estimated by the placement coordinators was about 32 percent. Table 4 provides the distribution data. Possibly, the T&I shop instructors knew better than the placement coordinator how effective their efforts had been in placing graduates. Whichever source is more correct, the discrepancy points up the lack of administrative control exercised by the placement coordinators.

A third source of placement information, namely the graduates, provides a further discrepancy.

TABLE 3. DISTRIBUTION DATA FOR PERCENTAGE OF GRADUATES REPORTED PLACED BY THEIR INSTRUCTORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

CLASS INTERVALS FOR PERCENTAGE OF GRADUATES THAT INSTRUCTORS CLAIM THEY PLACED (1963)	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
91 - 100	49	14.9	36	15.7	13	13.0
81 - 90	24	7.3	22	9.6	2	2.0
71 - 80	33	10.0	23	10.0	10	10.0
61 - 70	28	8.5	22	9.6	6	6.0
51 - 60	30	9.1	22	9.6	8	8.0
41 - 50	37	11.2	19	8.3	18	18.0
31 - 40	32	9.7	21	9.2	11	11.0
21 - 30	37	11.2	25	10.9	12	12.0
11 - 20	21	6.4	13	5.7	8	8.0
1 - 10	9	2.7	7	3.1	2	2.0
0	29	8.8	19	8.3	10	10.0
NUMBER	329		229		100	
MEAN	52.5		54.4		48.1	
MEDIAN	50		50		50	
S.D.	31.4		31.7		30.3	

• To what extent do graduates acknowledge school sources as a help in obtaining their first full-time job? Table 5 provides the data.

Only 17.9 percent of the graduates who sought full-time jobs after graduation reported that they obtained their first job with the aid of their T&I shop instructors. Even though the percentages are arrived at differently, the latter percentage represents a very considerable drop from the 55 percent placement claimed by the teachers. What is one to conclude? Three sources of information yield substantially three different results. One must also be cautious about accepting the claims of the graduates at face value. It is possible that many are not crediting instructors with leads that later led to their employment. However, about 76 percent of T&I graduates surveyed went directly to full-time employment after a variable period of job search. The other 24 percent went into military service (13.5%) or to college (9.4%) or to non-college, full-time school attendance (1.3%). While these values do not deny the possibility that teachers are placing an average of 52.5 percent of their graduates, they raise grounds for some skepticism. About 38 percent of the graduates claimed they got their first job through the help of a parent, relative or friend. A total of 75 percent claimed they got their first job through a non-school source, e.g. want ads, employment agencies, parents, relatives, friends and other non-school sources.

TABLE 4. DISTRIBUTION DATA FOR PERCENTAGE OF GRADUATES PLACED BY SHOP INSTRUCTORS AS REPORTED BY COORDINATORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

PERCENTAGE OF ALL GRADUATES PLACED BY INSTRUCTORS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
91 - 100	1	2.5	0	0.0	1	5.0
81 - 90	2	5.0	2	10.0	0	0.0
71 - 80	2	5.0	0	0.0	2	10.0
61 - 70	2	5.0	1	5.0	1	5.0
51 - 60	4	10.0	2	10.0	2	10.0
41 - 50	5	12.5	1	5.0	4	20.0
31 - 40	4	10.0	2	10.0	2	10.0
21 - 30	0	0.0	0	0.0	0	0.0
11 - 20	2	5.0	0	0.0	2	10.0
1 - 10	14	35.0	11	55.0	3	15.0
0	4	10.0	1	5.0	3	15.0
NUMBER	40		20		20	
MEAN	32.4		26.8		38.0	
MEDIAN	20		10		40	
S.D.	30.2		29.8		30.3	

TABLE 4. DISTRIBUTION DATA FOR PERCENTAGE OF GRADUATES PLACED BY SHOP INSTRUCTORS AS REPORTED BY COORDINATORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

PERCENTAGE OF ALL GRADUATES PLACED BY INSTRUCTORS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
91 - 100	1	2.5	0	0.0	1	5.0
81 - 90	2	5.0	2	10.0	0	0.0
71 - 80	2	5.0	0	0.0	2	10.0
61 - 70	2	5.0	1	5.0	1	5.0
51 - 60	4	10.0	2	10.0	2	10.0
41 - 50	5	12.5	1	5.0	4	20.0
31 - 40	4	10.0	2	10.0	2	10.0
21 - 30	0	0.0	0	0.0	0	0.0
11 - 20	2	5.0	0	0.0	2	10.0
1 - 10	14	35.0	11	55.0	3	15.0
0	4	10.0	1	5.0	3	15.0
NUMBER	40		20		20	
MEAN	32.4		26.8		38.0	
MEDIAN	20		10		40	
S.D.	30.2		29.8		30.3	

TABLE I COMPARATIVE DATA ON METHODS USED TO GET THEIR FIRST JOB, BASED ON GRADUATES WHO WENT DIRECTLY TO WORK

MEANS USED TO GET FIRST FULL-TIME JOB AFTER GRADUATION	YEAR OF GRADUATION							
	1953		1958		1962		COMBINED	
	N	%	N	%	N	%	N	%
Answering want ad	74	7.8	90	7.7	126	7.2	290	7.5
Private employment agency	6	0.6	26	2.2	37	2.1	69	1.8
State employment agency	28	3.0	59	5.0	115	6.5	203	5.2
Help of school teacher	162	17.2	181	15.5	352	20.0	696	17.9
Help of school counselor	44	4.7	44	3.8	118	6.7	206	5.3
Help of school principal	26	2.8	27	2.3	76	4.3	130	3.3
Help of school placement service	121	12.8	87	7.4	161	9.2	371	9.6
Help of relative or friend	345	36.6	471	40.4	661	37.6	1485	38.2
Through school coop program	105	11.1	94	8.0	150	8.5	350	9.0
Other than above	206	21.9	302	25.9	347	19.7	857	22.1

The equivalent percentages for class years 1953, 1958 and 1962 were respectively 70, 81 and 73 percent. The 81 percent for class year 1958 represents the influence of the recession economy. The graduates relied more on non-school sources to find a job when the going got tough.

The assessment of all relevant data forces the conclusion that the T&I teachers may have exaggerated the extent of their role in placing graduates. It would be more comfortable, however, to have this conclusion confirmed by other research.

It should be noted that regardless of source of information, i.e. teacher, placement coordinator or graduate, the vocational schools show a more favorable placement picture. A greater percentage of the vocational schools have:

- full-time placement coordinators
- part-time placement coordinators
- shop teachers who claim a placement role
- counselors who claim a placement role

They also have a greater percentage of:

- claimed graduates placed by T&I teachers
- graduates acknowledging placement by:
  - teachers (19 vs. 16%)
  - counselors (6.4 vs. 3.6%)
  - principals (4.7 vs. 1.3%)
  - placement service (12.5 vs. 5.1%)
  - cooperative program (10 vs. 7.5%)

TABLE 6. COMPARATIVE DATA ON METHODS USED TO GET THE FIRST JOB BY DIRECT TO WORK GRADUATES FROM VOCATIONAL AND COMPREHENSIVE SCHOOLS

MEANS USED TO GET FIRST FULL-TIME JOB AFTER GRADUATION		YEAR OF GRADUATION							
		1953		1958		1962		COMBINED	
		N	%	N	%	N	%	N	%
Answering want ad	V	46	8.0	50	7.4	77	7.3	173	7.4
	C	24	6.8	33	6.7	46	6.6	103	6.6
Private employment agency	V	2	0.3	15	2.2	23	2.2	40	1.7
	C	4	1.1	10	2.0	12	1.7	26	1.7
State employment agency	V	18	3.1	34	5.1	65	6.2	117	5.0
	C	9	2.5	21	4.2	48	6.9	78	5.0
Help of school teacher	V	103	18.1	103	15.6	228	21.7	434	18.6
	C	54	15.3	78	15.8	116	16.7	248	15.8
Help of school counselor	V	34	5.9	23	3.4	90	8.6	147	6.3
	C	9	2.5	20	4.0	26	3.7	55	3.5
Help of school principal	V	22	3.8	23	3.4	63	6.0	108	4.6
	C	4	1.1	5	1.0	11	1.6	20	1.3
Help of school placement service	V	93	16.2	67	10.0	124	11.8	284	12.2
	C	24	6.8	18	3.6	33	4.7	75	4.8
Help of relative or friend	V	179	31.2	236	35.1	345	32.8	760	32.6
	C	151	42.7	225	45.5	303	43.5	679	43.4
Through school coop program	V	67	11.7	60	8.9	104	9.9	231	9.9
	C	38	10.9	34	7.0	40	5.8	112	7.2
Other than above	V	121	21.1	159	23.7	188	17.9	468	20.1
	C	80	22.6	133	26.9	150	21.6	363	23.2

About 53 percent of the direct-to-work graduates from vocational schools acknowledged a school source of help in obtaining their first full-time job. Only 34 percent of the comprehensive school vocational graduates acknowledged school sources. The difference is substantial and impressive. See Table 6 for the comparative data.

●How do schools differ in the percentage of graduates that acknowledge school sources of help in finding the first full-time job? Table 7 provides the distribution data.

The mean percentage of graduates who acknowledged a school source of placement help in the years 1953, 1958 and 1962 were 31, 25 and 29 respectively. (The reader is reminded that the graduates are recalling who helped them find their first full-time job over different year periods.) The distribution data makes clear that there are substantial school differences. The percentage of graduates that acknowledged a school source placement service ranged from a school low of 5.6 percent to a school high of 100 percent. The effects of the recession year of 1958 are noticeable.

TABLE 7. DISTRIBUTION OF PERCENTAGES OF GRADUATES THAT ACKNOWLEDGED A SCHOOL SOURCE FOR HELP IN GETTING THEIR FIRST FULL-TIME JOB

PERCENTAGES OF SCHOOL'S GRADUATES THAT ACKNOWLEDGED SCHOOL'S HELP IN GETTING FIRST FULL-TIME JOB	YEAR OF GRADUATION							
	1953		1958		1962		COMBINED	
	N	%	N	%	N	%	N	%
91 - 100	3	3.5	0	0.0	1	1.0	0	0.0
81 - 90	0	0.0	1	1.0	1	1.0	1	1.0
71 - 80	1	1.2	3	3.0	3	3.0	2	2.0
61 - 70	12	13.8	3	3.0	2	2.0	0	0.0
51 - 60	2	2.3	3	3.0	5	5.0	8	8.0
41 - 50	7	8.0	12	12.0	16	16.0	16	16.0
31 - 40	17	19.5	12	12.0	15	15.0	12	12.0
21 - 30	11	12.6	20	20.0	18	18.0	26	26.0
11 - 20	12	13.8	19	19.0	21	21.0	21	21.0
1 - 10	3	3.5	4	4.0	8	8.0	12	12.0
0	19	21.8	23	23.0	10	10.0	2	2.0
NUMBER	87		100		100		100	
MEAN	31.4		25.1		29.3		28.5	
MEDIAN	27.8		21.4		26.6		25.2	
S.D.	41.0		33.0		36.3		32.8	

For the combined class years, 35 schools were acknowledged by 20 percent or fewer of their graduates as having helped in finding the first full-time job. Eleven schools were acknowledged by more than 50 percent of their graduates. If one is willing to accept the data provided by the graduates, it is clear that the majority of the schools have placed only a minority of their employment-bound vocational graduates. The majority of graduates rely upon non-school sources for help in finding their first full-time job.

• How do vocational and comprehensive schools compare in terms of the percentage of graduates who acknowledged a school source with help in obtaining the first full-time job? Table 8 provides the data.

For each class year, a greater percentage of the vocational school graduates acknowledged school help in obtaining their first job than did comprehensive school vocational graduates. All factors point to the conclusion that vocational schools make a greater effort and do a better job of placing their vocational graduates. Both schools, however, have room for much improvement.

TABLE 8. PERCENTAGES OF VOCATIONAL AND COMPREHENSIVE SCHOOL GRADUATES THAT ACKNOWLEDGED SCHOOL SOURCES HELP IN GETTING THEIR FIRST FULL-TIME JOB

PERCENTAGE OF STUDENTS WHO ACKNOWLEDGED SCHOOL SOURCES IN JOB PLACEMENT	YEAR OF GRADUATION															
	1953				1958				1962				COMBINED			
	VOCATIONAL		COMPREHENSIVE		VOCATIONAL		COMPREHENSIVE		VOCATIONAL		COMPREHENSIVE		VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
91 - 100	3	6.2	0	0.0	0	0.0	0	0.0	1	2.0	0	0.0	0	0.0	0	0.0
81 - 90	0	0.0	0	0.0	1	2.0	0	0.0	1	2.0	0	0.0	1	2.0	0	0.0
71 - 80	1	2.1	0	0.0	2	4.0	1	2.0	3	6.0	0	0.0	2	4.0	0	0.0
61 - 70	8	16.7	4	10.3	3	6.0	0	0.0	0	0.0	2	4.0	0	0.0	0	0.0
51 - 60	1	2.1	1	2.6	2	4.0	1	2.0	3	6.0	2	4.0	7	14.0	1	2.0
41 - 50	4	8.3	3	7.7	6	12.0	6	12.0	9	18.0	7	14.0	8	16.0	8	16.0
31 - 40	12	25.0	5	12.8	6	12.0	6	12.0	9	18.0	6	12.0	6	12.0	6	12.0
21 - 30	6	12.5	5	12.8	10	20.0	10	20.0	12	24.0	6	12.0	14	28.0	12	24.0
11 - 20	4	8.3	8	20.5	12	24.0	7	14.0	8	16.0	13	26.0	10	20.0	11	22.0
1 - 10	1	2.1	2	5.1	0	0.0	4	8.0	2	4.0	6	12.0	2	4.0	10	20.0
0	8	16.7	11	28.2	8	16.0	15	30.0	2	4.0	8	16.0	0	0.0	2	4.0
NUMBER	48		39		50		50		50		50		50		50	
MEAN	37.7		23.6		29.8		20.3		35.2		23.4		33.9		23.1	
MEDIAN	35.7		20.0		27.3		15.4		33.3		20.0		28.8		21.6	
S.D.	47.0		32.8		37.4		28.1		42.0		30.1		38.5		27.1	

PLACEMENT PROGRAM ACTIVITIES

Student Use of Placement Services

The placement coordinators were asked to estimate what percentage of the vocational graduates made use of the school's placement services. Normally, the graduates would be the primary source of such information. However, compromises had to be made to control the length of the mailout questionnaire. This was one of those compromises and now the writer regrets that he did not go to the primary source with this item.

•As estimated by placement coordinators, what percentage of vocational graduates make use of school placement services to find their first full-time job? Table 9 provides the data.

TABLE 9. STUDENT USE OF PLACEMENT SERVICES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS AS REPORTED BY PLACEMENT COORDINATORS

PERCENT OF STUDENTS USING PLACEMENT SERVICES (CLASS INTERVALS)	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	%	C%	N	%	C%	N	%	C%
91 - 100	9	12.3	100.0	7	17.9	100.0	2	5.9	100.0
81 - 90	10	13.7	87.7	7	17.9	82.1	3	8.8	94.1
71 - 80	7	9.6	74.0	3	7.7	64.2	4	11.8	85.3
61 - 70	4	5.5	64.4	2	5.1	56.5	2	5.9	73.5
51 - 60	5	6.9	58.9	3	7.7	51.4	2	5.9	67.6
41 - 50	15	20.6	52.0	8	20.5	43.7	7	20.6	61.7
31 - 40	2	2.7	31.4	2	5.1	23.2	0	0.0	41.1
21 - 30	6	8.2	28.7	3	7.7	18.1	3	8.8	41.1
11 - 20	4	5.5	20.5	1	2.7	10.4	3	8.8	32.3
0 - 10	11	15.0	15.0	3	7.7	7.7	8	23.5	23.5
NUMBER	73			39			34		
MEAN	54.4			62.0			45.6		
MEDIAN	50			52			50		
S.D.	31.7			30.1			31.7		

The average percentage of graduates who are claimed by coordinators to use the school placement services is about 54 percent. Considering that about 76 percent of the vocational graduates reported that they sought full-time work after graduation, the average of 54 percent claimed by coordinators to use school placement services is entirely credible. It is not claimed that 54 percent were successfully placed, only that 54 percent on an average used the piacement services.

The individual school differences range from less than ten percent to more than ninety percent. The reader is reminded that these are estimated percentages provided by school personnel who keep no records and make no reports on school placement service use and effectiveness. However, even allowing for considerable error, the data suggests that the placement services of a substantial percentage of schools are not highly regarded. This is confirmed by the percentage of graduates who rated their school's placement services as excellent (20%), good (34%), fair (23%) and poor (22%). One must also point out that an unknown but probably a sizable percentage of vocational graduates have no need for making use of available school placement services because they have obtained jobs before graduation on their own or through the help of non-school sources. Nevertheless, the data suggests that many schools are not highly regarded by their students for their placement services. This is in contrast to what one generally finds in established private trade and technical schools. These schools maintain their clientele--indeed, their existence--by establishing a reputation for placing their course completers. They are well aware that competition does not permit them to provide a mediocre placement service.

Types of Placement Activities

The placement coordinators were asked to indicate which of a list of placement-related activities were a basic feature of the school's placement program. The data is a superficial first attempt at describing what schools do. It does not tell us how thoroughly or effectively the schools conduct such activities.

• What types of placement activities are a regular feature of school placement programs? Table 10 provides the data.

The most frequently reported placement activity is also the one which requires the least amount of effort, namely advising students on how to find jobs. About 95 percent of the placement coordinators claimed this as a regular activity.

About 92 percent of the coordinators claimed that they arranged for employers to interview students. Unfortunately, the question was not worded so as to reveal what percentage invited employers to the schools for such interviews as opposed to arranging for such interviews at employer locations.

About 88 percent reported that it was a practice to check with state employment services for job opportunities. The study does not have data to describe the working relationships that existed between the schools and the employment security services. It would be interesting to know to

TABLE 10. PLACEMENT ACTIVITIES REPORTED BY PLACEMENT COORDINATORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

TYPE OF PLACEMENT ACTIVITY	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Advise students how to find jobs	73	94.8	40	95.2	33	94.3
Arrange for employers to interview students	71	92.2	39	92.9	32	91.4
Help students find school year jobs	70	89.7	38	88.4	32	91.4
Contact state employment services	68	88.3	35	85.4	33	91.7
Help students find summertime jobs	64	83.1	35	83.3	29	82.9
Assist graduates of past years in finding jobs	64	83.1	36	83.7	28	82.4
Canvass community employers for job opportunities	62	80.5	37	88.1	25	71.4
Follow-up progress of past graduates	59	76.6	30	69.8	29	85.3
Review want-ads for job opportunities	52	72.2	29	74.4	23	69.7
Promote placement by speaking to civic groups	49	64.5	27	62.8	22	66.7
Arrange post-high school apprenticeships	46	62.2	25	62.5	21	61.8
Canvass employers in nearby communities	44	60.3	27	67.5	17	51.5
Canvass labor unions about job opportunities	32	43.8	19	50.0	13	37.1
Coordinate cooperative training programs	15	28.8	11	40.7	4	16.0
Contact private employment agencies	21	28.0	11	27.5	10	28.6
Conduct public relations type activities	13	25.0	6	22.2	7	28.0

what extent schools turned the placement responsibility over to the state employment services. Only 5 percent of the graduates acknowledged that they got their first full-time job through such agencies.

Only 80 percent of the coordinators claimed it was the practice to canvass community employers for job opportunities. Only 60 percent reported that employers in nearby communities were so canvassed. More vocational than comprehensive schools seem to engage in canvassing employers for job opportunities.

There are considerable differences in the number of placement activities claimed by the schools. Table 11 shows how the schools distributed in terms of the number of placement activities claimed as a regular feature of their placement program. The specific activities are those listed in Table 10.

The average school claims to be engaged in eleven of the activities listed. However, about 19 percent of the schools claim less than nine of the listed activities. It remains to be seen whether the placement performance of the schools is related to the number of claimed placement activities. This possibility is explained in a later section. The point to be stressed here is that schools differ widely in the number and kind of placement-related activities.

TABLE 11. DISTRIBUTION DATA ON NUMBER OF PLACEMENT ACTIVITIES CLAIMED BY PLACEMENT COORDINATORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

NUMBER OF CLAIMED PLACEMENT ACTIVITIES *	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
15 - 16	4	5.1	2	4.7	2	5.6
13 - 14	17	21.5	7	16.3	10	27.7
11 - 12	23	29.1	16	37.2	7	19.5
9 - 10	20	25.3	10	23.3	10	27.7
7 - 8	8	10.1	5	11.6	3	8.3
5 - 6	3	3.8	1	2.3	2	5.6
3 - 4	2	2.5	1	2.3	1	2.8
1 - 2	2	2.5	1	2.3	1	2.8
NUMBER	79		43		36	
MEAN	10.7		10.7		10.6	
MEDIAN	11		12		11	
S.D.	3.1		2.9		3.2	

* See Table 10 for list of activities

Sources of Job Opportunity Information

•What specific sources of information do placement coordinators report using to learn about job opportunities in their communities, their states, their regions and the United States as a whole? Table 12 provides a tabulation of the write-in responses. The percentages would have been higher undoubtedly had the question been backed up with answer categories to check off. However, the write-in approach gives a better indication of the more salient sources of information.

Local job opportunities were determined by contacting state employment services (57%), checking with potential employers (44%) and reading newspaper want-ads (39%). Inquiries with community organizations were reported by 29 percent of the coordinators. School advisory committees were mentioned as a job opportunity information source by only 7 percent of the coordinators.

State job opportunities were revealed by contacting state employment services (71%), consulting United States Department of Labor publications (22%), obtaining state civil service literature (21%) and obtaining federal civil service literature (8%).

Regional and national job opportunity information was obtained from United States Department of Labor publications (49%), trade publications (30%) and the State Employment Services (23%).

What is most amazing about the percentages is that, with the exception of contacts with the state employment security offices, they are all minority percentages. Aside from the possibility that the coordinators got pencil-weary on the second page of the questionnaire, a possibility that is not rendered credible by the percentage that mentioned state employment services, how is one to interpret such percentages? One must be careful about reading between the lines of the data. Nevertheless, an educated guess suggests that the low percentages may be attributed in part to a widespread lack of knowledge about some of the sources that others consult with regularity. If 38 percent of the coordinators find it useful to consult newspaper want-ads, why don't the other 62 percent? If 44 percent make employer contacts, why don't the other 56 percent?

Placing the Underachiever

Only 56 percent of the schools reported that special efforts were made to place the underachievers. The percentage was about the same for vocational and comprehensive schools. One must conclude that a regrettably large percentage of schools exhibit no sense of responsibility for their vocational students who have been underachievers. Undoubtedly, many of the schools that were lacking in remedial programs for their underachievers also lacked a feeling of responsbility for helping such students find jobs. One might say a high percentage of schools don't care.

Those that did claim special placement services for underachievers reported most frequently (33%) that they tried to place students in lower skilled jobs, usually unrelated to the vocational course of study. Other special services for underachievers included discussions with potential

TABLE 12. EMPLOYMENT OPPORTUNITY INFORMATION SOURCES USED BY PLACEMENT COORDINATORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

SOURCES OF INFORMATION ABOUT EMPLOYMENT OPPORTUNITIES	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
LOCAL AREA SOURCES						
Newspaper want-ads	27	38.6	15	41.7	12	35.3
Employer contacts	31	44.3	18	50.0	13	38.2
State employment service	40	57.1	20	55.6	20	58.8
Private employment agencies	4	5.7	3	8.3	1	2.9
School advisory committees	5	7.2	4	11.4	1	2.9
Community organizations	20	28.6	6	16.7	14	41.2
STATE SOURCES						
Out-of-town newspapers	6	10.2	4	12.9	2	7.1
State civil service commission	12	20.7	7	23.3	5	17.9
Federal civil service commission	5	8.6	3	10.0	2	7.1
State director of vocational ed.	6	10.3	3	10.0	3	10.7
Department of Labor publications	13	22.4	7	23.3	6	21.4
State employment service	41	70.7	21	70.0	20	71.4
REGIONAL/NATIONAL SOURCES						
Trade publications	14	30.4	9	36.0	5	23.8
State employment service	11	23.4	5	19.2	6	28.6
Department of Labor publications	22	46.8	11	42.3	11	52.4
Weekly labor publications	2	4.3	2	7.7	0	0.0
State civil service commission	4	8.5	1	3.8	3	14.3
Federal civil service commission	5	10.9	2	7.7	3	15.0

employers to communicate their capabilities (33%), involvement in work experience programs (10%), special efforts by individual shop instructors to place their underachievers (7%), pre-dropout placement where possible (14%) and arrangements with state employment agencies for placement (14%). The percentages are based upon the number of schools claiming a special effort was made to find jobs for underachievers.

Follow-up on Graduates

An important function of a school placement service is to develop and apply procedures for keeping informed on how vocational graduates are doing in the immediate few years after graduation. Such procedures can be a source of useful information that may call for modifications in existing programs. For example, employers of a given occupational field may detect training weaknesses in graduates that are the result of under-emphasis or even omission of certain subjects.

• To what extent do schools have an employer contact program to check on the progress of former vocational students? What type of contacts are usually made? Table 13 provides the data.

Of the 79 schools with placement coordinators, 40 percent reported that they did follow-up studies of vocational graduates with employer contacts to determine how the graduates were progressing. Thus, at least 30 of the 100 schools made such contacts. Whether those without a placement coordinator made such contacts is unknown. The likelihood is that most such schools did not make employer contacts for follow-up purposes. The vocational schools are more likely to make such contacts than are the comprehensive schools (45 versus 34 percent).

A personal visit contact is the most frequently reported method of contacting employers. About 83 percent of the schools that reported making employer contacts relied upon a personal visit by a school represent-

TABLE 13. USE OF EMPLOYER CONTACTS TO FOLLOW-UP PROGRESS OF GRADUATES

GRADUATE FOLLOW-UP VIA EMPLOYER CONTACTS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Use employer contacts	30	40.0	18	45.0	12	34.3
Type of contact used						
• Personal contact	25	83.3	15	83.3	10	83.3
• Telephone contact	17	56.7	9	50.0	8	66.7
• Letter contact	4	13.3	2	11.1	2	16.7
• Other than above	4	13.3	2	11.1	2	16.7

ative to the employer's location. About 57 percent reported making telephone contacts and 13 percent reported mail contacts. The percentages are not mutually exclusive and are based only on the number of schools who reported employer contacts as a regular procedure to follow-up on the progress of graduates. Apparently, about 60 percent of the schools do not make any such contacts.

Contacting graduates is another method of follow-up to determine where graduates are employed, what they are doing, how much they are earning and other information related to their work. The placement coordinators were asked if such surveys were a feature of the school's placement program.

• To what extent do schools conduct follow-up surveys of their vocational graduates? How long ago was the last survey conducted? How often are such surveys conducted? What is the average percent of graduate response? Table 14 provides the data.

About 56 percent of the placement coordinators reported that graduate follow-up surveys were done on some regular basis. This is not in agreement with what principals reported. Forty-four percent of the principals claimed their schools did follow-up surveys of vocational graduates. The data obtained from the principals is based upon all 100 schools whereas that obtained from the coordinators is based upon 75 schools only.* The writer prefers to accept the data obtained from school principals as a parameter estimate of the percent of schools that conduct follow-up studies. (It is possible that shop instructors may conduct follow-up surveys without the awareness of the placement coordinators or school principals, but not very likely.)

TABLE 14. REPORTED FOLLOW-UP SURVEYS OF VOCATIONAL GRADUATES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

VOCATIONAL GRADUATE SURVEYS	UNITED STATES SAMPLE			TYPE OF SCHOOL					
				VOCATIONAL			COMPREHENSIVE		
	N	M-%	S.D.	N	M-%	S.D.	N	M-%	S.D.
Coordinator reported survey use	42	56.0	-	23	56.1	-	19	55.9	-
Principal reported survey use	44	44.0	-	24	48.0	-	20	40.0	-
Years since last survey	41	2.0	3.3	23	1.3	2.1	18	2.9	4.3
Reported frequency of surveys									
• Every year	19	54.3	-	10	45.5	-	9	69.2	-
• Every 2-3 years	4	11.5	-	4	18.2	-	0	0.0	-
• Every 4-5 years	9	25.7	-	6	27.3	-	3	23.1	-
• Every 6 years or more	3	8.6	-	2	9.1	-	1	7.7	-
Percentage of survey response	37	74.3	22.8	23	71.2	25.4	14	79.4	17.4

* Four placement coordinators failed to respond to this item.

The last survey conducted by the schools having a placement coordinator was 1.3 years ago for vocational schools and 2.9 years ago for the comprehensive schools.

The most common frequency for conducting follow-up surveys is annually. A little more than half of the schools reported by coordinators as making follow-up surveys did them on an annual basis. About 12 percent reported such studies were done every two or three years. About 26 percent reported that such surveys were done every four or five years. Several reported that they did follow-up studies less frequently than once every five years. It should be emphasized that only 19 of the 100 schools surveyed did an annual follow-up survey of their vocational graduates. Vocational educators sometimes give the impression that the follow-up survey is an annual routine. This study did not find that to be the case. Moreover, some schools that claimed they had done such a survey in the previous year were unable to provide an exhibit of the form used and the results obtained.

The placement coordinators were asked to indicate what percentage of graduates responded to the follow-up questionnaire or postcard. The mean and median percentages were 74 and 84 respectively. The percentages ranged from 20 to 100 percent returns. The returns thus ranged from poor to excellent. The low percentage of returns reported by some schools raises some questions about the correctness of the interpretations applied to the data. None of the schools make any attempt to correct their follow-up returns for non-response. And, indeed, such sophistication is not necessary because of the generally high rate of response and the uses made of the returns. The key to the high rate of return is the personal touches that many schools apply. The former instructor sends a friendly greeting and inquires about how and what his former student is doing. One school hit upon the ingenious method of sending birthday greetings, with a convenient follow-up postcard attached. Would-be researchers in this field would do well to study the methods used by schools to maximize their returns.

Even among the schools that apply an annual follow-up survey, there is no conception of using the results to measure progress toward a goal, such as year to year improvement in the placement of graduates into their fields of study. Nowhere did the writer see a graph which showed over a period of years the trend in a school's placement performance. School personnel seem to be satisfied if the results show that the majority of graduates enter the field for which trained. There is generally no awareness that there is an improvement to be made; if 50 percent entered their field of training this year, the goal for next year should be 60 percent or better.

The writer also questions the conditions under which some such surveys are done. Several instructors confided that their follow-up survey was done in the last week of school. The graduates-to-be completed a card which indicated where they would be working and the nature of the job. It seemed tactful at the time not to point out sources of error in the classroom follow-up technique. While such incidences are undoubtedly rare, they do suggest the need for a centralized control of school follow-up surveys.

PLACEMENT COORDINATOR RECOMMENDATIONS

The decision to ask those who are responsible for a function to assess and criticize how well the function is being carried out always runs the risk of severe bias. In this case, placement coordinators assessed placement services. The results suggest a gratifying objectivity.

Placement Service Evaluations

The placement coordinators were asked to evaluate the quality of their school's placement services on a general four-point scale, i.e. excellent, good, fair or poor. The purpose was to get a gross evaluation by those responsible for the placement services. Table 15 provides the data.

About 65 percent of the coordinators rated their schools excellent or good on placement services. This leaves 35 percent that were rated fair or poor. When 35 percent of the coordinators rate their placement services fair or poor, one can conclude with confidence that probably more than that percentage of placement programs needs considerable improvement to render the kind of services needed. The statement is supported by the type of deficiencies pointed out by the placement coordinators.

The principals also assessed their school's placement services. About 7 percent reported that such services were neither available or needed in their schools. Another 14 percent indicated that such services

TABLE 15. RATING OF PLACEMENT SERVICE BY COORDINATORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

RATINGS OF SCHOOL PLACEMENT SERVICES BY PLACEMENT COORDINATORS *	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Excellent	21	28.4	15	37.5	6	17.6
Good	27	36.5	15	37.5	12	35.3
Fair	20	27.0	10	25.0	10	29.4
Poor	6	8.1	0	0.0	6	17.6
NUMBER	74		40		34	
MEAN	2.85		3.12		2.52	
S.D.	0.93		0.79		0.99	

* 1-Poor, 2-Fair, 3-Good, 4-Excellent

were needed but not available. Why they made no attempt to organize a placement service remains a mystery. Thus, 21 percent of the principals reported their schools had no placement services. This agrees with the finding that 21 schools had no placement coordinator.

Another 23 percent of the principals reported that their placement services were unsatisfactory. The nature of the rating item did not, unfortunately, require reasons for unsatisfactory ratings. However, such reasons were obtained from the placement coordinators and are indicated in the next section. About 55 percent of the principals reported that their school's placement services were satisfactory. This agrees very closely with the independent assessments made by the school placement coordinators. About 65 percent of the seventy-nine coordinators rated their services as excellent or good. That represents 52 schools, which is close to the 55 schools reported by the principals to have a satisfactory placement service.

One is forced to come to the conclusion that about a fifth of the schools have no school-recognized placement service and, of those that do, as high as one-third do not have a satisfactory placement service by their own admission.

Placement Coordinator Recommendations

The coordinators were asked to give reasons for rating their placement services only fair or poor and to make recommendations for the improvement of their placement services. An analysis of the reasons given for fair or poor ratings indicated that such reasons were almost always implied by the recommendations made by the same coordinators. For that reason, the report will concentrate on the recommendations that all coordinators made in response to an open-ended question. The percentages reported would undoubtedly have been higher had the coordinators responded to a list of items. The writer believes the recommendations are more meaningful in the form that they were obtained.

●What recommendations do school placement coordinators make to improve placement services? Table 16 provides the data. The recommendations are arranged in rank order of frequency of mention.

About 56 percent of the coordinators recommended use of a full-time placement coordinator. This was a reflection of the many activities they felt should be carried out by a placement coordinator, many of which they claimed they did not have the time to carry out, i.e. employer contacts, area employment opportunity surveys, graduate follow-up studies, and so on. The dissatisfaction with the concept of a part-time coordinator was also reflected in a call for a centralized placement office at the schools. About 39 percent of the coordinators expressed this basic idea. They felt that placement services should have the status of a basic school function, such as the counseling service.

The importance of employer contacts was recognized. About 24 percent recommended that they be given or credited with time for employer contacts. Such contacts are very often made on the instructor's own time. Again, about 26 percent called for increasing the number and quality of employer contacts. Many regarded present efforts as perfunctory and minimal.

TABLE 16. PLACEMENT SERVICE IMPROVEMENTS RECOMMENDED BY COORDINATORS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

SUGGESTED PLACEMENT SERVICE IMPROVEMENTS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Use full-time personnel	40	56.3	14	38.9	26	74.3
Establish centralized placement function	28	39.4	8	22.2	20	57.1
Improve quantity and quality of employer contacts	19	26.8	10	27.8	9	25.7
Provide instructor time for employer contacts	17	23.9	13	36.1	4	11.4
Quality of graduate follow-up studies	16	22.5	9	25.0	7	20.0
Get employment opportunity data for local area	7	17.5	0	0.0	7	20.0
Improve relationships with community	12	16.9	8	22.2	4	11.4
Improve quality of vocational training	8	11.3	6	16.7	2	5.9
Provide clerical assistance	7	9.9	1	2.8	6	17.1
Train students how to apply for jobs	4	5.6	1	2.8	3	8.6
More involvement of instructors	3	4.2	3	8.3	0	0.0
Improve relationships with labor organizations	3	4.2	0	0.0	3	8.6
Better communication of occupational data to students	3	4.2	1	2.8	2	5.7
Improve apprenticeship entry for students	3	4.2	2	5.6	1	2.9
Compensate instructors for placement activity expenses	2	2.8	2	5.6	0	0.0
Provide employers with opportunity to interview students	2	2.8	1	2.8	1	2.9
Get employment opportunity data beyond local area	2	2.8	0	0.0	2	5.7
Train personnel in placement activities	1	1.4	0	0.0	1	2.9
Better relationships with state employment offices	1	1.4	1	2.8	0	0.0
Advisory committee to facilitate placement	1	1.4	0	0.0	1	2.9
More flexible child labor laws	1	1.4	0	0.0	1	2.9

The value of improving follow-up studies was also recognized. About 22 percent of the coordinators recommended improvement in frequency or quality of such studies.

It is interesting also that 17 percent suggested that relationships with the community needed improvement. The specific recommendations called for more school activity to acquaint various segments of the community with school vocational programs.

There was also a hint in the recommendations that placement would be improved if the quality of vocational training were improved. Eleven percent of the coordinators made this point. The reader is referred to Table 16 for the basic ideas reflected in other recommendations.

THE PLACEMENT COORDINATORS

The part-time placement coordinators are a mixture of counselors, school administrators, cooperative program coordinators and vocational teachers. The counselors predominate, comprising about 40 percent of the part-time placement coordinators. It is to be expected that they will represent a more heterogeneous background than do their constituent groups.

Educational Background

About 70 percent of the placement coordinators reported a college education. Of these, 64 percent had a master's degree, 19 percent had a bachelor's degree only and 17 percent reported college attendance but no degree. The level of education was higher among the comprehensive school placement coordinators. About 80 percent of those who had attended college had a master's degree. Very clearly, placement coordinators are not lacking in formal education.

The majority pursued an education major in college. About 35 percent of those reporting a college education specifically indicated a major in vocational education.

About 44 percent were certified as teachers and 54 percent were certified as counselors. The percentages are not mutually exclusive.

Occupational Experience

About 75 percent of the coordinators claimed full-time employment experience in a non-school connected situation. The balance apparently knew no other work directly than that experienced in one school capacity or another.

Those who claimed they had non-school employment experience averaged about 7.8 years of such experience. About 56 percent had more than five years of such employment experience. However, for most of the coordinators such experience was many years behind them. The average coordinator was 49 years old and had held his last full-time non-school job about 13 years ago.

The coordinators were asked to indicate the type of non-school full-time employment held in previous years and the duration of each such job. An analysis of such data permitted a determination of the number of years each coordinator had spent in any occupation the same as or related to the occupations commonly associated with T&I programs. The results were interesting. About 34 percent had never held a full-time job in any occupation that could reasonably be related to T&I program occupations. These held jobs in essentially white collar work, i.e. office manager, personnel director, social worker and retail sales.

Thus, about 66 percent did have some experience with what were called T&I or T&I-related occupations. Those that did averaged about 7.8 years of such experience. One must conclude that they have had considerable experience with the world of work outside of schools. About 37 percent of the placement coordinators had more than 10 years of T&I-related employment experiences. One can not say, therefo e, that placement coordinators have had little or no experience in non-school connected occupations.

Special Training or Experience

The placement coordinators were asked to list what special training or experience they had had to qualify them as placement coordinators. The responses were classified as shown below:

•Course work in guidance/counseling	50%
•Personnel relations experience in industry	48
•Vocational trade work experience	36
•Vocational education course work	18
•Non-school placement experience	14

One can conclude that a substantial percentage of the coordinators have had special training or experience relevant to placement services. However, such data does not rule out the need for more thorough training of placement coordinators. Are there any courses on school placement services and functions in the teacher or counselor training institutions? The write-in responses failed to reveal any such graduate-level courses in education. Perhaps there are now some in existence.

Another characteristic of the coordinators seemed to be of interest--their ages. About 34 percent were over 55 years of age. Another 31 percent were over 45 years of age. And 17 percent were over sixty years of age.

CORRELATION ANALYSES

Definition of Variables

The placement variables used for correlation analysis were as follows:

1. Placement coordinator man-hours per week per 100 vocational students. The total full-time and part-time placement personnel man-hours per week were divided by the number of hundreds of students enrolled in vocational programs. The measure gives a rough approximation of the number of claimed man-hours of placement effort expended per 100 students in vocational programs.

2. Number of claimed placement activities. The measure is a simple count of the number of placement-related activities claimed by the coordinators as a regular feature of the placement activities. See Table 9 for a list of activities. Range: 1-26. The measure reflects presumably the range of activities that are a standard feature of the school's placement program.

3. Percentage of graduates placed by shop instructors. Each instructor was asked to indicate the number of graduates or course completers for a given year (1963). They were asked to recall those that had been placed through some effort of their own and to specify the number so placed. The sum of those placed by all shop instructors in the school expressed as a percentage of the sum of those graduated by all shop instructors was the percentage of graduates claimed placed by all instructors. The measure presumably reflects the degree of placement effort expended by the instructors to place their course graduates.

4. Percentage of graduates that instructors would recommend for entry into occupation studied. Each instructor was asked to view his past year's graduates and to determine the number that he would have recommended for entry into the occupation studied. The total number so recommended for the school was expressed as a percentage of the total reported by instructors to have graduated. Range: 0-100. The measure is a crude approximation of the quality of the graduates put out by the school.

5. Percentage of students reported to use school placement services. The percentage was estimated by the placement coordinators. The range was from less than 5 percent to 100 percent. There was no assurance that the estimates were even grossly accurate.

6. Percentage of graduates who acknowledged placement assistance by school personnel. The total number of graduates who acknowledged the help of school personnel in finding their first full-time job was expressed as a percentage of the number who sought employment after graduation.

7. Rating of school placement services. Each school's placement service was rated by its placement coordinator on a gross four point scale: 1-poor, 2-fair, 3-good and 4-excellent. The rating was made in the latter part of the questionnaire after the coordinator had completed most items related to placement activities.

8. Coordinator years of non-school employment. The measure was based upon an analysis of the duration of non-school jobs reported held by placement coordinators.

9. Coordinator years of T&I related non-school employment. The measure was based upon an analysis of the kind and duration of non-school jobs reported held by placement coordinators.

10. School holding power. The T&I instructors reported the number of students enrolled in their program at the start of the previous school year and the number who dropped out to leave school for any reason. The number remaining at the end of the school year, though not necessarily in the curriculum in which they started the school year, was expressed as a percentage of the number enrolled at the start of the school year to provide a measure of school holding power.

See Appendix Section 10 for distribution data on the above variables, excluding numbers 2, 3, 5, 6 and 7 which are included in the preceding sections of the chapter.

Placement Variable Intercorrelations

Table 17 shows the intercorrelation coefficients. The small number of schools involved may have obscured some relationships. Comments are reserved only for some of the more interesting relationships implied by the correlation coefficients.

1. Placement coordinator man-hours per 100 pupils. The measure shows a low but significant correlation with total vocational enrollment. The larger enrollment schools have a greater number of placement coordinator man-hours per 100 pupils. These tend to be the vocational schools.

2. Number of claimed placement activities. The measure fails to correlate at the .01 percent level of confidence with such measures as percent of graduates placed by instructor, percent of students using placement services, percent of graduates who acknowledged school placement help and the overall school placement service rating. Mere number of different placement activities seems to be of no value.

3. Percentage of graduates claimed placed by instructors. The measure correlates .59 with the percentage of recommendable graduates. Thus, the more graduates the instructor is willing to recommend, the more he apparently places. This suggests that instructors hold back on attempting to place graduates whom they would not recommend for entry into the trade.

The same measure correlates .42 with the percentage of graduates who acknowledge school help in getting their first full-time job. This

TABLE 17. PLACEMENT COORDINATOR AND OTHER RELATED VARIABLE INTERCORRELATIONS

	PLACEMENT COORDINATOR AND OTHER RELATED VARIABLE INTERCORRELATIONS	1 COORDINATOR MAN-HOURS PER WEEK (PER 100 STUDENTS)	2 NUMBER OF CLAIMED PLACEMENT ACTIVITIES	3 % GRADUATES PLACED BY SHOP INSTRUCTORS	4 % GRADUATES RECOMMENDABLE	5 % STUDENTS USE PLACEMENT SERVICE	6 % GRADUATES ACKNOWLEDGE SCHOOL HELP	7 RATING OF SCHOOL PLACEMENT SERVICE	8 COORDINATOR YEARS OF NON-SCHOOL EMPLOYMENT	9 YEARS OF NON-SCHOOL T&I RELATED EMPLOYMENT	10 SCHOOL HOLDING POWER	11 TOTAL ENROLLMENT	12 VOCATIONAL ENROLLMENT	13 CITY POPULATION
1	Coordinator man-hours per week (per 100 students)	-	.25	-.03	-.05	.11	.02	.25	.11	.11	.23	.07	.36*	.20
2	Number of claimed placement activities	71	-	-.12	.05	.25	.10	.13	.25	.17	.13	.25	.17	.16
3	Percentage of graduates placed by shop instructors	68	68	-	.59*	.07	.42*	.23	.22	.10	-.02	-.16	-.05	-.08
4	Percentage of graduates recommendable	70	71	88	-	-.01	.34*	.21	.11	.12	-.11	-.28	.04	-.11
5	Percentage of students reported to use school placement service	70	70	66	68	-	.23	.32*	.14	.14	.07	.04	.12	.25
6	Percentage of graduates who acknowledge school placement help	74	76	91	93	73	-	.38*	.14	.02	-.01	-.15	.16	.23
7	Rating of school placement service	70	71	68	70	69	74	-	.11	.08	.14	.04	.22	.29
8	Coordinator years of non-school employment	61	59	58	60	59	62	61	-	.76*	-.13	.11	.10	.23
9	Coordinator years of T&I related non-school employment	61	59	58	60	59	62	61	62	-	-.07	.18	.18	.22
10	School holding power	73	75	89	91	72	98	73	61	61	-	.07	.06	.04

* Significant at .01 level of confidence

seems to be a clear demonstration of the validity of the T&I instructor claims. The greater the percentage of claimed graduate placements, the greater the percentage of graduates who acknowledged school placement help.

4. Percentage of recommendable graduates. The measure correlates .34 with the percentage of graduates who acknowledged school placement help. The schools with a higher percentage of recommendable graduates were acknowledged by a greater percentage of their graduates as having helped to find the first full-time job.

5. School holding power. There is no relationship between school holding power and any of the placement variables. The data holds little comfort for anyone who claims that school holding power may be improved by improving placement services.

Correlation with Vocational Outcome Variables

Table 18 shows the correlation data. Only two of the placement variables correlated significantly with the vocational outcome variables based upon the occupational experiences of graduates.

1. Percent of graduates placed by teachers. The measure correlated .40 and .45 respectively with the first and the present full-time jobs' relatedness to the course studied. Stated differently, the greater the percentage of graduates claimed placed by the shop instructors, the more of a school's graduates entered and stayed with the field of the occupation studied. One can infer that the role of the teacher as a placement agent is of critical importance to the improvement of a school's performance in placing graduates into their field of training.

The same measure correlated .34 with present job satisfaction. Thus, the higher the percentage of graduates placed (claimed) by the instructors, the higher the average job satisfaction reported by the school's graduates. Now, we have come on an interesting full circle. The more recommendable graduates, the more graduates are placed by the instructor. The more graduates placed by the instructor, the more graduates enter occupations related to their training and the greater the satisfaction reported by these graduates on their present jobs. The critical point seems to be to develop a high percentage of recommendable graduates. See below.

2. Percentage of graduates recommendable. This measure correlates .33 and .42 with the relatedness of first and present job to the occupation studied. The significance of the relationship was pointed out above. The higher the percentage of recommendable graduates, the greater the percentage of graduates who enter and stay with occupations in their field of study.

3. Percentage of graduates who acknowledged school placement help. The measure correlates -.31 with placement time, i.e. the greater the percentage of students who acknowledged school help in finding their first job, the smaller the average time required to get the first job.

It also correlates .45 and .48 with first and present job relatedness. The greater the percentage who acknowledged school placement help, the greater the percentage who entered and stayed with occupations in their field of study.

Finally, it correlated .34 with employment security. That means there was less unemployment among the graduates who were placed by school sources than those placed by non-school sources.

4. Rating of the schools' placement services. The rating that coordinators gave their placement services was impressively correlated with the performance of the school in placing graduates into their field of study. The higher the placement service was rated, the greater the percentage of graduates who entered their field of training. One cannot say for certain that there is a cause-effect relationship between excellence of placement services and percentage of graduates placed into the field of training, but the relationship is made plausible by the .50 correlation.

TABLE 18. CORRELATION COEFFICIENTS FOR RELATIONSHIPS BETWEEN PLACEMENT COORDINATOR AND OTHER RELATED VARIABLES AND THE OCCUPATIONAL OUTCOMES EXPERIENCED BY THE 1962 VOCATIONAL GRADUATES

		1962 VOCATIONAL GRADUATE OCCUPATIONAL OUTCOMES								
		1	2	3	4	5	6	7	8	9
	PLACEMENT COORDINATOR AND OTHER RELATED VARIABLES	PLACEMENT TIME	FIRST JOB RELATEDNESS	FIRST JOB SATISFACTION	INITIAL EARN''GS	PRES. JOB RELATEDNESS	PRESENT JOB SATISFACTION	PRESENT EARNINGS	PERCENTAGE EARNINGS INCREASE	EMPLOYMENT SECURITY
1	Coordinator man-hours per week (per 100 students)	-.03 74	-.08 74	.02 74	.15 74	.01 74	-.10 74	.23 74	.05 74	.06 74
2	Number of claimed placement activities	.10 76	-.14 76	-.06 76	-.10 76	.01 76	-.08 76	-.06 76	.07 76	-.02 76
3	Percentage of graduates placed by shop instructors	-.15 91	.40* 91	.16 91	.15 91	.45* 91	.34* 91	.15 91	.13 91	.22 91
4	Percentage of graduates recommendable	-.08 93	.33* 93	.07 93	-.01 93	.42* 93	.17 93	-.01 93	.23 93	.16 93
5	Percentage of students reported to use placement service	-.03 73	.26 73	.23 73	.19 73	.01 73	.11 73	.13 73	.02 73	.20 73
6	Percentage of graduates who acknowledge school placement help	-.31* 100	.45* 100	.23 100	.13 100	.48* 100	.21 100	.23 100	.24 100	.34* 100
7	Rating of school placement service	-.07 74	.50* 74	.29 74	.18 74	.39* 74	.08 74	.25 74	.11 74	.18 74
8	Coordinator years of non-school employment	.04 62	.14 62	.19 62	-.02 62	.07 62	.16 62	.01 62	.02 62	-.05 62
9	Coordinator years of T&I related non-school employment	-.05 62	.07 62	.18 62	-.09 62	.09 62	.08 62	-.07 62	.05 62	-.10 62

* Significant at .01 level of confidence

SUMMARY OF FINDINGS

Placement Service Personnel

1. Placement coordinators. Seventy-nine percent of the schools had a placement coordinator. Eight percent had a full-time placement coordinator. Seventy-one percent had a part-time coordinator. Twenty-one percent had no placement coordinator.

2. Type of school personnel. The part-time placement coordinators consisted of counselors (40%), school administrators (25%), cooperative program coordinators (21%) and vocational teachers (13%). These in turn claimed that they were assisted by vocational teachers (48%), guidance counselors (26%), administrative personnel (23%), cooperative program coordinators (20%) and academic teachers (20%). The data demonstrate that all categories of school personnel may be involved in placement services.

3. Man-hours of coordinator service. The part-time placement coordinators estimated about 7.6 hours per week in placement-related activities. When their claimed hours per week were expressed in terms of hours per 100 students enrolled, the mean and median hours were 1 and 0.5 hours per week per 100 students. It should be understood that coordinator hours per week per 100 students does not represent the total man-hours expended in placement activities. The study lacked data on the man-hour contributions of other school personnel involved in placement services.

4. Vocational versus comprehensive schools. A greater percentage of the vocational schools had full-time and part-time placement coordinators. About 14 percent of the vocational schools were without a placement coordinator in contrast with 28 percent of the comprehensive schools.

The part-time coordinators from vocational schools reported a greater number of hours per week spent in placement activities than did their counterparts in comprehensive schools.

Teacher Role in Placement

1. What coordinators report. Seventy-three percent of the school placement coordinators reported that their school's T&I teachers were expected to help graduates find jobs. The details of what such teachers were expected to do were nowhere clearly spelled out.

The coordinators reported that an average of 32 percent of the graduates were placed by the shop instructors. This is considerably less than what the shop instructors claimed.

2. What teachers report. Eighty-three percent of the shop teachers reported that they tried to place their graduates. Those that did assume a placement responsibility reported that they placed or helped to

place an average of 52 percent of the preceding year's vocational graduates. Since only an average of 76 percent of the vocational graduates seek employment after graduation, the 52 percent placed is a much higher percentage of those available for placement.

3. What graduates report. Of the 1953, 1958 and 1962 vocational graduates respectively, 17, 16 and 20 percent acknowledged the assistance of a teacher in finding their first full-time job. These percentages conflict with what placement coordinators and teachers claim. However, for the same class years respectively, 31, 25 and 29 percent of the graduates reported that they got their first full-time job through the assistance of some school source, i.e. teacher, counselor, principal, cooperative coordinator or school placement service. Most graduates still rely on parents, relatives and friends to help them get their first full-time job. About 22 percent claim they got their first job solely on the basis of their own efforts.

4. Vocational versus comprehensive schools. The percentage of graduates claimed placed by T&I instructors in vocational schools is greater than the percentage claimed placed by their counterparts in the comprehensive schools (54 versus 48 percent). The percentage of vocational graduates from vocational schools who reported that they obtained their first job through the help of a T&I teacher was greater than the equivalent percentage obtained from the comprehensive school.

Placement Activities

1. Use of placement services. The average percent of students claimed by coordinators to use the school placement services is about 54 percent. The equivalent percentage is 62 for vocational schools and 46 for comprehensive schools. The percentages claimed for individual schools vary from a low of 0 to a high of 100 percent.

2. Placement activities claimed. The percentage of placement coordinators who claimed each of the listed activities as a feature of their school's placement program is given at the right:

•Advise students on how to find jobs	94.8%
•Arrange employer interviews with students	92.2
•Find students jobs during the school year	89.7
•Contact state employment services	88.3
•Find summertime jobs for students	83.1
•Assist former graduates to find jobs	83.1
•Canvass local employers for job opportunities	80.5
•Follow-up surveys of graduates	76.6
•Review want-ads for job opportunities	72.2
•Speak to civic groups to promote placement	64.5
•Arrange post-high school apprenticeships	62.2
•Canvass nearby communities for job opportunities	60.3
•Canvass labor unions about job opportunities	43.8
•Coordinate cooperative training programs	28.8
•Contact private employment agencies	28.0
•Conduct public relations activities	25.0

3. Job opportunity information sources. The percentage of coordinators reporting the use of the listed, local job opportunity information sources was as follows:

• State employment security office	57.1%
• Contacts with local employers	44.3
• Reading want-ads	38.6
• Checking with community organizations	28.6
• Use of school advisory committees	7.2

Reported job opportunity sources of information for state-wide opportunities were state employment security services (71%), United States Department of Labor publications (22%) and state civil service literature (21%).

4. Placing the underachiever. Only 56 percent of the schools reported making any special efforts to place underachievers. The same schools that lacked any type of remedial programs for underachievers also made no special effort to place them into jobs.

5. Follow-up on graduates. Of the 79 schools with placement coordinators, only 40 percent reported that they contacted employers to check on how their vocational graduates were progressing. Vocational schools were more likely to make such contacts than comprehensive schools.

About 56 percent of the placement coordinators reported that their schools did follow-up studies on some regular basis, ranging from annually to every five years. Forty-four percent of the principals claimed their schools did follow-up surveys. Vocational schools were more likely to conduct graduate follow-up studies than comprehensive schools.

Placement Coordinator Recommendations

1. Evaluation of placement services. The placement coordinators rated their school placement services as follows: excellent (28%), good (36%), fair (27%) and poor (8%). Vocational schools received generally higher ratings.

The principals assessed placement services as follows: neither available nor needed (7%), not available but needed (14%), available but unsatisfactory (23%), and available and satisfactory (55%).

2. Placement coordinator recommendations. The six most frequently mentioned recommendations to improve placement services were:

• Establish full-time placement coordinator	56%
• Establish a centralized placement service	39
• Increase quantity/quality of employer contacts	26
• Provide teacher time for employer contacts	24
• Increase quantity/quality of follow-up surveys	22
• Strengthen school-community relationships	17

Placement Coordinators

1. Educational background. About 70 percent reported a college education. Of these, 64 percent had a master's degree, 19 percent had a bachelor's degree and the balance had no degree. The majority of the coordinators reported an education major in college.

2. Occupational experience. About 66 percent claimed some full-time non-school connected employment. About 52 percent had more than five years of such experience. However, about 34 percent had never been employed in occupations the same as or related to the occupations commonly associated with T&I programs.

3. Special training. The percentages of coordinators that listed special training related to or of use to placement work were as follows:

•Guidance/counseling course work	50%
•Public relations work experience	48
•T&I work experience	36
•Business education training	18
•Placement work experience	14

Vocational Outcome Relationships

1. Percentage of graduates reported placed by instructors. This variable correlated .40 and .45 respectively with the relatedness of the graduate's first and present job to course studied. Thus, the more graduates placed by the instructor, the greater the percentage of graduates that entered the field for which trained. This is a major study finding.

2. Rating of placement services. This variable correlated .50 and .39 respectively with the relatedness of the graduate's first and present job to course studied. The more favorable the rating, the greater the percentage of graduates that entered the field for which trained.

3. Other variables. No other placement program or placement coordinator variables were significantly related to vocational outcomes.

SOME TENATIVE RECOMMENDATIONS

Once again, the reader is reminded that recommendations made by researchers should always be regarded with caution if not suspicion. The researcher rarely has all the data to examine all facets of problems for which he is expected to generate recommendations. The purpose of the recommendations that follow is to focus attention on some key points and to stimulate discussion.

Course in Placement Services

Office of Education funds should be made available for the development of a graduate level course in school placement services. The basic concepts, principles and techniques involved are not new, but they do need to be set forth in ways that apply to school situations. To the writer's knowledge, this has not been done. Any such effort should tap the wealth of experience that now exists among placement coordinators. The end product should be a text and reference source that covers the fundamentals of school placement services.

Placement Service Workshops

States that are concerned with improving the effectiveness of their schools in placing graduates into the fields for which trained would do well to consider funding summer workshops for school placement coordinators. A sharing of experiences plus an introduction of new approaches would undoubtedly increase the capability of the placement coordinators. However, training alone is not the whole answer. The placement coordinator may feel somewhat like the farmer who responded to suggestions on how to improve his crops by pointing out that he didn't have time to do all that he already knew would improve his crops. Neverthless, state efforts should be expended to stimulate awareness and use of placement service techniques.

Placement Coordinators in all Schools

It is recommended that states make a special effort to stimulate all schools with reimbursable vocational programs to appoint a part-time placement coordinator, possibly with the thought of a reasonable minimum hours per month per 100 vocational students enrolled. The direct work of assisting students who will be looking for full-time work at the end of the school year, or before, as in the case of early leavers, probably still should be done by the vocational teachers. A coordinator, however, would be desirable to help plan, organize and control the individual teacher efforts.

An effective placement service is probably the lowest cost effort that schools can make to substantially increase their performance of placing graduates into their fields of training. The first step in that direction

is to have a trained placement coordinator in each school who will allot time to the position in some reasonable proportion to the problem.

Special Efforts for Underachievers

Much of the social unrest today involves the unemployed and underemployed who have had, for multiple reasons, a history of underachievement. It would probably be to the social good if schools made a special effort to help their underachievers find jobs for after graduation or course completion. A significant percentage of graduates appear to lack the combination of skills, knowledge and attitudes necessary to enter the field for which trained. How else is one to account for the finding that vocational teachers would recommend only 68 percent on an average of their graduates? These graduates--the ones who would not be recommended--include what may be called underachievers. They are not likely to pursue any further formal education. They need jobs to fit their capabilities. About 44 percent of the schools in this study reported no special effort was made to place such graduates. One coordinator wrote that "time is better spent on other students who have better employment potential." Unfortunately, that attitude seems widespread.

Schools have a responsibility to make special efforts to identify and place their underachievers. They are not without responsibility for the end-product that they turn out. Perhaps the first step toward such special efforts is the establishment of work experience programs for the underachiever while he is still in school. Presently, cooperative programs tap the best students. What is needed is a type of cooperative program that will tap the underachiever to get him started toward becoming a self-supporting adult.

Better School-employer Contacts

Private trade schools have recognized for years that, to exist, they must place their graduates, and to place their graduates they must maintain close relationships with potential employers in the communities they serve. Most public vocational schools do not do an adequate job of maintaining close contacts with community employers. Interaction is sporadic, unorganized and unplanned from a school-wide approach. There are exceptions, true. But the exceptions are the small minority, and are more likely to be the vocational than the comprehensive school.

The specific recommendation is that school principals or school district superintendents require an organized program of employer contacts and school-employer interactions to develop closer relationships with community employers. Such contacts should be made to achieve specific objectives, i.e. assess present and future job opportunities, check on the progress of recent graduates, place graduates who meet a particular employer's requirements, initiate or enlarge cooperative programs, assess employer needs in terms of craft skills and knowledge required, solicit recommendations for improvement of vocational offerings, lay the groundwork for placement of underachievers, and other practical objectives. Very clearly, something more is required than the kind of social visits which presently constitute employer contacts in many schools. The nature and method of contact, e.g. individual, group, personal, phone, mail, etc. must be geared to the objective that is to be served at the time.

Vocational Graduate Follow-up Surveys

Presently, only 19 percent of the schools with three or more T&I courses conduct follow-up surveys of their vocational graduates. The estimate is based upon data provided by this study.

Both short and long-term surveys are recommended. The short-term survey primarily attempts to establish full-time employment data related to the vocational graduate's first job. The long-term survey primarily attempts to establish employment data related to the graduate's present job after a specified number of years out of school. Follow-up surveys should be supervised by the school's part-time placement coordinator and the results reported to the administrator in charge of the vocational programs.

No school with a vocational program, excluding general home economics, should be without an annual graduate follow-up procedure. Properly designed, a mail follow-up procedure is a low-cost, low-effort tool for providing a continuous reading on the effectiveness of the school's vocational programs in placing its graduates in their field. To provide schools with the how-to-do-it information on the what, why, how and when of follow-up procedures, the U. S. Office of Education should support the development of a manual that will serve as a reference source to those who wish to conduct such surveys or to improve their present surveys. Elaborate research surveys, such as undertaken by the present study, are neither necessary nor recommended.

Teacher Time and Expense Remuneration

Schools that require or expect vocational teachers to contact employers for various objectives should remunerate the time and expense required. Numerous teachers were critical of circumstances which require them to subsidize the school's relationship with the employer community. If such contacts are to be expanded to accomplish closer school-employer relationships, it seems reasonable that teachers be remunerated in some way for their overtime and their out-of-pocket expenses. By doing so, the schools will eliminate much of the resistance that many teachers expressed toward such contacts.

Incentives for Placement

There is a need to apply suitable incentives for vocational teachers to increase their efforts to place their graduates into their field of study. The majority are capable of much greater effort to place their graduates than they are now expending. Given appropriate incentives, the necessary greater placement effort can be achieved.

The nature of the incentives may be various. One does not necessarily have to think of monetary incentives, although the latter should not be excluded from consideration. Some of the most effective incentives are psychological. Consider the potential, for example only, of a certificate of recognition awarded annually to the teacher with the best two-year placement performance record by appropriate state level authority. The issue is not the type of incentive. It is the concept of incentive which, one might add, has scarcely existed in education. A plant manager who achieves

an outstanding production performance is given a bonus for his accomplishment. Where is the equivalent in education? What school principal has been given a bonus for a record improvement in school holding power? The question does not imply a recommendation; it implies a concept that needs thought and discussion. Education has a tendency to call upon the dedication to its personnel, particularly the dedication of its teachers, when extraordinary effort is required. Perhaps dedication is not sufficient. Perhaps realistic incentives need consideration.

Stimulate Teacher Placement Efforts

Although teachers may have slightly exaggerated their role in terms of numbers of graduates placed, there is no questioning their importance in improving the percentage of graduates placed into their fields of study. Table 19 provides comparative data on vocational graduates whose first and present jobs were in their field of study versus graduates whose first and present jobs were out of their field of study.

For all three graduating classes, from the boom year of 1953 through the recession year of 1958 on to the recovery year of 1963, the graduates who entered and stayed in occupations related to their field of study acknowledged the help of a school teacher in obtaining their first job in much greater percentages than did those who entered and stayed with occupations unrelated to their field of study. Notice the comparisons for the other sources of school placement help. School counselors, school principals, school placement services and school cooperative programs--without exception, a greater percentage of the "in" graduates than "out" graduates acknowledged these school sources. In contrast, the "out" graduates, i.e. those who never entered occupations related to their field of study, acknowledged the help of non-school sources, particularly the help of relatives and friends.

The data suggests that the school sources of placement help, particularly the shop instructors, place a much greater percentage of graduates into occupations related to their fields of study than do the non-school sources of placement help. About 70 percent of the 1962 "in" graduates acknowledged a school source of assistance in obtaining their first full-time job. Only 18 percent of the "out" graduates acknowledged a school source of help. The data is a strong argument for more vigorous school placement efforts. Special efforts should be made to stimulate T&I teachers to place their graduates for the simple reason that teachers seem to be the best single source of placing their graduates into the fields studied.

Improve the Quality of the Products

There is good reason to believe that a marginal product (graduate) is responsible for much of the non-placement of graduates into the fields for which trained. We saw earlier that T&I instructors indicated that only 68 percent of their graduates were "recommendable" for entry into the occupation studied (p. 5-50). We also saw that the graduates who entered occupations related to their field of training had much better shop grades than those who entered unrelated occupations (p. 3-17). We also see by Table 19 that those who entered and stayed with occupations in the field

TABLE 19. METHODS USED BY GRADUATES TO GET THE FIRST FULL-TIME JOB BASED ON RELATEDNESS OF JOB TO TRAINING

METHODS USED TO GET FIRST FULL-TIME JOB		YEAR OF GRADUATION					
		1953		1958		1962	
		N	%	N	%	N	%
Answer want-ad	IN	13	5.1	18	5.1	40	6.9
	OUT	36	10.1	38	7.8	52	7.4
Private employment agency	IN	0	0.0	5	1.4	6	1.0
	OUT	4	1.1	13	2.7	20	2.8
State employment agency	IN	7	2.7	11	3.1	20	3.4
	OUT	12	3.4	29	6.0	55	7.8
Help of school teacher	IN	81	31.8	105	29.9	204	35.1
	OUT	17	4.8	21	4.4	48	6.8
Help of school counselor	IN	19	7.4	20	5.7	57	9.8
	OUT	8	2.2	14	2.9	31	4.4
Help of school principal	IN	16	6.3	11	3.1	46	7.9
	OUT	2	0.6	6	1.2	7	1.0
Help of school placement service	IN	61	23.8	46	13.0	82	14.1
	OUT	16	4.5	11	2.3	23	3.3
Help of relative or friend	IN	55	21.5	96	27.2	128	22.0
	OUT	172	48.3	229	47.0	359	51.1
Through school coop program	IN	48	18.8	54	15.3	75	12.9
	OUT	11	3.1	14	2.9	20	2.9
Other than above	IN	42	16.4	73	20.7	104	17.8
	OUT	94	26.4	153	31.4	146	20.8

for which trained acknowledged the placement help of their teachers more than any other single source. What is happening? The data strongly suggests, but does not prove, that teachers are making an effort (and succeeding) to place their "recommendable" graduates into the field of study, but they are not making the same effort to place their non-recommendable graduates. In short, the implication is that the school sources are not getting behind the latter students, with the result that they are forced to rely on non-school sources to find their first job. This is not the total story, of course. Also, it is by no means a proven explanation. It is more of a reading between the lines of the data. It needs verification.

Nevertheless, proven or not, this interpretation has a very supportable implication: Schools can increase the percentage of graduates placed into occupations for which trained by increasing their percentage of "recommendable" graduates.

11 SCHOOL ADMINISTRATION AND RELATED DATA

CHARACTERISTICS OF THE ADMINISTRATOR

Introduction

In the industrial world, it is recognized that the key to attaining objectives lies at the top of the management pyramid, not at the bottom. This is not to say that lower levels of the industrial management are unimportant in moving the organizations toward their goals. Obviously, such goals can not be reached without the division of responsibility and authority that characterizes modern industrial management. The same is probably true for e. . ional organization. The top officials and administrators are the key to the attainment of educational objectives, precisely because they are in a position to initiate the broad planning, organizing, leading and controlling that ar necessary to manage the educational enterprise.

The present study takes a quick and superficial look at the school principals. A much more intensive look is necessary.

The School Administrator

● How long has he been with the school in any capacity? Table 1 provides the data.

The average principal has been with his school 13.8 years in some capacity. About 21 per-ent have been with their school more than 20 years, and 21 percent have been with their school less than five years. Thus, a wide range of experience with their schools is represented among the principals. The majority, as the saying goes, have been around for a long time. And the vocational school heads have been with their schools even longer than the heads of comprehensive schools.

● How long has he been a principal at the present school? Table 2 provides the data.

The average principal has been in his present position 9.0 years. Again, the range is considerable. About 41 percent have been in their present position less than five years, whereas 18 percent had better than fifteen years in their present position. The reader is reminded not to jump to conclusions. There is no conclusive evidence that the effectiveness of school heads either decreases or increases with years at the job.

There is no substantial difference between vocational and comprehensive school principals in terms of years in present position.

● How many years of prior administrative experience do the school principals report?

The average school principal claimed 10.1 years of school administrative experience of one kind or another before becoming a principal. (See Appendix Section 11 for the distribution data.) Comprehensive school

TABLE 1. DISTRIBUTION OF YEARS PRINCIPALS HAVE BEEN AT PRESENT SCHOOL

YEARS AT PRESENT SCHOOL	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
41 - 45	1	1.0	1	2.1	0	0.0
36 - 40	2	2.1	1	2.1	1	2.0
31 - 35	1	1.0	1	2.1	0	0.0
26 - 30	8	8.3	3	6.4	5	10.2
21 - 25	9	9.3	4	8.5	5	10.2
16 - 20	18	18.7	12	25.5	6	12.2
11 - 15	16	16.7	7	14.9	9	18.4
6 - 10	21	22.0	9	19.2	12	24.5
1 - 5	20	20.8	9	19.2	11	22.4
NUMBER	96		47		49	
MEAN	13.8		14.9		12.8	
MEDIAN	12		15		11	
S.D.	9.3		9.8		8.8	

TABLE 2. DISTRIBUTION OF YEARS PRINCIPALS HAVE BEEN IN THEIR PRESENT POSITIONS

YEARS IN PRESENT POSITION	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
36 - 40	1	1.0	0	0.0	1	2.0
31 - 35	0	0.0	0	0.0	0	0.0
26 - 30	2	2.1	1	2.1	1	2.0
21 - 25	4	4.2	1	2.1	3	6.1
16 - 20	10	10.3	8	16.7	2	4.1
11 - 15	19	19.6	8	16.7	11	22.5
6 - 10	21	21.7	10	20.8	11	22.5
1 - 5	40	41.3	20	41.6	20	40.8
NUMBER	97		48		49	
MEAN	9.0		8.9		9.1	
MEDIAN	8		7		8	
S.D.	7.2		6.7		7.8	

principals reported 12.2 years of prior administrative experience in contrast with 7.8 years for vocational principals.

About 15 percent of the principals reported that they had had no previous school administrative experience before assuming their present position. They went directly from teaching or from a non-school occupation to the principalship. Considering the administrative and managerial skills needed by the position, the percentage seems excessively high. While one can not say that these men were inadequate as principals, one can be concerned for their lack of preparatory training and experience.

Those who did claim previous school administrative experience reported an impressive array of positions held. The latter are shown below together with the percentage of principals who reported such experience and the average years of such experience claimed for each position shown.

• Prior principalship	43.4%	7.2 Yrs.
• Assistant principal	42.2	5.7
• Head teacher	6.0	5.8
• Counselor	2.4	10.5
• Curriculum supervisor	3.6	7.7
• Cooperative coordinator	8.4	5.0
• Placement coordinator	1.2	11.0
• Vo-ed director	1.2	8.0
• Adult education director	7.2	3.7
• Other than above	12.0	6.6

• What has been their teaching experience? How many years has it been since their last teaching assignment?

As might be expected, all have been teachers at one time. About 67 percent never taught a vocational or vocationally-related subject. This was the case for 94 percent of the comprehensive school principals and for 41 percent of the vocational school principals.

About 14 percent reported that their teaching experience was solely in vocational subjects. Twelve of these principals were in vocational schools. About 18 percent claimed they had teaching experience in both academic and vocational subjects. Seventeen of these principals were in vocational schools.

Two points warrant emphasis: (1) Only a very small percentage of comprehensive school principals have ever taught a vocational subject. (2) A very substantial 41 percent of the vocational school principals have also never taught a vocational or vocationally-related subject.

Those who reported teaching only academic subjects usually taught more than one subject. In order of frequency reported by the principals, the subjects taught were mathematics (58%), social studies (49%), science (40%) and English (21%). The predominance of mathematics teaching experience is interesting. This experience was even more predominant among the vocational school principals who had taught only academic subjects. About 85 percent had taught mathematics.

The last teaching assignment held by the average principal was a long 13.7 years ago. It was less than five years for 15 percent of the principals and more than twenty years for 16 percent of the principals. The vocational school principals were a little closer to the last teaching assignment, but not by much (12.5 vs. 14.8 years).

• How much non-school occupational experience have principals had? How much direct experience have they had with the world of work outside of schools?

The average principal had 6.1 years of such experience. However, the mean value is deceptive. About 21 percent had no such experience. They had never worked full-time in a non-school situation.

Vocational and comprehensive school principals reveal a substantial difference on this point. The former report 8.7 years of such experience in contrast to the latter's 3.2 years of non-school employment experience. Only 6.2 percent of the vocational school principals reported no such experience, whereas 36.2 percent of the comprehensive school principals had never had full-time employment in a non-school situation.

Among the non-school employment positions reported by principals were the following: printer, bookkeeper, carpenter, auto service manager, draftsman, mechanical engineer, electrical engineer, machinist, plant superintendent, civil engineer, laboratory technician, manufacturing supervisor, watch repairman, electrician and retail store manager. The majority of the principals have had considerable employment experience outside of schools, and much of that experience related directly or indirectly to the T&I field.

It remains to be demonstrated that, other factors equal, principals who have worked in a variety of non-school employment situations are better in any measurable way that affects vocational education than those who have never been employed outside of a school environment. However, such principals may have greater empathy for the vocational student and a better understanding of the world of work outside of school.

PROBLEMS REPORTED BY SCHOOL HEADS

The problems principals associate with vocational education in their schools and the attitudes they perceive in their school boards or school superintendents are of particular interest because the principals hold a key position in affecting changes in vocational education. It is true that they operate within a framework of limitations. They can not get too far ahead of the attitudes and beliefs of their school boards and superintendents. However, the more energetic ones will push hard for the improvements they deem essential. Hence, it is of interest to see what they regard as the problems.

Problems Related to Vocational Education as Seen by Principals

The principals of the schools were asked to react to a list of possible problems related to their vocational programs by indicating for each item that it was no problem, a minor problem or a major problem. The purpose was to assess what principals regarded as a major problem, defined as one that adversely influenced the quality of vocational education in their schools. Table 3 provides the data.

According to the principals, the top six major problems adversely influencing the quality of vocational education in their schools were as follows:

• Lack of qualified teacher replacements	31%
• Low level teacher salaries	24
• "Dumping ground" reputation of vocational programs	21
• Poor quality vocational students	20
• Shops in need of rehabilitation	19
• Inadequate student counseling	18

The six items least considered to be a major problem were:

• Insufficient vocational students	9%
• Low job opportunity for graduates	7
• Poorly qualified vocational teachers	7
• Unfavorable student-teacher ratio	6
• School board disinterest in vocational education	5
• Teacher turnover	2

The one item that received the highest acknowledgement as being no problem was school board disinterest in vocational education. About 77 percent of the principals felt this was not a problem for them. One is inclined to wonder about the correctness of that assessment. Other items reported as no problem by a majority of the principals included:

TABLE 3. TYPE OF PROBLEMS IN VOCATIONAL EDUCATION REPORTED BY PRINCIPALS

TYPE OF PROBLEMS THAT PRINCIPALS REPORTED IN VOCATIONAL EDUCATION		UNITED STATES SAMPLE		TYPE OF SCHOOL			
				VOCATIONAL		COMPREHENSIVE	
		N	%	N	%	N	%
Insufficient shop materials and supplies	No	58	64.4	30	63.8	28	65.1
	Minor	23	25.6	14	29.8	9	20.9
	Major	9	10.0	3	6.4	6	14.0
Obsolescent or obsolete shop equipment	No	27	30.0	13	27.1	14	33.3
	Minor	48	53.3	25	52.1	23	54.8
	Major	15	16.7	10	20.8	5	11.9
Shops in need of major rehabilitation	No	41	45.1	19	39.6	22	51.2
	Minor	33	36.3	18	37.5	15	34.9
	Major	17	18.7	11	22.9	6	14.0
Shop equipment in need of major repairs	No	50	54.9	25	52.1	25	58.1
	Minor	32	35.2	18	37.5	14	32.6
	Major	9	9.9	5	10.4	4	9.3
Low-level teacher salaries	No	36	39.6	17	35.4	19	44.2
	Minor	33	36.3	17	35.4	16	37.2
	Major	22	24.2	14	29.2	8	18.6
Lack of qualified teacher replacement	No	29	33.0	11	23.9	18	42.9
	Minor	32	36.4	16	34.8	16	38.1
	Major	27	30.7	19	41.3	8	19.0
Too few students to maintain vocational courses	No	50	55.6	30	63.8	20	46.5
	Minor	32	35.6	13	27.7	19	44.2
	Major	8	8.9	4	8.5	4	9.3
High rate of teacher turnover	No	67	75.3	37	78.7	30	71.4
	Minor	20	22.5	9	19.1	11	26.2
	Major	2	2.2	1	2.1	1	2.4
"Dumping ground" reputation of vocational programs	No	23	25.6	10	21.3	13	30.2
	Minor	48	53.3	27	57.4	21	48.8
	Major	19	21.1	10	21.3	9	20.9
Inadequate student counseling services	No	37	42.0	19	41.3	18	42.9
	Minor	35	39.8	15	32.6	20	47.6
	Major	16	18.2	12	26.1	4	9.5

TABLE 3. (CONT.) TYPE OF PROBLEMS IN VOCATIONAL EDUCATION REPORTED BY PRINCIPALS

TYPE OF PROBLEMS THAT PRINCIPALS REPORTED IN VOCATIONAL EDUCATION		UNITED STATES SAMPLE		TYPE OF SCHOOL			
				VOCATIONAL		COMPREHENSIVE	
		N	%	N	%	N	%
Too many students for available facilities	No	42	47.7	18	38.3	24	58.5
	Minor	34	38.6	22	46.8	12	29.3
	Major	12	13.6	7	14.9	5	12.2
Lack of job opportunity for vocational graduates	No	49	54.4	28	59.6	21	48.8
	Minor	35	38.9	17	36.2	18	41.9
	Major	6	6.7	2	4.3	4	9.3
Community disinterest in vocational programs	No	47	52.8	25	53.2	22	52.4
	Minor	29	32.6	15	31.9	14	33.3
	Major	13	14.6	7	14.9	6	14.3
Insufficient vocational administrative assistance	No	55	62.5	25	53.2	30	73.2
	Minor	24	27.3	15	31.9	9	22.0
	Major	9	10.2	7	14.9	2	4.9
Poorly qualified vocational teachers	No	59	66.3	31	66.0	28	66.7
	Minor	24	27.0	13	27.7	11	26.2
	Major	6	6.7	3	6.4	3	7.1
School board disinterest in vocational education	No	68	77.3	33	71.7	35	83.3
	Minor	16	18.2	11	23.9	5	11.9
	Major	4	4.5	2	4.3	2	4.8
Unfavorable student-teacher ratio	No	66	75.0	32	69.6	34	81.0
	Minor	17	19.3	10	21.7	7	16.7
	Major	5	5.7	4	8.7	1	2.4
Generally poor appearance of school plant	No	59	66.3	30	63.8	29	69.0
	Minor	21	23.6	12	25.5	9	21.4
	Major	9	10.1	5	10.6	4	9.5
Poor quality students in vocational education	No	28	31.5	15	31.9	13	31.0
	Minor	43	48.3	23	48.9	20	47.6
	Major	18	20.2	9	19.1	9	21.4
Drop-out ratio in male vocational courses	No	41	46.1	20	42.6	21	50.0
	Minor	37	41.6	20	42.6	17	40.5
	Major	11	12.4	7	14.9	4	9.5

- Teacher turnover 75%
- Poor student-teacher ratios 75
- Poor school appearance 66
- Poor vocational teachers 66
- Insufficient administrative help 63
- Insufficient vocational students 56
- Need for shop equipment repairs 55
- Low job opportunity for graduates 54
- Community disinterest in vocational education 53

A substantially greater percentage of vocational than comprehensive school principals regarded the following as major problems:

- Obsolescent shop equipment (21 vs. 12%)
- Major shop rehabilitation needed (23 vs. 14%)
- Low-level teacher salaries (29 vs. 18%)
- No qualified teacher replacements (41 vs. 19%)
- Inadequate counseling services (26 vs. 9%)

For no item did a substantially greater percentage of comprehensive than vocational school principals report a major problem. Possibly, the comprehensive schools have fewer major problems which adversely affect their vocational programs. Possibly, the vocational school principals are more concerned with vocational education. The reader may draw his own conclusions.

The data contains a puzzling contradiction in one problem area. Almost a third of the principals report lack of qualified teacher replacements as a major problem. However, 75 percent report that vocational teacher turnover is no problem. Only 2 percent claimed vocational teacher turnover was a major problem.

School Board Attitudes Toward Vocational Education

The principals rated the attitudes of their school boards toward vocational education according to the following categories:

- Highly favorable; trying to build up vocational education
- Favorable; but active support sometimes lacking
- Neither favorable nor unfavorable; largely uncommitted
- Unfavorable; inclined to tolerate status quo in vocational education
- Highly unfavorable; trying to reduce scope of vocational education

Table 4 provides the response data. This type of data is a poor substitute for what should be done to assess school board attitudes toward various aspects of vocational education. One should contact the school board and school district superintendent directly to assess their attitudes. What we are talking about here is how principals perceive the attitudes of their school boards, reported under a condition which may have dampened any tendency to be critical.

TABLE 4. ATTITUDE OF SCHOOL BOARD TOWARD VOCATIONAL EDUCATION AS REPORTED BY PRINCIPALS

PRINCIPAL'S PERCEPTION OF SCHOOL BOARD ATTITUDE TOWARD VOCATIONAL EDUCATION	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Highly favorable; trying to build up vocational education	54	59.3	29	63.0	25	55.6
Favorable; but active support sometimes lacking	32	35.2	12	26.1	20	44.4
Neither favorable nor unfavorable; largely uncommitted	3	3.3	3	6.5	0	0.0
Unfavorable; inclined to tolerate status quo in vocational education	2	2.2	2	4.3	0	0.0
NUMBER	91		46		45	
MEAN RATING *	3.52		3.48		3.56	
S.D.	3.60		3.61		3.63	

* 1-Unfavorable, 2-Neither favorable nor unfavorable, 3-Favorable, 4-Highly favorable

The majority of principals (59%) rated their school boards as highly favorable to vocational education, that is, trying to build up vocational education. About 35 percent reported that their school boards were generally favorable to vocational education, but sometimes failed to provide active support. Only 5 percent reported that their school boards were either uncommitted or unfavorable.

The principals were asked to state what problems they had with their school boards that related to vocational education. The following excerpts are listed to convey the kinds of problems reported by principals: "all head men in system are academic--view vocational education as one part 'not as important' as the others"; "normal problem of finances"; "decisions made get deferred"; "wasn't sure until last year that board knew whether vocational education existed"; "equipment needs are not being adequately met"; "city can not find properly qualified teachers--accepts provisionally qualified"; "vocational teachers did not get the raise other teachers received"; "district is short of funds, therefore the superintendent is unwilling to support vocational department requests".

Lest the reader get the impression that all was negative, here are some further excerpts in a different vein: "seven new courses added in last four years"; "school board understands purpose of vocational education--working to improve the image of the vocational education institution"; "excellent cooperation--anticipate new area vocational school"; "they have expressed a consistently positive interest in vocational education--an interest in the non-college bound".

ADVISORY COMMITTEES AND COMMUNITY RELATIONS

General and craft advisory committees are an important potential communication link between industry and the schools offering vocational programs. This section examines the extent to which such committees are used and how they are reported to be helpful to the schools.

General Advisory Committees

The general T&I program advisory committee consists of community and school representatives that meet periodically to take up vocational program problems that would benefit from the thinking and help of outside school sources.

• To what extent are general advisory committees available in the schools? What is their membership composition? How often do they meet? In what ways have they been helpful to the vocational programs? How do principals rate such committees in terms of overall value to school vocational programs? Table 5 provides the data.

Only 35 percent of the schools had a general vocational program advisory committee. Twenty-seven percent of the schools claimed that they planned to establish such a committee. How much of the latter is firm plan, as opposed to easily expressed hope, remains unknown. It should be pointed out that 28 percent of the schools that did not have a general advisory committee did have craft advisory committees which could in many ways act in the same capacity. However, that still left 35 percent of the schools surveyed without either type of advisory committee.

All occupational levels are represented among general advisory committees. Included are professional persons, proprietors, managers, supervisors, skilled craftsmen and representatives of community organizations. The percentages of committees in which each such classification is represented are shown in Table 5. Clearly, a wide divergence of interests are being tapped for a common purpose, the improvement of local vocational education. The composition of these committees also emphasizes the potential value of the general advisory committee as a communication media with the community.

The frequency of meetings ranges from once a month to once a year, with about one-third meeting on an irregular basis. About one-fifth of the committees meets monthly, another fifth meets quarterly and still another fifth meets semi-annually.

The general advisory committees were reported to be helpful in a number of ways. The three most frequently mentioned ways were: advices on curriculum changes (78%), promoting school-community relationships (77%) and helping to place graduates into jobs (68%). How well the committees did any

TABLE 5. COMPARATIVE DATA ON GENERAL ADVISORY COMMITTEES IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

GENERAL ADVISORY COMMITTEES	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
AVAILABILITY OF GENERAL ADVISORY COMMITTEE	34	35.4	19	38.0	15	32.6
COMPOSITION OF COMMITTEE						
Professional	30	55.2	17	50.0	13	61.5
Semi-professional	30	53.3	17	37.5	13	71.4
Proprietor, manufacturing company	30	70.0	17	68.7	13	71.4
Proprietor, service company	30	56.7	17	68.7	13	42.9
Proprietor, retail company	30	40.0	17	31.5	13	42.9
Manager or administrator	30	70.0	17	75.0	13	64.3
Representatives of community organizations	30	63.3	17	68.7	13	57.1
Supervisor or foreman	30	51.7	17	43.7	13	61.5
Skilled craftsman	30	58.6	17	50.0	13	69.2
FREQUENCY OF MEETINGS						
Monthly	6	18.2	3	15.8	3	21.4
Quarterly	7	21.2	3	15.8	4	28.6
Semi-annually	7	21.2	3	15.8	4	28.6
Annually	3	9.1	3	15.8	0	0.0
Other than above	10	30.3	7	36.8	3	21.4
HELPFULNESS OF COMMITTEE						
Advice on curriculum changes	25	78.1	13	72.2	12	85.7
Promoting school-community relations	24	77.4	13	72.2	11	84.6
Placement of graduates in jobs	22	68.8	13	72.2	9	64.3
Procurement of supplies and equipment	16	50.0	9	50.0	7	50.0
Conducting employment opportunity surveys	13	40.6	5	27.8	8	57.1
Aid in teacher recruitment	10	31.3	5	27.8	5	35.7
Enlisting employers for coop program	9	28.1	3	16.7	6	42.9
Standards for completion certificates	5	15.6	3	16.7	2	14.3
Advice on teacher qualifications	2	6.3	2	11.1	0	0.0
Other than above	6	19.4	4	22.2	2	15.4
RATED VALUE TO SCHOOL						
Great value	19	59.4	12	66.7	7	46.7
Some value	12	37.5	5	33.3	7	46.7
Doubtful value	1	3.1	0	0.0	1	6.6
PLANS FOR ESTABLISHING COMMITTEE	26	27.1	9	18.0	17	37.0

of these things is not the issue here. The point is that the principals report that the committees are helpful in these specific ways. It would seem that such committees return a very adequate dividend for the time and effort invested. About 60 percent of the principals who had such committees reported them to be of great value to their schools. Thirty-seven percent said such committees were of some value. Only one principal claimed his general advisory committee was of doubtful value.

Craft Advisory Committees

The craft advisory committee consists of craft and school representatives that meet periodically to take up the problems related to their field that would benefit from the thinking of those active in the given craft.

• To what extent are craft advisory committees available in the schools?

Fifty-four percent of the schools surveyed reported the use of craft advisory committees for some, not necessarily all, of their T&I course offerings. About 67 percent of the vocational schools claimed to have such committees in contrast with 40 percent of the comprehensive schools. The vocational schools also had a greater percentage of their course offerings covered by a craft advisory committee than did the comprehensive schools.

Of the 715 T&I courses offered by the 100 schools surveyed, only 240 or 33.6 percent were covered by a craft advisory committee. It is clear that the concept of a craft advisory committee lacks even majority acceptance in T&I vocational education. Such massive non-acceptance must have its reasons. What are they?

• To what extent were the ten most frequently offered T&I courses covered by a craft advisory committee? Table 6 provides the data.

The percentages of courses offered that were covered by a craft advisory committee ranged from a low of 16 percent for mill and cabinetry courses to a high of 68 percent for carpentry courses. Of the ten most frequently offered courses, only carpentry had better than 50 percent craft advisory committee coverage.

Some of the less frequently offered courses which had a high percentage of craft committee coverage included:

• Painting and decorating	87%
• Plumbing	76
• Upholstering	75
• Airplane mechanics	54

TABLE 6. COURSES REPORTING AVAILABILITY OF CRAFT ADVISORY COMMITTEES

TYPE OF CRAFT ADVISORY COMMITTEE REPORTED	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Auto mechanics	25	28.7	17	37.0	8	19.5
Machine shop	23	30.3	16	38.0	7	20.6
Drafting	14	24.1	10	30.3	4	16.0
Electricity	19	34.5	15	41.7	4	21.0
Printing	17	34.7	12	48.0	5	20.8
Mill and cabinetry	7	15.9	7	30.4	0	0.0
Electronics	14	32.6	11	39.3	3	20.0
Welding	10	32.2	9	34.6	1	20.0
Sheet metal	14	48.3	11	52.4	3	37.5
Carpentry	17	68.0	12	92.3	5	41.7

●How frequently do craft advisory committees meet? Table 7 provides the data.

Frequency of meetings varied widely even within schools. Hence, it is not possible to report frequency of meeting by school. For the 240 craft committees on which meeting frequency data was obtained, 24 percent met on no regular schedule. Their frequency of meeting was determined by the current problem under consideration or by an "as needed" basis.

TABLE 7. FREQUENCY OF CRAFT ADVISORY COMMITTEE MEETINGS IN VOCATIONAL AND COMPREHENSIVE SCHOOLS

FREQUENCY OF COMMITTEE MEETINGS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Monthly	57	23.7	44	23.5	13	24.5
Quarterly	57	23.7	36	19.2	21	39.6
Semi-annually	21	8.8	17	9.1	4	7.6
Annually	47	19.6	45	24.1	2	3.8
Other than above	58	24.2	45	24.1	13	24.5

About 20 percent met once a year. One may question how much value a school gets from a committee that meets so infrequently. It seems hardly likely that the committee members can develop a working relationship, much less consider the variety of problems that this type of committee can address itself to when there is a determination to do so.

At the other extreme, 24 percent met once a month and another 24 percent met once every three months. Thus, 48 percent of the committees met with sufficient frequency to merit being considered an active committee.

The much smaller number of such committees in comprehensive schools (53 vs. 187) suggests caution in drawing conclusions about the meeting frequencies of craft advisory committees in the two schools.

• In what specific ways are craft committees reported to be helpful? Table 8 provides the data.

The items are ranked in the table according to the percentage of principals who reported that the craft committees were helpful in the ways indicated in Table 8. The differences among the percentages suggest that considerable thought was given to the individual items.

The three major ways that craft committees are regarded as useful are: assisting in the placement of students (84%), assisting in the planning of course content (82%) and providing craft information to students (74%).

TABLE 8. WAYS CRAFT ADVISORY COMMITTEES HAVE HELPED SCHOOLS AS REPORTED BY SCHOOL ADMINISTRATORS

SPECIFIC WAYS CRAFT COMMITTEES HAVE HELPED AS REPORTED BY SCHOOL ADMINISTRATORS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Assisting in placement of students	43	84.3	26	78.8	17	94.4
Assisting in the planning of course outlines	42	82.4	28	84.8	14	77.8
Providing craft information to students	38	74.5	21	63.6	17	94.4
Suggest ways to improve instructional program	33	64.7	24	72.7	9	50.0
Assisting in planning shop layout	26	51.0	19	57.6	7	38.9
Criteria for selection of students	26	51.0	17	51.5	9	50.0
Obtaining donations of equipment, tools, etc.	25	49.0	14	42.4	11	61.1
Arranging for plant and field trips	25	49.0	14	42.4	11	61.1
Aiding in teacher recruitment	19	37.3	10	30.3	9	50.0
Making community employment surveys	17	33.3	7	21.2	10	55.5
Enlisting employers for coop program	16	31.4	9	27.3	7	38.9
Establish standards for completing certification	13	25.5	8	24.2	5	27.8
Soliciting financial support	10	19.6	6	18.2	4	22.2
Aid in establishment of teacher qualifications	2	3.9	2	6.1	0	0.0
Other than above	7	13.7	3	9.1	4	22.2

The percentages represent the opinions of principals. The study can not report how well they correspond with reality. However, even if one makes allowances for some possible exaggeration of the helpfulness of such committees, the major message that comes through from the data is that there is much to be gained by the establishment and intelligent use of craft advisory committees. There is no doubt that a large number of such committees are merely formalities. One principal wrote on the questionnaire that he planned to add craft committees next year, but only in response to a request by the state director and that it would only be a "perfunctory committee". Such attitudes are probably not uncommon, particularly where the craft committee is seen as a source of potential interference or criticism. The fact remains that most principals who have such committees consider them to be useful instruments for improving vocational education.

The greater use of such committees in vocational schools shows once again that these schools, in contrast to comprehensive schools, are more in the mainstream of vocational education.

Methods Used to Promote Community Relations

Principals were asked to indicate which of a list of types of community relations methods were used by their schools. Table 9 provides the data.

TABLE 9. COMMUNITY RELATIONS ACTIVITIES EMPLOYED AS REPORTED BY PRINCIPALS

COMMUNITY RELATIONS ACTIVITIES EMPLOYED BY SCHOOLS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Articles in local newspapers about programs	94	95.9	48	98.0	46	93.9
Evening adult education program	85	86.7	43	87.8	42	85.7
Student visits to industrial organizations	85	86.7	42	85.7	43	87.8
Community open-house week	71	82.7	38	77.6	43	87.8
School facilities available to local groups	76	79.6	36	73.5	42	85.7
School paper and publications	75	76.5	31	63.3	44	89.8
Cooperative education programs	73	64.3	28	57.1	35	71.4
Radio and/or television programs	62	63.9	30	61.2	32	65.3
Craft advisory committees	62	63.3	35	71.4	27	55.1
Parent-teacher association	55	56.1	20	40.8	35	71.4
Program of talks to community organizations	47	48.0	21	42.8	26	53.1
Business-industry education day	45	45.9	23	46.9	22	44.9
General advisory committees	41	41.8	22	44.9	19	38.8
Exhibits of vocational shop products	41	41.8	22	44.9	19	38.8
Program of regular employer contacts	39	39.8	23	46.9	16	32.6
Program of invitation speakers	36	36.4	21	42.8	15	30.6
Community relations committees	13	13.3	7	14.3	6	12.2

Only 13 percent of the schools reported a community relations committee. Nevertheless, the schools seem to be well aware of the desirability for close community relationships, if one judges from their activities in this area. The majority of the schools were involved to some degree in most of the listed items. The unanswered question is that of how well these bridges to the community were being used. About 63 percent reported having craft advisory committees. How effectively were such committees used? About 83 percent had community open house programs. Who besides parents were being tapped for such programs? About 48 percent reported that talks were made to community organizations. How effective have such talks been in generating community support for vocational education? About 96 percent claim they try to get articles in local newspapers. How often do these articles tell the story of vocational education? These are some of the unanswered questions. Table 10 indicates the extent to which some of the recognized tools for establishing close community relations are used. The study has no data on how effectively these tools are being used to promote support for vocational education.

A substantially greater percentage of vocational schools report the use of:

- Craft advisory committees (71 vs. 55%)
- Regular employer contacts (47 vs. 33%)
- Invitation speakers (43 vs. 31%)

TABLE 10. COMMUNITY RELATIONS ACTIVITIES REPORTED TO BE PARTICULARLY EFFECTIVE BY USERS

COMMUNITY RELATIONS ACTIVITIES REPORTED TO BE PARTICULARLY EFFECTIVE BY USERS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Evening adult education program	39	39.8	25	51.0	14	28.6
Articles in local newspapers about programs	37	37.8	23	46.9	14	28.6
Community open-house week	27	27.6	13	26.5	14	28.6
Craft advisory committees	26	26.5	16	32.7	10	20.4
Student visits to industrial organizations	19	19.4	10	20.4	9	18.4
School facilities available to local groups	18	18.4	7	14.3	11	22.4
General advisory committee	15	15.3	9	18.4	6	12.2
Program of talks to community organizations	14	14.3	9	18.4	5	10.2
Business-industry education day	14	14.3	8	16.3	6	12.2
Cooperative education programs	13	13.3	8	16.3	5	10.2
Program of regular employer contacts	11	11.2	6	12.2	5	10.2
Radio and/or television programs	9	9.3	7	14.6	2	4.1
Exhibits of vocational shop products	9	9.2	4	8.2	5	10.2
School paper and publications	8	8.2	4	8.2	4	8.2
Parent-teacher association	8	8.2	2	4.1	6	12.2
Program of invitation speakers	5	5.1	2	4.1	3	6.1
Community relations committee	3	3.1	2	4.1	1	2.0

Similarly, a substantially greater percentage of comprehensive schools report use of:

- Talks to community organizations (53 vs. 43%)
- School publications (90 vs. 63%)
- Parent-teacher associations (71 vs. 41%)
- Local citizen use of school facilities (86 vs. 74%)

The following percentages of principals mentioned the listed activities as particularly effective in promoting community relations that would benefit vocational education.

- Adult evening education programs 40%
- Local newspaper articles 38
- Community open-house week 28
- Craft advisory committees 27
- Student visits to industry and business 19
- Availability of facilities to local groups 18

The percentages are the number of principals who felt the tools were particularly effective among all community relations methods used.

Not all schools are equally concerned with promoting community relations in the sense of using all available tools. Table 11 shows a distribution of the number of items listed in Table 9 which the schools claimed as a regular practice. The average school claimed to use 11.3 of the 17 listed methods for establishing community relations. However, about a third used less than nine of the methods. Quite possibly, there was some exaggeration at the upper end of the distribution. Such data, of course, does not tell anything about how effectively schools used the various methods to cement their community relations.

TABLE 11. NUMBER OF SCHOOL-COMMUNITY ACTIVITIES USED

NUMBER OF SCHOOL-COMMUNITY ACTIVITIES USED	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
16 - 17	11	11.8	4	8.5	7	15.2
14 - 15	7	7.5	6	12.8	1	2.2
12 - 13	24	25.8	11	23.4	13	28.3
10 - 11	22	23.7	11	23.4	11	23.9
8 - 9	21	22.6	10	21.3	11	23.9
6 - 7	4	4.3	1	2.1	3	6.5
4 - 5	4	4.3	4	8.5	0	0.0

ANOTHER LOOK AT TEACHER TURNOVER

About a third of the principals reported that lack of qualified teacher replacements was a major problem. The reference was to all teachers, not merely vocational teachers. However, 75 percent of the principals reported that teacher turnover was not a problem influencing the quality of vocational education. Moreover, earlier the principals reported on whether turnover had any effect on the quality of instruction: about 57 percent reported it had little or no effect; 17 percent claimed it had a beneficial instead of an adverse effect; 22 percent felt there was some adverse effect; and only 3 percent regarded their teacher turnover problem as having a seriously adverse effect upon quality instruction. Teacher turnover data would be more descriptive of the problem than the opinions of principals.

- What percent of the teachers leave school each year, and for what reasons? Table 12 provides the data.

TABLE 12. TEACHER TURNOVER PERCENTAGE AND REASONS FOR LEAVING SCHOOLS

REASONS GIVEN BY PRINCIPALS FOR TEACHERS LEAVING SCHOOLS	UNITED STATES SAMPLE		TYPE OF SCHOOL			
			VOCATIONAL		COMPREHENSIVE	
	N	%	N	%	N	%
Left to teach elsewhere	113	22.5	69	23.7	44	20.6
Left teaching profession	108	21.4	55	19.0	53	24.9
Reached retirement age	109	21.7	71	24.5	38	17.8
Illness	19	3.8	12	4.1	7	3.3
Resignation requested	32	6.4	15	5.2	17	8.0
Assigned to other school	75	14.9	35	12.1	40	18.8
Reasons other than above	47	9.3	33	11.4	14	6.6
Total left (1960-1963)	503	-	290	-	213	-
AVERAGE PERCENTAGE OF TEACHERS WHO LEFT SCHOOLS IN YEARS						
1962-1963	97	5.6	49	8.7	48	2.4
1961-1962	96	4.7	49	7.0	47	2.2
1960-1961	96	3.4	49	4.9	47	1.8

Teacher turnover rates are low. The average percentage of teachers who left the schools surveyed was 3.4, 4.7 and 5.6 respectively for school years 1960-61, 1961-62 and 1962-63. The percentages suggest that turnover rate is slowly increasing.

The teacher turnover percentage is higher in the vocational schools than in the comprehensive schools. This may be because a greater percentage of such schools are located in or near major cities.

The three most frequent reasons for teachers leaving school are: leaving to teach in another school system (22%), leaving the teaching profession (21%) and reaching retirement age (22%). The percentages are based upon the total number who left their school in the three years from 1960 to 1963. The balance of the teachers who left in this period did so for reasons of: assignment to another school (15%), illness (4%), school requested resignation (6%) and unstated reasons (9%).

Of those who left comprehensive schools, a greater percentage left because they were leaving the teaching profession (25 vs. 19%).

SUMMARY OF FINDINGS

School Administrator Characteristics

1. Present position. The average school principal surveyed had been with his school for 13.8 years and in his present position for 9.0 years. The individual differences, however, are wide-ranging.

2. Administrative experience. The average high school principal had 10 years of administrative experience before becoming a principal. However, 15 percent reported no prior administrative experience.

3. Teaching experience. While all had some teaching experience, 67 percent had never taught a vocational or vocationally-related subject. Only 6 percent of the comprehensive school principals had any such experience.

A greater percentage of the principals who had taught only academic subjects taught mathematics (58%) than any other academic subject.

The average principal had his last teaching assignment 13.7 years ago.

4. Non-school employment experience. The average principal had 6.1 years of non-school occupational experience. However, 21 percent had no such experience. Of those who had such experience, much of their employment was in occupations related to what is commonly found in T&I programs.

Problems Seen by Principals

1. Top six major problems. The most frequently reported major problems were: lack of qualified teacher replacements (31%), low-level teacher salaries (24%), "dumping ground" reputation of vocational programs (21%), quality of students in vocational education (20%), shops in need of major rehabilitation (19%) and inadequate student counseling services (18%).

2. Top six minor problems. The problems most frequently reported as minor were: obsolescent shop equipment (53%), "dumping ground" reputation of vocational programs (53%), quality of students in vocational education (48%), inadequate student counseling services (40%), lack of job opportunities for vocational graduates (39%) and too many students for available facilities (38%).

3. Top six non-problems. The items most frequently reported as not a problem were: school board disinterest in vocational education (77%), high rate of teacher turnover (75%), unfavorable student-teacher ratio (75%), poorly qualified vocational teachers (66%), generally poor appearance of school plant (66%) and insufficient shop materials and supplies (64%).

School Board Attitudes

1. As seen by the principals. About 59 percent reported their school boards to be highly favorable to vocational education (actively trying to build it up), 35 percent reported school boards favorable in principle (but sometimes failing to give active support) and 6 percent reported that their school boards were either uncommitted or unfavorable to vocational education.

General Advisory Committees

1. Coverage of schools. Thirty-five percent of the schools had a general advisory committee, and 27 percent claimed that they were planning to add a general advisory committee. Such committees were equally represented among vocational and comprehensive schools.

2. Committee composition. All occupational levels were represented among the committee members. The range was from skilled craftsmen (59%) to professional occupations (55%).

3. Frequency of meetings. About 18 percent met monthly, another 21 percent met quarterly, 21 percent met semi-annually and 40 percent met annually or irregularly.

4. Reported school benefits. The three most frequently reported school benefits from such committees were: advice on curriculum changes (78), promotion of closer school-community relations (77%) and help in placing graduates into jobs (68%).

About 60 percent of the principals whose schools had such committees felt that they were of great value. Another 37 percent reported them to be of some value.

Craft Advisory Committees

1. Coverage of schools and courses. Fifty-four percent of the schools reported the use of craft advisory committees. The percentage of vocational schools so covered was greater than the percentage of comprehensive schools (67 vs. 40 percent).

Of the 715 T&I courses offered, only 34 percent were covered by a craft advisory committee.

2. Frequency of meetings. About 24 percent of the 240 craft committees for which data was available met on no regular schedule, 20 percent met annually, 24 percent met quarterly and 24 percent met monthly.

3. Benefits reported. The most frequently reported school benefits from the use of such committees were: assistance in the placement of students (84%), assistance in curriculum planning (82%) and providing craft information to students (74%).

Methods Used to Promote Community Relations

1. Community relations committee. Only 13 percent of the schools had a community relations committee. However, all were involved in community relations activities of one kind or another.

2. Community relations activities. The six most frequently reported activities were: articles in local newspapers about programs (96%), evening adult education programs (87%), student visits to industrial organizations (87%), community open-house week (83%), school facility availability to local groups (80%) and school paper and publications (76%).

The six least frequently reported activities were: community relations committees (13%), programs of invitation speakers (36%), programs of regular employer contacts (40%), exhibits of vocational shop products (42%). general advisory committees (42%) and business-industry education days (46%).

3. Most effective activities. The six most frequently mentioned activities regarded to be very effective by school principals for promoting close school-community relations were: adult evening education programs (40%), articles in local newspapers about programs (38%), community open-house week (28%), craft advisory committees (26%), student visits to industrial organizations (19%) and school facility availability to local groups (18%).

Relations with Vocational Outcome Variables

1. Advisory committees and placement of graduates. The average school with an advisory committee placed 48 percent of the vocational graduates in the field for which trained versus 34 percent for those schools without general or craft advisory committees.

The vocational schools with general and/or craft advisory committees placed an average of 52 percent of their graduates into the field studied versus 31 percent for those schools with no such committees.

The comprehensive schools with general and/or craft advisory committees placed an average of 42 percent of their graduates into the field studied versus 36 percent for those without such committees.

The data suggests that advisory committees are useful for improving the percentage of graduates placed into their field of study.

SOME TENATIVE RECOMMENDATIONS

An Intensive Study of the Manager

There is a need to accomplish a transition from school administrator to school manager. Toward this objective, it is recommended that the United States Office of Education support a general study of the school principal in action, i.e. what are his objectives, responsibilities and authorities, what decisions does he make and how are they made, how does he relate to other heads of the school system, and so on. An intensive study of the principal in action should illuminate his strengths and weaknesses as a manager whose task it is to weld personnel, facilities and material resources into a system that will accomplish measurable goals. It is a major step toward changes in the educational management process.

Such a study might benefit greatly by a combination of a major management consulting firm with experience in the field of education management and a research resource familiar with the field of education, particularly vocational education.

Expansion of Advisory Committees

The study very clearly demonstrated a strong relationship between the use of such committees and the placement of vocational graduates into their field. Schools with such committees did substantially better in placing their graduates than those without such committees. The principals also claimed that job placement services were a major benefit derived from such committees. Other benefits were also cited that were clearly to the good of vocational education. Finally, almost 60 percent of the principals with such committees claimed they were of great value.

Therefore, it is recommended that State Offices of Education act to stimulate wider and more effective use of general and craft advisory committees. The details of how this may be done are best left to the states and their directors of vocational education.

Improved Community Relations

The need is to strengthen community relations with the vocational segment of the comprehensive school and with the vocational school. If the message of the benfits of vocational education is to be gotten across to the public, the schools are in the most strategic position to do so. They are not a one-shot or short-term communication media. If they want to be, they can be an on-going source of public information about vocational education for the benefit of many elements of the community.

It is recommended that the United States Office of Education develop a comprehensive guide on what schools can do to improve school-community relations as they may be related to vocational education. The guide should reflect the experiences the schools have had with different methods of developing closer school-community relationships.

It is further recommended that State Directors of Vocational Education stimulate and guide local efforts to improve the communities' knowledge of and involvement with vocational education.

12 OVERALL CONCLUSIONS AND RECOMMENDATIONS

INTRODUCTION

It was the plan that this chapter, being last, would have the benefit of a retrospective look that would qualify some of the earlier made tentative recommendations. However, the size to which this volume has grown, and the long-overdue status of this report, and the general pencil-weariness of the writer make it desirable to touch base generally on a few major points and then to call it quits. Enough is enougn.

The chapter will confine its discussion to four general questions:

1. What is the relative contribution of school and student resource variables to the successful placement of graduates into the field for which trained? What are the implications for action to improve school placement-into-the-field performance?

2. How do the vocational and comprehensive schools compare in terms of the variables known to contribute to successful placement of graduates into the field for which trained? What are the implications for the future of the two types of schools?

3. Can the basic objectives of vocational education be derived from a theoretical model that coordinates vocational education with national policy? If so, what are the basic objectives and how are they related to assessing the effectiveness of vocational education?

4. What is the fundamental difference that must be achieved to distinguish the "new" vocational education from the "old" vocational education? How is this difference related to continuing improvement for vocational education?

The reader is forewarned that some of the conclusions drawn and recommendations made in this chapter are only indirectly related to the data reported earlier. Like it or not, the researcher is bound to accumulate opinions that go beyond his data. The alert reader will recognize when such opinions have gained the upper hand, and he is properly free to reject conclusions that go beyond the data. However, there is sometimes much to be said for conclusions that go beyond the formal study data. The study data was collected by interviewing hundreds of teachers, counselors, principals and other school personnel and visiting hundreds of shops to gain first-hand impressions of facilities and students at work. Invariably, impressions are gained that make it possible to read between the lines of the study data. Some of the present chapter's conclusions have been so influenced.

RELATIVE CONTRIBUTIONS OF PROCESS VARIABLES

The Vocational Equation

In Chapter I, the concept of the vocational equation was introduced. Briefly stated, the vocational equation is a general hypothesis that the vocational outcomes experienced by the vocational graduates are the interaction product of school, student and occupational opportunity variables. A schematic of the equation is shown on page I-5.

It has been shown (p. 2-53) that the relatedness of the first job to the occupation studied is the keystone criterion variable because those who enter occupations the same as or highly related to the occupation studied do better on the average than those who enter unrelated occupations. They do better in terms of:

- Time required to get their first job
- Satisfaction reported for first job
- Satisfaction reported for present job
- Percentage of earnings increases
- Total accumulated earnings
- Present job hourly earnings
- Satisfaction reported for all jobs held

Hence, for practical purposes, the vocational equation is reduced to a single vocational outcome criterion variable, namely the relatedness of the first full-time job to the occupation studied.

Preceding chapters have shown how individual student and school variables correlated with the relatedness criterion measure. The task now is to determine, by means of multiple regression analysis, to what extent the student and school variables explored earlier account for variation in the first job relatedness criterion measure. Such analyses enable us to say something about the relative contribution of student and school input variables to the desired outcome, and also something about the priorities among the potential school actions to improve performance in placing graduates into the fields for which trained.

The Method of Multiple Regression Analysis

The regression analysis method used introduced each independent variable in a stepwise manner for a sequence of multiple linear regression equations. The method automatically added the variables in the order in which they made the greatest reduction in the error sum of squares. The program is described in Biomedical Computer Programs, School of Medicine, University of California, Los Angeles.

The analysis confronted the researchers with two decision alternatives, neither one of which was wholly satisfactory. The problem was whether the input variables and criterion variable should be described on

a school basis, with a maximum N of 100 schools, or whether the variables should be described on a graduate basis, with a maximum N equal to the number of 1962 graduates who went directly to work after graduation. The first alternative required the reduction of all variable values to school scores or means, e.g. mean years of T&I teacher experience in the occupation now teaching. The second alternative required the replication of values of school variables so that each graduate would be assigned his appropriate school score for the purposes of the analysis, e.g. the years of experience his teacher had in the occupation he was teaching. The first method had the advantage that it simplified the procedure and the disadvantage that it collapsed the range of scores on the student resource variables. The second method had the advantage of maintaining the full range of scores on the student resource variables and the disadvantage of giving greater weight to schools with the greater number of graduates. There were also other considerations pro and con each alternative. The decision was made to go with the first alternative of using the number of schools as the basic N for the analysis. The second alternative will be explored at a later date.

The multiple regression analysis was applied separately to nine batches of variables, with each batch associated with a common topic, e.g. shops, guidance, placement, teachers and so on. The object was to establish a priority rationale for the basic areas in which action could be taken to improve school placement performance. Undoubtedly, there are some bones to be picked with this procedure, but it seemed preferable to a single multiple R of 70 variables.

I. STUDENT RESOURCE VARIABLES

Subject Grades

1.	Vocational subject grade average	3-11
2.	English grade average	3-11
3.	Social studies grade average	3-11
4.	Mathematics grade average	3-11
5.	Science grade average	3-11
6.	Overall grade average	3-11

Standardized Tests

7.	Intelligence test stanine	3-38

II. SCHOOL PROCESS VARIABLES

Shop Teachers

8.	Age	4-86
9.	Socio-economic origins	4-86
10.	Formal education achieved	4-86
11.	Index of professional self-development	4-86
12.	Years of non-teaching employment experience	4-87
13.	Years experience in occupation now teaching	4-87
14.	Years experience as vocational teacher	4-87
15.	Number summers worked full-time, part-time	4-87
16.	Relatedness of summer work to shop subject	4-87

17.	Present position salary	4-87
18.	Total earned income	4-87
19.	Pupil load for all subjects	4-87
20.	Hours of non-teaching activity per month	4-88
21.	Index on frequency of student problems	4-88
22.	Index on decision-making influence	4-88
23.	Index on community activity involvement	4-89
24.	Organization affiliation index	4-89

Instructional Methods

25.	Instructional methods use index	4-88
26.	Instructional equipment use index	4-88
27.	Evaluation methods use index	4-88
28.	Exceptional learner provision index	5-94
29.	Course examination policy score	5-92

General Facilities

30.	Age of main school plant	7-12
31.	Years since last major renovation	7-12
32.	Major renovation need index	7-12
33.	Availability and adequacy of indoor facilities	7-12
34.	Classroom environmental control index	7-12
35.	Classroom instructional equipment index	7-13
36.	Classroom general furnishings index	7-12

Shop Facilities

37.	Availability of major shop equipment	6-5
38.	Adequacy of major shop equipment	6-5
39.	Comparability of major shop equipment	6-5
40.	Availability of auxiliary facilities	6-7
41.	Adequacy of auxiliary facilities	6-7
42.	Instructor rating of safety and efficiency	6-10
43.	Instructor overall shop rating	6-10

Curriculum Variables

44.	Course admission requirements	5-92
45.	Major course revisions index	5-92
46.	Course revision sources used	5-92
47.	Course duration in years	5-92
48.	Number of T&I courses offered	5-93
49.	Course add-drop index	5-93
50.	Course add-drop plans index	5-93
51.	Exploratory program index	5-93

Guidance Variables

52.	Reported student-counselor ratio	9-53
53.	Counselor man-hours per 100 pupils per month	9-53
54.	Personal contact hours per month	9-53
55.	Parental consultation hours per month	9-53

56.	Number of vocationally related counseling services	9-53
57.	Group guidance hours per month	9-53
58.	Years of experience as counselor	9-54
59.	Years of T&I related employment (counselor)	9-54
60.	Number of claimed satisfactory student services	9-54

Placement Variables

61.	Percentage of graduates placed by instructor	10-28
62.	Percentage of recommendable graduates	10-28
63.	Percentage of graduates acknowledging school placement	10-28
64.	Rating of school placement service	10-29
65.	Number of claimed placement activities	10-28

Miscellaneous Variables

66.	School T&I vocational enrollment	-
67.	School total pupil enrollment	-
68.	Population of city served	-
69.	Average T&I course holding power	5-93
70.	School holding power	9-54

It was not possible to obtain a satisfactory measure of employment opportunity for the year in which the graduates left school for each of the 100 cities scored. This was unfortunate because it precluded a quantitative assessment of how differences in local employment opportunity contribute to differences in school performance in placing graduates into the field for which trained. There is no question but that the general unemployment rate influences the placement of graduates. In the boom year of 1953, 51 percent of the T&I vocational graduates entered occupations in their field of training. In the recession year of 1958, only 44 percent of the graduates obtained their first job in their field of training. In the recovery year of 1962, the percent ge moved up to 49 percent. Clearly, the economy level is a major variable influencing the percentage of graduates who find employment in their field of study.

Multiple Regression Analysis Results

The multiple regression analysis results obtained for each of the nine batches of variables are shown in Table 1. In each group, the variables are arranged in the order in which they contributed to the criterion measure (variance). When ranked according to the maximum multiple correlation coefficient obtained, the nine groups of variables are as follows:*

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* A word of caution. Correlation analysis does not establish the existence of causal relationships. To infer such relationships is a matter of judgment based upon knowing the nature of the variables shown to be significantly correlated. Such inferences can not be drawn on the basis of correlation coefficients alone. Even where a causal relationship is plausible, it is not established by the fact of a significant correlation coefficient.

TABLE 1. MULTIPLE REGRESSION ANALYSIS FOR BATCHES OF PROCESS VARIABLES WITH CRITERION: RELATEDNESS OF FIRST JOB TO COURSE STUDIED

	PROCESS VARIABLES	CRITERION: RELATEDNESS OF JOB TO COURSE STUDIED			
		MULTIPLE		PERCENT ADDITIONAL VARIANCE	INDIVIDUAL
		R	R^2		R
STUDENT RESOURCE (N=80)	Social studies grade average	.351**	.123	-	.35**
	Mathematics grade average	.362**	.131	0.82	.34**
	Overall grade average	.372**	.138	0.71	.27*
	Science grade average	.377*	.142	0.39	.33**
	Vocational shop grade average	.382*	.146	0.33	.12
	Intelligence test stanine	.383*	.147	0.09	.03
	English grade average	-	-	-	.30**
T&I SHOP INSTRUCTOR VARIABLES (N=88)	Age of teacher	.208*	.043	-	-.21*
	Formal education index	.324**	.105	6.19	-.18
	Total income	.400**	160	5.47	.20*
	Socio-economic origins	.459**	.211	5.11	-.18
	Student problems index	.479**	.229	1.84	.17
	Years non-teaching employment	.489**	.240	1.01	-.04
	Total pupil load	.499**	.249	0.91	-.10
	Community activities index	.505**	.255	0.61	.01
	Present salary	.509**	.259	0.40	.01
	Decision-making influence index	.510**	.260	0.12	-.10
	Number of summers employed	.511**	.261	0.08	.03
	Yrs. experience in occup. now teach	.512**	.262	0.10	-.01
	Relatedness of summer work	.513**	.263	0.11	.02
	Years vocational teacher	.513**	.263	0.02	-.17
	Non-teaching activity hours per mo.	.513**	.263	0.03	.04
	Professional self-development index	.513**	.263	0.03	.13
	Organization affiliation	-	-	-	-.09
INSTRUCTION (N=91)	Course examination policy	.227*	.052	-	-.23*
	Instructional methods use	.286*	.082	3.02	-.17
	Evaluation methods use	.297*	.088	0.61	-.04
	Exceptional learner index	.299	.089	0.14	-.07
	Instructional equipment use	.300	.090	0.08	-.03
GENERAL FACILITIES (N=94)	Indoor facilities index	.143	.020	-	-.14
	Instructional equipment index	.190	.036	1.57	.08
	Classroom general furnishings	.205	.042	0.57	-.03
	Major renovation need index	.216	.047	0.46	-.02
	Environment control index	.224	.050	0.36	-.04
	Years since last major renovation	.227	.052	0.15	.02
	Age of main school plant	.229	.052	0.06	-.01

* Significant at .05 level of confidence ** Significant at .01 level of confidence

TABLE 1 CONTINUED. MULTIPLE REGRESSION ANALYSIS FOR BATCHES OF PROCESS VARIABLES WITH CRITERION: RELATEDNESS OF FIRST JOB TO COURSE STUDIED

	PROCESS VARIABLES	CRITERION: RELATEDNESS OF JOB TO COURSE STUDIED			
		MULTIPLE		PERCENT ADDITIONAL VARIANCE	INDIVIDUAL
		R	R^2		R
SHOP FACILITIES (N=99)	Safety and efficiency rating	.136	.018	-	.14
	Major shop equipment, adequacy	.165	.027	0.87	-.04
	Major shop equipment, comparability	.206	.042	1.53	.07
	Auxiliary facilities, availability	.211	.044	0.20	.12
	Auxiliary facilities, adequacy	.213	.046	0.11	.09
	Major shop equipment, availability	.214	.046	0.05	-.01
	Overall shop rating	.215	.046	0.02	.11
CURRICULUM VARIABLES (N=95)	Course admission requirements	.350**	.122	-	.35**
	Course duration in years	.396**	.157	3.47	.27**
	Course revision sources used	.432**	.186	2.95	.30**
	Course add-drop plans index	.445**	.198	1.15	.12
	Major course revisions index	.450**	.202	0.40	.10
	Number T&I courses offered	.453**	.206	0.34	.02
	Course add-drop index	.454**	.206	0.06	-.08
	Exploratory programs index	-	-	-	-.08
GUIDANCE VARIABLES (N=66)	Student-counselor ratio	.227	.051	-	-.23
	Group guidance hours per month	.318*	.101	4.99	-.20
	Years T&I related employment	.361*	.131	2.93	.19
	Years experience as a counselor	.365*	.133	0.24	.07
	Number vocationally-related services	.367	.135	0.18	-.04
	Parental contact hours per month	.371	.138	0.31	.02
	No. satisfactory student services	.373	.139	0.10	-.16
	Counselor man-hours per 100 pupils	-	-	-	-.10
	Personal contact hours per month	-	-	-	-.15
PLACEMENT (N=64)	Rating of placement service	.502**	.252	-	.50**
	% graduates recommendable	.568**	.322	7.10	.39**
	% grads placed by instructors	.586**	.344	2.14	.37**
	% grads acknowledge school help	.592**	.351	0.69	.40**
	No. claimed placement activities	.598**	.357	0.65	-.04
GENERAL (N=98)	Total school enrollment	.140	.020	-	-.14
	T&I student enrollment	.200	.040	2.01	.08
	City population	.215	.046	0.63	-.04
	School holding power	.227	.052	0.54	-.07
	Course holding power	.230	.053	0.15	-.04

* Significant at .05 level of confidence ** Significant at .01 level of confidence

		R	N
1.	Placement related variables	.60**	64
2.	Teacher related variables	.51**	88
3.	Curriculum related variables	.45**	95
4.	Student resource variables	.38*	80
5.	Guidance related variables	.37*	66
6.	Instruction related variables	.30*	91
7.	General facility variables	.23	94
8.	Miscellaneous general variables	.23	98
9.	Shop facility variables	.21	99

** Significant at .01 level of confidence
* Significant at .05 level of confidence

A brief comment on each of the batch multiple correlations is appropriate.

1. Placement related variables. Three of the five variables generated a multiple R of .59, significant at above the .01 percent level of confidence. Of these, the placement service rating provided by the school placement coordinator accounted for the greatest amount of criterion measure variance (R=.50). The second and third input variables, percentage of recommendable graduates and percentage of graduates placed by the instructors, show how characteristics of the graduates and of their teachers are related to school placement performance. It is reasonable to infer a causal relationship between the top three variables and placement performance. This would suggest that school placement services be given high priority where there is a desire to improve the placement of graduates into the field for which trained.

2. Teacher related variables. These produced the second highest multiple correlation coefficient, establishing further that the shop instructor is an important factor in school placement performance. However, when one considers the variables included up to the point where less than one percent additional criterion variance is accounted for, the results are dominated by non-activity variables such as age, amount of formal education and socio-economic origins. The negative correlations involved indicate the successful school placement performance varies inversely with teacher age, education and socio-economic origins. Perhaps what the data is trying to say is that the placement efforts are inversely related to school averages on age, formal education and socio-economic origins.

It is interesting to notice that the teacher variables involving activity such as degree of involvement in community affairs, in professional self-development, in school decision-making, in community organization affiliation, added relatively little to the criterion variance already accounted for by the non-activity variables such as age and years of formal education.

3. Curriculum related variables. These variables come in third with a multiple R of .45, significant at better than the .01 percent level of confidence. The major share of the variance accounted for by these variables is attributable to course admission requirements. This is not unrelated to the earlier finding that percentage of recommendable graduates was a factor

contributing to school placement performance. It is possible that where the student resource input is not controlled, the percentage of recommendable graduates may suffer. The implication for improving school placement performance is better matching of students and courses of study.

Both course duration and number of course revision sources used contributed significantly to the multiple R obtained. It could be that the former is related to the quality of the vocational output, whereas the latter, with greater involvement of non-school advisory sources for course revision, facilitates placement of graduates. It is also possible that both variables are being mediated by an unknown third party variable, and do not involve a causal relationship.

4. Student resource variables. Differences in subject grade averages achieved by graduates in the different schools are clearly related to school placement performance. It is interesting to note that measured intelligence has little or no bearing on placement performance differences between schools. This will be confirmed later with the multiple R analysis in which graduate scores rather than school scores provide the basis for the analysis. A major limitation of the student resource analysis by school means is the compression of the range of scores when school averages are used to do the analysis.

5. Guidance related variables. Most of the criterion variance associated with guidance related variables come from three variables: student-counselor ratio, counselor man-hours spent in group guidance and years the counselor spent in T&I related work. The lower the student-counselor ratio, the less time spent in group guidance and the more years spent in T&I related work, the higher the school's placement performance. The reader may wish to infer causal relationships. The writer does not. The multiple R generated by the first four variables was significant at the .05 percent level of confidence only.

6. Instruction related variables. As a group, these accounted for only nine percent of the criterion measure variance. The multiple R of .30 is significant at only the .05 percent level of confidence. Concern with variables of this type does not appear to be promising if the objective is to improve placement of graduates into their field of training. The negative correlations in this group are a puzzle, and no plausible explanation comes to mind. Undoubtedly, an unknown "third party" variable is responsible.

7. General facility variables. These variables failed to generate a significant multiple correlation. Very clearly, school placement performance is not likely to be improved by efforts to improve school general facilities. Since the schools varied widely on these variables, the analysis can be considered a fair test of what such variables had in the way of association with successful placement of graduates into the field for which trained.

8. Shop facility variables. These fared no better than the general facility variables. Shop equipment and facilities as such have little or nothing to do with school differences in placement performance. It would be a mistake to go on a hardware binge with the hope that such would improve the percentage of graduates placed into the field.

9. Miscellaneous general variables. Bigness alone is unrelated to school placement performance. Total pupil enrollment, total vocational enrollment, population of the city served--none of these combined to generate a significant multiple R coefficient. The writer would be cautious about concluding that school holding power is unrelated to placement performance. A more refined school holding power measure may yield different results.

* * * * *

The overall results support the general hypothesis, made in chapter 1, that the vocational outcomes experienced by graduates, particularly the relatedness of the first job to the vocational course studied, is the interaction product of school, student resource and occupational opportunity variables. Thus, differences among schools in placement performance are associated with differences in school characteristics, in characteristics of graduates and in the employment opportunities available. The practical implication is that schools can best improve their placement performance by recognizing and acting upon the variables known to be related to placement performance.

* * * * *

The most fruitful areas for school efforts to improve their percentage of graduates placed into the field for which trained seem to be:

1. Improvement in school placement services. The emphasis should be on (1) an organized placement service headed by a placement coordinator who is given adequate time for the responsibility, (2) individual shop instructor placement efforts which do not ignore the marginal graduate who wants to enter the field of training, (3) maintenance of a control chart in the months prior to graduation to assure that special efforts will be made for those yet to be placed, (4) early mid-year contacts with all potential graduates to assess their placement needs, and (5) improving employer relationships to maintain receptivity for the schools output of vocational graduates.

2. Improving the percentage of recommendable graduates. The emphasis should be on (1) matching the capabilities of the course applicant with the requirements for course success, (2) early identification of students who can not meet the achievement requirements of the course, with the possibility of early transfer to a more suitable course, and (3) early remedial efforts to overcome factors which make potential graduates "non-recommendable" from the viewpoint of instructors.

VOCATIONAL VS. COMPREHENSIVE SCHOOL ISSUE

One of the basic study objectives was to compare vocational and comprehensive schools on both student resource and school process variables that were potentially relevant to the vocational outcome experienced by the vocational graduates. A complete tabular summary of the comparative data may be found in the Appendix volume.

A total of 105 variables were correlated with the criterion measure, relatedness of first job to course studied. Of these, only 16 yielded correlation coefficients that were significant at the .01 percent or better level of confidence. Of these 16 variables, the vocational schools outperformed the comprehensive schools on thirteen variables; there was no significant difference between the schools on two variables; and the comprehensive schools outperformed the vocational schools on one variable. Thus, in terms of process variables known to be related to successful school placement of graduates into the field for which trained, the vocational schools appear to have a decided edge.

Let's consider some of the variables on which the vocational schools scored higher than the comprehensive schools.

1. Subject grade averages. The vocational school graduates significantly outperformed the comprehensive school graduates on the following subject grade averages: English, mathematics, and social studies. They also had a significantly higher overall academic subject grade average. There was no significant difference in vocational shop grade averages.

2. Placement related variables. The vocational schools had a higher percentage of recommendable graduates, a higher percentage of graduates placed by instructors, a higher percentage of school personnel acknowledged by graduates as a source of help in getting their first job, and a higher overall placement service rating by the school placement coordinators.

3. T&I related employment experience. Principals, counselors, placement coordinators and T&I instructors in vocational schools had more non-school, T&I related employment experience than did their counterparts in comprehensive schools. Also, a greater percentage of vocational than comprehensive school instructors were involved in summer period employment and in school year part-time employment in the same or a highly related occupation to that which they were teaching.

4. Curriculum related variables. The vocational schools added and dropped more courses in the past five years and had plans for adding and dropping more courses in the coming school year. Thus, they seemed to be more responsive to conditions of changing manpower requirements than the comprehensive schools.

5. Advisory committees. A greater percentage of the vocational than comprehensive schools had craft advisory committees. Moreover, their committees met more frequently, and were acknowledged more frequently as a source of placement assistance for graduates.

6. Admission requirements. A greater percentage of the courses in vocational schools had admission standards than those in comprehensive schools, and a smaller percentage of their teachers expressed dissatisfaction with the calibre of students.

While one can not say for certain that such variables have a causal relationship to the successful placement of graduates into the field for which trained, such relationships are at least highly plausible. The writer gained the general impression during his visits to both vocational and comprehensive schools that the former, to borrow a nautical term, ran a tighter ship. After many school visits and a seemingly endless parade of interviews, one would be hard put to explain the myriad of individual gleanings that resulted in that general impression. Somehow, the impression emerged that the vocational schools were more seriously in the business of vocational education. It is a vindication of that early hard-to-justify impression that the study findings force one to the same conclusion.

It is what lies behind the variables cited that possibly best explains why vocational schools do a better job of placing their graduates into the fields for which trained. The major thrust of the comprehensive schools is to generate college-bound graduates. In these schools, those who are not in the college preparatory curriculum stand in the shadows of those who are. To be sure, not all comprehensive schools are alike in this respect, but the differences are a matter of how dark are the shadows. In contrast, the major thrust of the vocational schools is to generate employment-bound graduates. A difference in educational philosophy permeates the two schools. This is reflected in how the two types of schools differ on many of the variables explored, even those not significantly related to school placement performance. The general pattern of differences clearly suggests that the vocational schools are more seriously engaged in preparing youth for the world of work.

The data force the conclusion that T&I vocational education, and possibly other forms of vocational education as well, will grow and achieve its objectives best in the environment of the vocational school by whatever name it is called. Such institutions are not likely to suffer the unequal competitive consequences of the duality of purpose that characterizes a comprehensive school. They are, to put it simply, more in the business of vocational education.

A MODEL FOR EFFECTIVENESS EVALUATION*

The Vocational Education Act of 1963 called for periodic evaluation of the effectiveness with which vocational education met the needs of the citizenry and manpower requirements of the economy. Sensibiy, however, it did not define either the evaluation yardsticks or the procedural details. These matters were left for the states to determine.

The present discussion introduces a simple model from which some of the basic effectiveness evaluation measures can be rationally derived. There is a need for such measures. First, such measures imply the basic objectives of vocational education in ways that permit the assessment of progress toward those objectives. Second, as we shall see, such measures relate the objectives of vocational or occupational education systems to the objectives of the country. Third, the measures provide a basis for the application of modern industrial management principles and techniques to educational systems. These three points will be clarified in the discussion that follows.

The Manpower Conversion Equation

The basic idea of the model is illustrated in Figure 3. The task of public and private occupational education and training systems, as a collective system, is to convert undeveloped manpower resources in sufficient quantity and kind so that the output of developed manpower resources will be in balance with the skilled manpower requirements of the expanding economy. The primary objective is to attain the balance implied by the equation. Where this is so, there will be a balance between the trained manpower needs of the communities served and the availability of formally trained manpower resources. Thus, in an ideal sense, for every job requiring a formally trained job-holder, there would be an available and qualified person, and for every such person, there would be an available job. Who can argue with the desirability of this basic objective? Indeed, it is merely a somewhat modified expression of the full employment principle to which the Federal government has subscribed since the late forties.

The collective system illustrated in Figure 3 will not balance if any of the following conditions prevail to a significant degree:

1. The input of undeveloped manpower resources is not sufficient to meet the output of developed manpower resources demanded by the expanding economy.

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* The discussion will be developed more fully in a later publication.

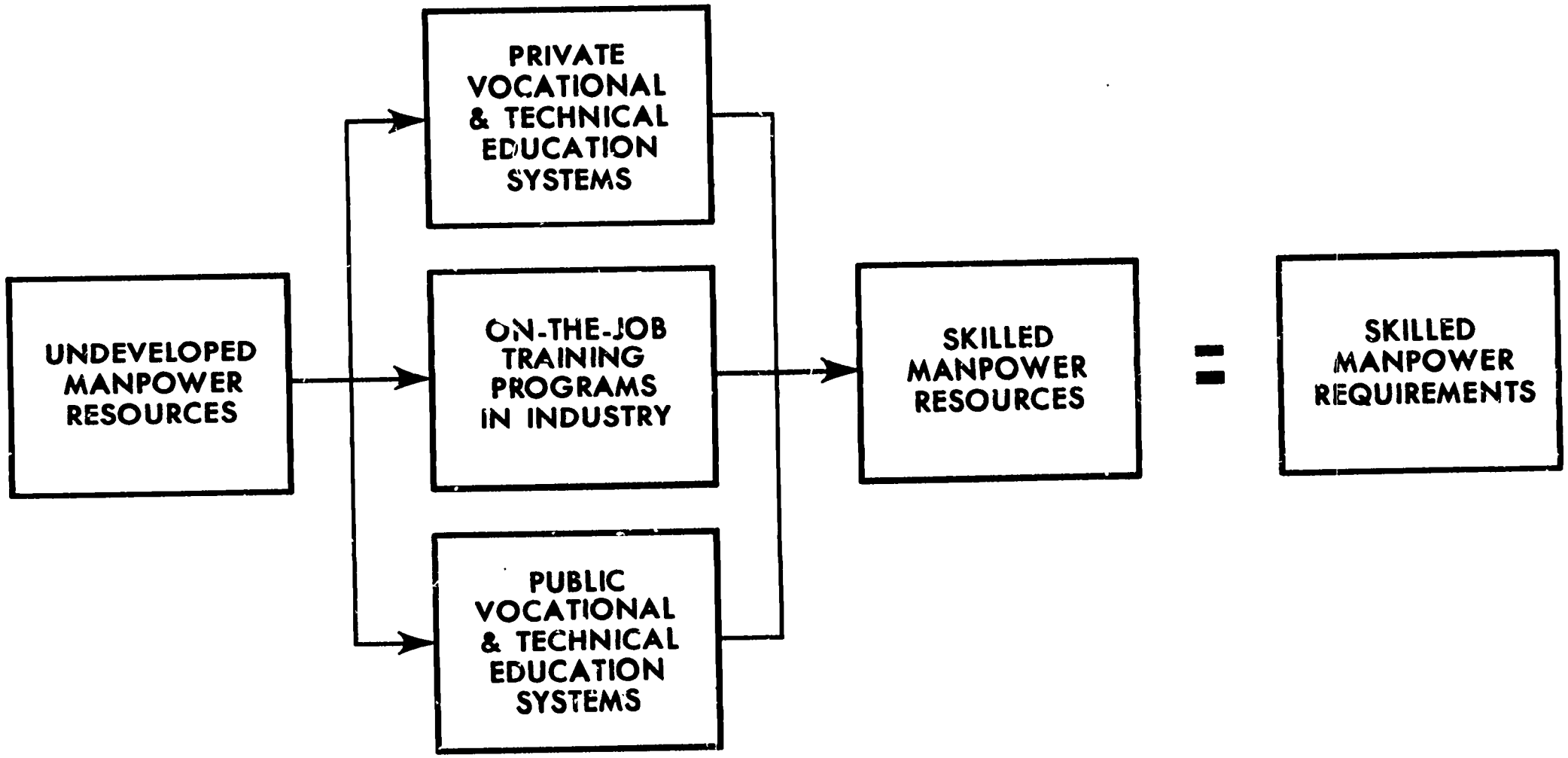

FIGURE 3. THE VOCATIONAL EDUCATION AND TRAINING EQUATION. The primary objective of the collective system is to convert undeveloped manpower resources in sufficient quantity and kind so that the output will be in balance with the skilled manpower requirements of the expanding economy.

2. A substantial percentage of the input of undeveloped manpower resources prematurely drops out of the conversion systems, thereby diminishing the output of skilled manpower and increasing the supply ofundeveloped manpower.

3. A substantial percentage of the output has either no desire to enter or inadequate qualifications to enter the occupational fields for which trained.

4. A substantial percentage of the output does not match in quantity and kind the manpower requirements for formally trained persons.

The maximum balance in the equation will be attained when the above four conditions exist to a minimum degree. The preconditions for a balanced equation can be stated more positively in terms of four basic requirements:

1. Input requirement. The collective system for manpower development must take in an adequate supply of undeveloped or underdeveloped manpower to assure meeting the output demands of the expanding economy.

2. Holding power requirement. The collective system must maximize its holding power in terms of manpower already in the system to sustain the output of developed manpower and to minimize the unplanned turnout of underdeveloped manpower.

3. Quality output requirement. The collective system must seek to maximize the output of developed manpower which has both the desire and the qualifications for entry into the fields for which trained.

4. Balance output requirement. The collective system must gear its output so that it meets the needs for trained manpower, in both kind and number, in the expanding economy.

Recommended Objectives

Now, if one is willing to say that what is so for the collective system is also so for the individual school systems that make up the collective system, then the following can be derived as objectives for the individual school or school systems engaged in vocational education.

1. It should be the objective of the school or school system to show progressive improvement in the percentage of non-college bound youth that are brought into the fold of occupational education, whether at the secondary or the post-secondary school level. A static vocational enrollment in a situation where a large percentage of non-vocational students are not college-bound constitutes a failure to meet the objective. Where the system's vocational enrollment is static for a prolonged number of years, the system will undoubtedly show signs of a leveling off that is in confiict with quality vocational education. It is really a case of grow or diminish, because to stand still means to be a diminishing source of developed manpower in an expanding economy.

2. It should be the objective of the school or school system to show progressive improvement in course and school holding power, as defined in this report, until holding power reaches some maximum practical level yet to be defined. The ideal objective, of course, is 100 percent holding power. To assess progress toward this goal, it will be necessary for school systems to determine and make a record of course and school holding power annually. School and school system heads should be charged with the responsibility for continuing improvement in school holding power--and held accountable for doing so. (There is something fundamentally right with an educational process that shows persistent annual improvement in holding power. The opposite is also true.)

3. It should be the objective of the school or school system to show progressive improvement in the percentage of vocational course completers who are motivated and qualified to enter the occupational field for which trained. The present study showed that only an average of about 68 percent of the T&I graduates were considered "recommendable" by their instructors for entry into the occupation for which trained. Clearly, there is room for improvement.

This objective does have the special problem of needing evaluative instruments to assess whether the completer has acquired the knowledge, skill, attitudes and other attributes necessary for success in the field for which trained. Until such instruments are developed, the best available "instrument" is the instructor. His assessment of the individual graduates or completers will probably be more valid than any standardized battery of occupational achievement tests, particularly if he is given appropriately tailored rating instruments.

Again, school or school system heads should be charged and held accountable for continuing improvement in the percentage of graduates who have both interest and qualifications for entry into the field for which trained. In this case, the proof lies in what percentage of the graduates who seek employment are successfully placed into the field (not necessarily the occupation) for which trained.

4. It should be the objective of the school or school system to match its output of vocational graduates to the job opportunities for trained manpower available in the areas it serves. Of the four objectives, this is the most difficult to assess because it seems to require more than one measure to assess progress toward the objective. The implication is that the school system will be responsive to changing needs for trained manpower, and will expand or curtail output in different occupational areas in accordance with such needs. To assess this situation, one would have to know: (1) what the manpower requirements are presently and in the forecastable future in the region served by the school, and (2) how well the school's output matches those needs, after making allowances for outputs generated by other sources of manpower development in the region. One indication that the school was failing to match the requirements for entry-level developed manpower would be the inability to place qualified graduates into the field for which trained. Successful placement of graduates or course completers, thus, is one measure that partially reflects how well the school system is meeting this objective. Others will have to be developed to assess the other aspects of meeting the objective.

The foregoing objectives concern an evaluation of the effectiveness of the vocational education systems as a whole. Within each system, there are process areas for evaluation, e.g. adequacy of placement services, guidance and counseling services, shop facilities and other facilities, instructional methods and equipment and other areas of like importance. These are not the concerns of the Figure 3 model which generated only the broad performance objectives of the individual school systems. However, such within system evaluation may very well reveal the reasons why a given school system is failing to progress toward one of the basic performance objectives. For example, the lack of a planned, organized placement service may be a major cause for poor placement performance.

It should be emphasized that it is a happy coincidence that the objective of maximizing the placement of vocational course completers into the field for which trained is, as this study has shown, in the best interests of both the individual and the community. We have seen that those who enter occupations in the field studied earn more in the long run, have better employment security and report greater satisfaction with their work than those who enter unrelated occupations. This harmonizes with the general concept of the manpower conversion equation because the latter calls for maximum placement of newly developed, qualified manpower into the fields for which trained. Therein lies the persuasive argument for the performance objectives cited earlier.

THE OLD VERSUS THE NEW VOCATIONAL EDUCATION

For the fiscal years 1964-1966, the Federal, state and local expenditures for vocational education came to about 1,738,315,000 dollars. All indications are that such expenditures will be greatly expanded in the years to come. The growing awareness of the need to provide the citizenry with the opportunity to develop employable skills assures that vocational education will be one of the growth industries of the future. Moreover, once the dividends of such investment in developing human resources are realized, as they surely will be, there will be additional stimulus to expand occupational education and training at all levels from secondary schools to community colleges.

What is to distinguish the "old" vocational education from the "new" vocational education? The distinction should not be merely more and different course offerings, or a wider range of the citizens served, or improved teaching techniques and equipment, or better student guidance and placement services or improvements in teacher capabilities. These things are desirable and should come to pass, but as important as they are, they are not fundamental in the sense that they have within them the seeds for continuous improvement. The real distinction between the old and the new vocational education, it is to be hoped, will be in the introduction of modern management concepts, principles and tools to vocational education systems.

The starting point should be the introduction of the concept of management by measurable objectives. Once the managers of the vocational education systems are charged with the responsibility of making progress toward measurable objectives, and held accountable for doing so, in the same sense as the modern industrial manager is held responsible and accountable then the seeds for continual progress will have been sown. As for the nature of the objectives, that is something for the vocational educators to determine. The objectives must be stated, however so that one can measure objectively whether there has been progress made in meeting them.

The concepts of management by objectives and of assigned responsibility and accountability are merely the first steps. Others will have to follow. The initial phase will be one of borrowing with modifications the principles and tools of industrial management. Undoubtedly, there will be a later phase in which the field of education management will become innovative and develop new concepts and tools for education management. This truly must be the direction of the new vocational education unless it wishes to be referred to as the "old" vocational education in some future year.

A word of caution is also appropriate. Some of the more recently developed management tools, such as cost-benefit analysis, need to be more throughly researched and debated before they are accepted as educational decision-making tools. The plea here is not for the application of the unproven and controversial management tools. Indeed, premature application of such concepts can cause more harm than good. The plea is for the application of concepts and principles that have a long history of successful application to industrial management problems, e.g. management by objectives, management by exception, specification of responsibility and accountability, programming for objectives, audits on self-evaluation methods, budgeting, standard cost accounting, management controls, and even the equivalent of market forecasting applied to local manpower requirement forecasting. Gradualism must characterize the introduction of such concepts. Attempting to introduce too much too quick will invariably have unsatisfactory results. A stepwise introduction with adequate time between steps to overcome the psychological barriers associated with one step before introducing the next is essential.

Vocational education will not be revolutionized by new and different kinds of facilities, by new and prestige-laden curriculums, by computerized or programmed methods of instruction, or by any of the individually-impressive innovations that periodically come over the horizon. The quiet revolution will come when vocational education accepts and improves upon the concepts, principles and tools of modern industrial management.

A final word needs to be said for the "old" vocational education. It has become fashionable for newcomers to the field to be highly critical of vocational education as it was (and to a large extent, still is). In some quarters the criticism has been overdone. The general picture of T&I vocational education that emerges from the present study is complimentary, despite the many areas where improvement is clearly needed. The central fact to be recognized is that those who completed a T&I vocational education, whether they went into the field for which trained or not, proved to be better off in terms of earnings, employment security and job satisfaction than the academic program graduates who did not go to college. Indeed, there is some evidence that they are better off in these things than those who went to college but dropped out before completion. In the main, the "old" vocational education, despite limited resources, succeeded in what it set out to do. If that were not so, the results of this, the first national sample follow-up survey of T&I vocational education, would have been quite different.

13 APPENDICIES

(*The Appendix Sections are contained in a separate volume*)

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