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ABSTRACT

This 2-week institute was held to prepare vocational educators to plan effectively for annual and long-range programs of vocational education for metropolitan areas according to the 1968 amendments. The institute emphasized planning, budgeting, and evaluation, and procedures for effective program planning. Various sources and validity of all data needed for effective planning were explained to the participants. Five guidelines were prepared on strategies and procedures useful to vocational educators in planning, budgeting, and evaluation. (BH)

FINAL REPORT

Institute X

Project No. 9-0524
Grant No. OEG-0-9-150524-4520 (725)

ANNUAL AND LONG-RANGE PROGRAM PLANNING IN WESTERN METROPOLITAN AREAS IN ACCORDANCE WITH THE VOCATIONAL EDUCATION AMENDMENTS OF 1968

Part of
Short Term Institutes for Inservice Training of
Professional Personnel Responsible for Vocational-
Technical Education in Western Metropolitan Areas

Ernest L. Rush

Frank H. Troutman

Little Rock Public Schools
Little Rock, Arkansas

April, 1971

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Office of Education
National Center for Educational Research and Development

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
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Particular gratitude is extended to the five work group leaders and the five work group recorders who accepted the difficult assignment of seeking group consensus on the planning process and organizing these opinions into a final work group report.

Finally, appreciation is expressed to Floyd Parsons, superintendent of the Little Rock Public Schools, and his staff for the moral support and readily available assistance. Special thanks is also given to members of the advisory committee who made it possible to offer the extracurricular activities to the participants.

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SUMMARY

GRANT NO.:	OEG-0-9-150524-4520(725)
TITLE:	Annual and Long-Range Program Planning in Metropolitan Areas in Accordance with the Vocational Education Act Amendments of 1968
PROJECT DIRECTOR:	Ernest L. Rush, Director Industrial and Vocational Education
INSTITUTION:	Little Rock Public Schools
TRAINING PERIOD:	October 5-16, 1970

Problems, Purposes, and Objectives

The lack of adequate annual and long-range program planning on the national, state, and local levels is reflected by the fact that vocational programs are not meeting the needs of people. The 1968 Vocational Education Amendments to the 1963 Vocational Education Act requires that more effective annual and long-range program planning be instituted on all levels.

This institute was designed specifically to help persons in leadership positions obtain the knowledge and skills for implementing vocational education programs. It was designed to provide institute trainees with techniques and procedures needed for obtaining valid and reliable data necessary for effective annual and long-range program planning.

The primary objective of this institute was to prepare vocational educators to plan effectively for annual and long-range programs of vocational education for metropolitan areas according to the 1968 Vocational Education Amendments. The specific objectives of the institute were: (a) to develop understandings of the nature and process of short and long-range planning, budgeting, and evaluation of vocational programs for urban areas; and (b) to develop planning models of procedures for effective program planning.

Procedures and Activities

To accomplish these objectives, a two-week institute was held in Little Rock, Arkansas, October 4-16, 1970, for fifty-one participants from urban areas of the twenty-five states west of the Mississippi River. The participants were selected according to their administrative responsibilities as they related to planning officers, program specialists, fiscal officers and accountants from state and city education departments and state or assistant state directors of vocational education.

Consultants, noted for their expertise in their field of specialization, presented formal topical presentations during the general sessions held each morning. The participants were divided into five work groups and after each formal presentation, they went directly into work sessions. Work sheets were developed by the work groups on the topics presented so as to build a nucleus for the development of the planning model that was to be developed by each work group for their final report.

Outcomes and Recommendations

Through the activities of the institute the participants reflected an intention to make use of what they learned from these activities in their home communities. Through the work of the group leaders and recorders, the following purposes became ultimately the achievements of the institute:

1. Provided participants with staff development experiencies in annual and long-range program planning.

2. Introduced to participants various sources and validity of all needed data necessary for effective planning in vocational education.

3. Prepared five guidelines on strategies and procedures useful to vocational educators as they develop annual and long-range plans, budgets, and evaluation procedures for vocational programs.

I. INTRODUCTION

The Problem

The 1963 Vocational Education Act provided for making vocational training and re-training accessible to all persons. It required each state and each community to plan its vocational education program with an eye always on the changes taking place in the economy and the world of work. Those sections of the Act emphasizing planning were not taken seriously by vocational education administrators. Consequently, the 1968 Vocational Amendments commanded that realistic annual and long-range planning be done to assure quality programs in vocational education.

The National Advisory Council on Vocational Education, in its first annual report dated July 15, 1969, points out the lacks of education and the misuse of resources in meeting the needs of our nation's people. They stated that our schools have failed to educate to the level of adequate employability nearly 25 percent of the young men and women who turn 18 each year. Furthermore, thirty million of our nation's people have annual incomes below $3,000; most of them do not possess employable skills needed to increase their earning power. Provisions for alleviating many of these problems are included in the 1968 Vocational Education Amendments which provided funds to support vocational programs and related services to all persons who could profit from such experiences. It is imperative that national, state, and local educational administrators work together in formulating a quality vocational education planning program broad enough to fulfill the training needs of all people who can profit from vocational education in metropolitan areas.

The lack of adequate program planning on the national, state, and local levels is reflected by the fact that vocational programs are not meeting the needs of people. Since the enactment of the Smith-Hughes Act of 1917, the pattern for setting up vocational education programs has remained conservative. The same programs have been kept or expanded, but new programs to meet the society's changing technology have not been instituted.

It is time for vocational education to accept its responsibility of preparing people for the fulfillment of participating in a meaningful way in the world of work. Flexibility in and access to vocational training is the need of <u>today</u> if we are to prepare our people for the vast range of occupations needed to keep a rapidly expanding economy in operation. The effectiveness of program planning in vocational education is dependent on its ability to respond to the social needs of the times.

The ineffectiveness of annual and long-range program planning in the past and today can be summarized as follows:

1. There is a lack of valid procedural processes and techniques to assess people's training needs.

2. There is a lack of available valid manpower data that can be used by vocational educators for effective planning. Most of business, industry, government, and social manpower data is designed for in-house consumption and cannot be readily interpreted by vocational education planners.
3. There is a lack of valid evaluative criteria to establish the effectiveness of on-going programs in vocational education.
4. There is a lack of coordination and timing of federal, state, and local appropriations on a short or long-range basis that would allow for effective budgeting projections.
5. There is a lack of trained planning personnel in the fields of vocational education as well as general education.

The need for conducting this institute becomes apparent when one realizes the problems facing annual and long-range program planners in vocational education, recognizes the importance of obtaining valid data on all needs, and becomes aware of the responsibility of vocational education to effectively plan and be accountable for a quality vocational education program as mandated by the 1968 Vocational Education Amendments.

Purposes of the Institute

This institute was designed specifically to help persons in leadership positions obtain the knowledge and skill for improving vocational education programs. It was designed to provide trainees with techniques and procedures needed for obtaining valid and reliable data necessary for effective annual and long-range program planning.

Therefore, the Little Rock School District brought together fifty-one key people who were involved in some form of administrative responsibility for improving vocational education programs, from state and city education departments in the western United States, to develop a planning model and establish guidelines of methods, procedures, and strategies to be used in annual and long-range planning. The participants, by working together in small groups and as a whole, set up training situations which would enable them to acquire the skills needed for planning programs in their home situations.

Objectives

A. Broad Objectives

The major objective of this institute was to prepare vocational educators to plan effectively for annual and long-range programs of vocational education for metropolitan areas according to the Vocational Education Amendments of 1968. To accomplish this purpose, it was necessary to complete the following activities:

1. Review guides and procedures for annual and five-year planning, budgeting, and evaluation of vocational programs for urban areas.
2. Identify effective techniques for assessing employment needs and labor market analyses pertaining specifically to metropolitan areas and generally to national perspectives.

3. Determine occupational program needs as they relate to students, teachers, facilities, curriculum, and resources.

B. Specific Objectives
   1. Develop understanding of the nature and process of short and long-range planning, budgeting, and evaluation of vocational programs for urban areas, especially as they relate to:
      a. Program goals and objectives
      b. Priorities and alternative courses of action
      c. Decisions relative to selection of a course of action
      d. Operationalizing a program of action
      e. Evaluation of a chosen program of action
   2. Review and identify models which explain relevant elements and relationships to systematic annual and long-range planning, budgeting, and evaluation of urban vocational education.
   3. Review effective methods of identifying, analyzing, storing, and retrieving data and other pertinent information about:
      a. Relationships of public schools to other public and private training institutions.
      b. Metropolitan and national labor markets
      c. Characteristics of youth and adults to be served
      d. Competencies needed to work in emerging occupations
      e. Instructional facilities, supplies, materials, and funds
      f. Availability of programs designed to meet the special needs of youth and adults

General Plan of Operation

The project involved planning, conducting, and evaluating a two-weeks institute held at the Albert Pike Hotel, Little Rock, Arkansas, October 4-16, 1970. The program was planned so as to actively involve the participants in activities designed to facilitate achieving the objectives and outcomes previously stated. Emphasis was placed on a tightly structured program of presentations from nationally known consultants who have established themselves as experts in their respective fields of specialization.

The major portion of time was devoted to small group sessions where trainees were able to synthesize the presentations made and to develop planning guidelines which would hopefully result in the establishment of a planning model that the trainees would initiate and/or improve upon when they returned to their respective work assignments.

The participants were divided into five work groups with the understanding that each group would chart its own direction. No attempt was made to structure the work sessions for the purpose of designing an overall inclusive planning model. Rather, each of the five groups were to produce a different final report, although the structure of the institute itself would produce some commonalities within the reports.

II. METHODS AND PROCEDURES

Multiple Institute Grant

See Project Summary Short-Term Institutes for Inservice Training of Professional Personnel Responsible for Vocational-Technical Education in Western Metropolitan Areas, Appendix A.

Nomination and Selection of Participants

Soon after notification that the Multiple Institute Grant had been approved and was to be funded, Dr. Duane Blake, the Multiple Institute Director, visited the twenty-five major cities in the western metropolitan areas for the purpose of assessing interest on the part of the state departments of education in the major cities to participate in the multiple institutes and, at the same time, seeking subcontracting institutions that would be interested in holding one of the ten institutes.

After the ten subcontracting agencies had been selected and directors appointed, a meeting of the steering committee of the institutes was held at Colorado State University. It was agreed at this meeting that Colorado State University would design and distribute a blanket brochure and application form that would be sent to state directors, colleges, and city school superintendents. They would be requested to publicize the institutes and have interested parties fill out applications giving preference as to which institute they would be interested in attending. This information would be made available to the ten institute directors. The dates for the institutes were scheduled at this meeting.

Colorado State University forwarded all applications they received that indicated an interest in Institute X to the director. These applicants were mailed an Institute X brochure and application. (See Appendix B.) In addition, Institute X brochures and applications were sent to state directors, school superintendents, and colleges even though they had been mailed copies of the blanket brochures and applications. The multiple institute blanket brochure provided information on the purpose of the ten institutes, where they would be held, dates, topics to be discussed, list of consultants, expected outcomes, and participant information. Institute X's brochure gave an overview as presented in the blanket brochure plus details of the program's schedule, additional information about the consultants, general information on reimbursement, registration, facilities, the institute's directors, and the state of Arkansas.

Approximately 300 persons were sent an application form and brochure. Only one-third of this number returned an application. Most probably the primary factors limiting the number of requests to attend were: (1) Institute X was the last of the ten western institutes; (2) There were seven rural institutes held previous to Institute X;

(3) It was difficult for many educators to be away from their jobs at that time of the school year and; (4) Some interested persons could not attend because of the two-week duration of the institute.

A letter accompanied the Institute X brochure requesting that it be given immediate attention. Due to the limited response, numerous follow-up letters were necessary as well as numerous telephone calls.

The U.S.O.E. guidelines for selecting participants to attend Institute X were that the applicants be planning officers, program specialists, fiscal officers, and accountants from state and city education departments, and state or assistant state directors of vocational education. In selecting the participants, the directors adhered to the guidelines as much as possible. In spite of all the publicity given the institute, there were still not enough applications to be selective. All applicants with administrative responsibilities were sent a letter of acceptance. Twenty-three persons, who met the qualifications established by the U.S.O.E. and had notified the directors that they would attend, cancelled their acceptance within the last two weeks before the institute. Only applicants who were public school teachers and counselors were not considered. (A list of the participants giving their name, professional title, and address is in Appendix C.)

Even though the limited number of applications prohibited an overall selective process, it needs to be pointed out that the participants who did attend the institute were a dedicated and hard working group of people. To be away from their work assignments for two weeks at the beginning of a new school year, indicated that each participant felt a definite need for attending. This is reflected in the final reports presented by the five work groups on the final day of the institute. (See Appendix G.)

Planning the Institute

Planning the program and budget, writing the proposal, and locating facilities for housing the institute were coordinated by the institute's directors through the use of consultants with planning experience and institute experience.

An advisory committee was organized to plan activities to make the participants stay in Little Rock and Arkansas an enjoyable one. (See Appendix C for a list of committee members.)

Conducting the Institute

The institute's program was adhered to throughout the two weeks institute. Formal topical presentations were made by consultants noted for their expertise in their field of specialization. The formal papers prepared by the consultants prior to their presentation were duplicated and made available to all participants immediately following the presentation. (See Appendix F for the text of formal presentations.) In addition to their formal presentations, the consultants served as resource persons to the work groups during their stay at the institute.

Three of the consultants served as reactors to position papers presented by other consultants. After each presentation by the consultants, time was allotted for questions and answers.

Work sessions were scheduled after each formal presentation and work sheets developed by the groups on the topic presented so as to build a nucleus for the development of the model that was to be in the work groups' final report. (See Appendix G.)

The work group leaders and recorders were chosen by the directors prior to the beginning of the institute and were charged with the responsibility for each group's final report. At the close of each day the group leaders and recorders, in consultation with the directors, wrote a report of the day's presentations and work sessions. These reports were shared with all participants each morning in the general session.

Introduction, Welcome, and Orientation

The institute got underway Sunday noon with registration, at which time the participants were provided with identification tags, a list of fellow participants, the group assignment list, a copy of the institute program, theater passes, fishing permits, an assortment of materials about Arkansas and Little Rock, and a recommended list of eating and recreational establishments.

The directors met with the group leaders and recorders at 3 p.m. to explain and discuss their responsibilities. A special resume of materials such as the 1968 Amendments to the 1963 Vocational Education Act, the U.S. Office of Education's directive to the state departments of education for the development of state plans, and written directions as to the objectives and expected outcomes of the institute were furnished to the group leaders.

A reception and dinner (arranged by the advisory committee) was held at 6 p.m. at an exclusive private club overlooking Little Rock. This provided an opportunity for the participants and staff to become acquainted. A local humorist, John Pride, was the after-dinner speaker.

The official opening session began on Monday, October 5, at 8:30 a.m. Grady Knight, administrator of program planning and exemplary programs, Arkansas State Department of Education, welcomed the participants to Arkansas. A welcome to Little Rock was given by Floyd Parsons, superintendent of the Little Rock Public Schools. Mr. Parsons wished the participants a pleasant stay in Little Rock and stated that his administrative staff was available for assistance as needed.

The institute directors explained the purpose of the institute and reviewed the objectives established and the expected outcomes for the two-weeks program. The organizational pattern and guidelines for conducting the institute were also reviewed.

The keynote speaker was Charles Nix, associate commissioner for planning, Texas Education Agency, who did an outstanding job in presenting a format to the planning process.

III. EVALUATION

Pretest and Post-Test

A pretest was given to the participants at the beginning of the institute. The pretest consi ed of two forms. Form 1 was a scale to measure attitudes toward vocational education. Form 2 was an instrument to indicate a persons perception of himself as a change agent. (See pages 13-20.)

The Post-test, given the ast day of the institute, consisted of Forms 1 and 2 which were used n the pretest and Form 3. Form 3 was an evaluation of the participants' feelings concerning the institute. (See pages 21-30.)

A total of 51 people participated in Institute X--47 males and 4 females. The ages of the participants ranged from 26 to 64 years old; the average age was 44 years.

There were 16 western states represented, as shown in the following table:

States and Number of Participants

Arizona	3	Missouri	3
Arkansas	6	Nebraska	1
California	4	Nevada	1
Colorado	1	Oklahoma	5
Hawaii	1	Oregon	6
Kansas	2	Texas	6
Louisiana	2	Utah	3
Minnesota	3	Washington	4

Most of the participants held administrative positions, usually connected with the State Department of Education. In addition there were numerous consultants and coordinators, several planners and various other positions connected with vocational education, including two representatives from Employment Security Divisions.

All of the institute participants had at least a bachelor's degree. The following table shows the highest degree obtained by the participants:

Degree	Number	Percent of Total
Bachelors	9	17.7
Masters	35	68.6
Doctors	7	13.7
Total	51	100.0

All fields of vocational education were represented, but the greatest number were in Trade and Industrial Education.

As a result of attending Institute X, almost 90 percent of the participants indicated they planned to modify their work, mostly because of a better understanding of the approach to and direction of long-range planning. Several indicated that planning should involve more than just data collection; that total needs should be considered and priorities should be selected more rationally.

Over 70 percent of the participants indicated they would like to establish a continuing relation with participants and/or consultants through the exchange of ideas, publications, and even visits between states.

In general, the participants felt the goals of the institute were attained, though some were more emphatic than others. Most seemed well pleased that a workable model had been developed that they could use.

The following were given most frequently as the major strengths of the institute: caliber of participants, presentations of the consultants, small group discussions, well planned and executed institute, the Little Rock personnel, and the well planned and enjoyable extracurricular activities.

Several of the participants responded that the institute had no major weaknesses, but the following were given most frequently by others: too much emphasis on data collection and presentations by labor economists, lack of leadership in some group leaders, unenthusiastic speakers, and the accommodations (food, lodging, and meeting rooms).

The replies to recommended changes in conducting other institutes followed closely the weaknesses cited. Also, changes recommended usually corresponded to the position and vocational field of the respondent. Again, it was suggested that group leaders be selected more carefully and that the presentations on data collection be reduced. In addition, several participants felt that a one-week institute would be sufficient.

Almost all participants indicated that the institute was a well planned, productive one whose format should be used as a guide for future institutes. The social activities were greatly appreciated and the efforts of the Little Rock host institutions were outstanding. About 90 percent of the participants indicated they would apply again for the institute and almost 94 percent would recommend to their colleagues that they attend.

Institute Follow-Up Evaluation

Participants of Institute X, were contacted by mail in February 1971, four months after the institute was held, and were asked to

evaluate the institute and describe changes in vocational education which had resulted from their participation in the planning institute. (See pages 31 and 32.)

There were 46 questionnaires returned; however, two were from Employment Security Division personnel who were not involved in vocational education planning. Of the respondents, there were 42 males and 1 female. Their ages ranged from 31 to 64 years; the average age was 44 years.

There were 16 western states represented, as shown in the following table:

States and Number of Participants

Arizona	3	Missouri	3
Arkansas	6	Nebraska	1
California	4	Nevada	1
Colorado	1	Oklahoma	4
Hawaii	1	Oregon	5
Kansas	2	Texas	4
Louisiana	2	Utah	2
Minnesota	2	Washington	3

The following are some of the changes in vocational education programs which resulted from the respondents' participation in the planning institute: (1) Title changes in vocational courses; upgrading of course content; addition of new courses and deletion of others; refining of instructional techniques and materials; and, in general, providing a more meaningful instructional program. (2) Conducting classes on evaluation techniques for vocational teachers and holding conferences on improved methods of planning for vocational education. (3) Implementation of vocational orientation programs; and, in general, better organized planning activities which should result in a more coordinated vocational education program. (See Conclusions and Recommendations, pages 33 and 34.)

TABLE 1

Pretest - Form 1
All Respondents

	PERCENTAGE PATTERNS				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. No real benefit can be expected of vocational education courses.	0.0	0.0	0.0	13.7	86.3
2. Students capable of success in college should be discouraged from taking vocational courses.	2.0	0.0	2.0	43.1	52.9
3. The importance of vocational education cannot be emphasized enough.	49.0	37.3	5.9	3.9	3.9
4. Failure to offer vocational education cannot be justified in a democratic society.	52.9	37.3	2.0	2.0	5.9
5. Vocational education is geared to the past.	3.9	13.7	11.8	41.2	29.4
6. The major function of the high school should be the preparation of students for entrance into college.	0.0	2.0	2.0	47.1	49.0
7. Vocational education should be offered only to students with low academic ability.	0.0	0.0	2.0	21.6	76.5
8. The cost of training workers should not be born by the public school system.	2.0	9.8	7.8	49.0	31.4
9. There is no place in secondary schools for vocational education.	0.0	0.0	0.0	23.5	76.5
10. Vocational education should be handled outside the academic school system--in technical institutes or community colleges.	0.0	2.0	5.9	47.1	45.1
11. Increased emphasis on vocational education would not result in fewer dropouts.	2.0	13.7	7.8	37.3	39.2

TABLE I (cont)

	PERCENTAGE PATTERNS				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
12. Every high school graduate should be equipped with a salable skill.	43.1	43.1	5.9	5.9	2.0
13. Increased vocational education may be the answer to the problems of unemployment.	17.6	62.7	15.7	3.9	0.0
14. Academic educational courses are more useful than vocational courses to the average student.	0.0	3.9	23.5	51.0	21.6
15. No secondary school should be accredited unless it offers a comprehensive program of vocational education, given adequate funds.	27.4	43.1	15.7	11.8	.0
16. The information provided in the college preparatory courses can be applied to more jobs than the information available in vocational education courses.	2.0	19.6	23.5	35.3	19.6
17. More students should be encouraged to enroll in vocational education programs.	37.3	60.8	2.0	0.0	0.0
18. Vocational education is an educational frill.	0.0	0.0	2.0	19.6	78.4
19. No area of education is more important than vocational education.	23.5	17.6	23.5	33.3	2.0
20. Public expenditure of funds for vocational education is the best educational expenditure that can be made.	17.6	37.3	37.3	7.8	0.0
21. The general education curriculum is the best preparation for entry into an occupation upon graduation from high school.	0.0	2.0	5.9	58.8	33.3
22. Vocational education courses are as important for college bound students as they are for non-college bound students.	9.8	58.8	15.7	15.7	0.0

TABLE I (cont)

	PERCENTAGE PATTERNS				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
23. The proportion of the school budget allocated to vocational education should be increased markedly.	35.3	49.0	13.7	2.0	0.0
24. Vocational education is one answer to youth unrest in this country.	27.4	54.9	11.8	5.9	0.0
25. Redistribution of present education funds to emphasize vocational education would probably yield a higher national per capita income.	25.5	47.1	23.5	3.9	0.0
26. Vocational education courses prepare students for many jobs which lack prestige.	7.8	41.2	19.6	27.4	3.9
27. All students should be enrolled in at least one vocational education class while in school.	21.6	51.0	13.7	11.8	2.0
28. Rural youth are being educationally short-changed due to inadequate vocational offerings.	31.4	43.1	15.7	9.8	0.0
29. Vocational education in rural areas is more important than vocational education in urban areas.	0.0	2.0	17.6	56.9	23.5
30. Currently employed rural vocational education teachers are less adequately prepared than vocational education teachers in general.	0.0	19.6	45.1	29.4	5.9
31. More inclusive preparation is required for vocational teachers in general than for rural vocational education teachers.	0.0	9.8	47.1	37.3	5.9
32. Only the non-college bound need vocational education.	0.0	3.9	2.0	54.9	39.2
33. Academic courses are applicable to a wider spectrum of jobs than vocational courses.	3.9	41.2	9.8	37.3	7.8

TABLE I (cont)

	PERCENTAGE PATTERNS				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
34. Most students would not benefit from the job skill instruction offered in vocational education programs.	0.0	2.0	3.9	56.9	37.3
35. Vocational education courses are beneficial primarily for those who are terminating their education at the end of high school.	2.0	23.5	7.8	51.0	15.7
36. The vocational education curriculum provides a better preparation for more jobs than does the college preparatory curriculum	13.7	41.2	23.5	21.6	0.0
37. Vocational education courses provide learning experiences geared to individual needs better than academic courses.	23.5	62.7	11.8	2.0	0.0
38. Vocational education programs help keep the potential dropout in school.	29.4	60.8	7.8	2.0	0.0
39. Vocational training is not as valuable to society as training for the professions.	2.0	0.0	7.8	49.0	41.2

NOTE: May not sum to 100 due to rounding.

TABLE II

Pre-Test - Form 2
All Respondents (Percentage Patterns)

Thi. a questionnaire to find out the way in which important events in our society affect different people. Each item consists of a pair of alternatives lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned. Be sure to select the one you think you should choose or the one you would like to be true. This is a measure of personal belief; obviously there are no right or wrong answers.*

			Per Cent of Total
1.	a.	Children get into trouble because their parents punish them too much.	6.3
	b.	The trouble with most children nowadays is that their parents are too easy with them.	93.7
2.	a.	Many of the unhappy things in people's lives are partly due to bad luck.	14.3
	b.	People's misfortunes result from the mistakes they make.	85.7
3.	a.	One of the major reasons why we have wars is because people don't take enough interest in politics.	54.2
	b.	There will always be wars, no matter how hard people try to prevent them.	45.8
4.	a.	In the long run people get the respect they deserve in this world.	58.3
	b.	Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.	41.7
5.	a.	The idea that teachers are unfair to students is nonsense.	29.8
	b.	Most students don't realize the extent to which their grades are influenced by accidental happenings.	70.2
6.	a.	Without the right breaks one cannot be an effective leader.	14.6
	b.	Capable people who fail to become leaders have not taken advantage of their opportunities.	85.4
7.	a.	No matter how hard you try, some people just don't like you.	14.9
	b.	People who can't get others to like them don't understand how to get along with others.	85.1

TABLE II (cont)

Pre-Test - Form 2

			Per Cent of Total
8.	a.	Heredity plays the major role in determining one's personality.	10.2
	b.	It is one's experiences in life which determine what they are like.	89.8
9.	a.	I have often found that what is going to happen will happen.	6.1
	b.	Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.	93.9
10.	a.	In the case of the well-prepared student, there is rarely if ever such a thing as an unfair test.	54.2
	b.	Many times exam questions tend to be so unrelated to course work that studying is really useless.	45.8
11.	a.	Becoming a success is a matter of hard work; luck has little or nothing to do with it.	75.5
	b.	Getting a good job depends mainly on being in the right place at the right time.	24.5
12.	a.	The average citizen can have an influence in government decisions.	85.7
	b.	This world is run by the few people in power, and there is not much the little guy can do about it.	14.3
13.	a.	When I make plans, I am almost certain that I can make them work.	95.9
	b.	It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.	4.1
14.	a.	There are certain people who are just no good.	8.2
	b.	There is some good in everybody.	91.8
15.	a.	In my case getting what I want has little or nothing to do with luck.	93.9
	b.	Many times we might just as well decide what to do by flipping a coin.	6.1
16.	a.	Who gets to be the boss often depends on who was lucky enough to be in the right place first.	20.4
	b.	Getting people to do the right thing depends upon ability; luck has little or nothing to do with it.	79.6

TABLE II (cont)

Pre-Test - Form 2

			Per Cent of Total
17.	a.	As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.	28.6
	b.	By taking an active part in political and social affairs, the people can control world events.	71.4
18.	a.	Most people don't realize the extent to which their lives are controlled by accidental happenings.	44.9
	b.	There is really no such thing as "luck."	55.1
19.	a.	One should always be willing to admit mistakes.	98.0
	b.	It is usually best to cover up one's mistakes.	2.0
20.	a.	It is hard to know whether or not a person really likes you.	31.2
	b.	How many friends you have depends upon how nice a person you are.	68.8
21.	a.	In the long run the bad things that happen to us are balanced by the good ones.	44.9
	b.	Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.	55.1
22.	a.	With enough effort we can wipe out political corruption.	75.5
	b.	It is difficult for people to have much control over the things politicians do in office.	24.5
23.	a.	Sometimes I can't understand how teachers arrive at the grades they give.	24.5
	b.	There is a direct connection between how hard I study and the grades I get.	75.5
24.	a.	A good leader expects people to decide for themselves what they should do.	28.6
	b.	A good leader makes it clear to everybody what their jobs are.	71.4
25.	a.	Many times I feel that I have little influence over the things that happen to me.	34.7
	b.	It is impossible for me to believe that chance or luck plays an important role in my life.	65.3

TABLE II (cont)

Pre-Test - Form 2

			Per Cent of Total
26.	a.	People are lonely because they don't try to be friendly.	87.8
	b.	There's not much use in trying too hard to please people, if they like you, they like you.	12.2
27.	a.	There is too much emphasis on athletics in high school.	26.5
	b.	Team sports are an excellent way to build character.	73.5
28.	a.	What happens to me is my own doing.	91.8
	b.	Sometimes I feel that I don't have enough control over the direction my life is taking.	8.2
29.	a.	Most of the time I can't understand why politicians behave the way they do.	4.1
	b.	In the long run the people are responsible for bad government on a national as well as on a local level.	95.9

*Rotter, J. B. Generalized Expectancies for Internal Versus External Control of Reinforcement. Psychological Monographs, 80, 1966, 1-28.

TABLE I

Post-Test - Form 1
All Respondents

	PERCENTAGE PATTERNS				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. No real benefit can be expected of vocational education courses.	0.0	0.0	0.0	18.4	81.6
2. Students capable of success in college should be discouraged from taking vocational courses.	2.0	0.0	4.1	42.8	53.1
3. The importance of vocational education cannot be emphasized enough.	44.9	44.9	8.2	2.0	0.0
4. Failure to offer vocational education cannot be justified in a democratic society.	38.8	46.9	0.0	8.2	6.1
5. Vocational education is geared to the past.	2.0	10.2	14.3	44.9	28.6
6. The major function of the high school should be the preparation of students for entrance into college.	0.0	2.0	2.0	46.9	49.0
7. Vocational education should be offered only to students with low academic ability.	0.0	0.0	0.0	34.7	65.3
8. The cost of training workers should not be born by the public school system.	0.0	6.1	12.2	53.1	28.6
9. There is no place in secondary schools for vocational education.	0.0	2.0	0.0	26.5	71.4
10. Vocational education should be handled outside the academic school system--in technical institutes or community colleges.	0.0	0.0	8.2	51.0	40.8
11. Increased emphasis on vocational education would not result in fewer dropouts.	4.1	16.3	4.1	53.1	22.4

TABLE I (cont)
Post-Test - Form I

		PERCENTAGE PATTERNS				
		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
12.	Every high school graduate should be equipped with a salable skill.	42.9	40.8	4.1	12.2	0.0
13.	Increased vocational education may be the answer to the problems of unemployment.	12.2	59.2	18.4	10.2	0.0
14.	Academic educational courses are more useful than vocational courses to the average student.	0.0	6.1	10.2	67.3	16.3
15.	No secondary school should be accredited unless it offers a comprehensive program of vocational education, given adequate funds.	30.6	38.8	12.2	18.4	0.0
16.	The information provided in the college preparatory courses can be applied to more jobs than the information available in vocational education courses.	2.0	22.4	14.3	42.9	18.4
17.	More students should be encouraged to enroll in vocational education programs.	44.9	53.1	2.0	0.0	0.0
18.	Vocational education is an educational frill.	0.0	0.0	2.0	30.6	67.3
19.	No area of education is more important than vocational education.	26.5	26.5	28.6	18.4	0.0
20.	Public expenditure of funds for vocational education is the best educational expenditure that can be made.	20.4	28.6	38.8	12.2	0.0
21.	The general education curriculum is the best preparation for entry into an occupation upon graduation from high school.	0.0	2.0	2.0	61.2	34.7
22.	Vocational education courses are as important for college bound students as they are for non-college bound students.	18.4	53.1	4.1	24.5	0.0

TABLE 1 (cont)
Post-Test - Form 1

	PERCENTAGE PATTERNS				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
23. The proportion of the school budget allocated to vocational education should be increased markedly.	51.0	40.8	6.1	2.0	0.0
24. Vocational education is one answer to youth unrest in this country.	30.6	59.2	10.2	0.0	0.0
25. Redistribution of present education funds to emphasize vocational education would probably yield a higher national per capita income.	24.5	49.0	22.4	2.0	2.0
26. Vocational education courses prepare students for many jobs which lack prestige.	8.2	57.1	12.2	18.4	6.1
27. All students should be enrolled in at least one vocational education class while in school.	20.4	65.3	8.2	6.1	0.0
28. Rural youth are being educationally short-changed due to inadequate vocational offerings.	22.4	49.0	24.5	4.1	0.0
29. Vocational education in rural areas is more important than vocational education in urban areas.	0.0	2.0	24.5	55.1	18.4
30. Currently employed rural vocational education teachers are less adequately prepared than vocational education teachers in general.	0.0	28.6	36.7	30.6	4.1
31. More inclusive preparation is required for vocational teachers in general than for rural vocational education teachers.	0.0	20.4	34.7	34.7	10.2
32. Only the non-college bound need vocational education.	0.0	0.0	4.1	57.1	38.8
33. Academic courses are applicable to a wider spectrum of jobs than vocational courses.	4.1	32.7	12.2	36.7	14.3

TABLE 1 (cont)
Post-Test - Form 1

	PERCENTAGE PATTERNS				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
34. Most students would not benefit from the job skill instruction offered in vocational education programs	0.0	6.1	4.1	55.1	34.7
35. Vocational education courses are beneficial primarily for those who are terminating their education at the end of high school.	2.0	12.2	4.1	57.1	24.5
36. The vocational education curriculum provides a better preparation for more jobs than does the college preparatory curriculum.	24.5	34.7	20.4	20.4	0.0
37. Vocational education courses provide learning experiences geared to individual needs better than academic courses.	24.5	61.2	8.2	6.1	0.0
38. Vocational education programs help keep the potential dropout in school.	22.4	65.3	10.2	2.0	0.0
39. Vocational training is not as valuable to society as training for the professions.	0.0	2.0	12.2	44.9	40.8

Note: May not sum to 100 due to rounding.

TABLE II

Post-Test - Form 2
All Respondents (Percentage Patterns)

This is a questionnaire to find out the way in which important events in our society affect different people. Each item consists of a pair of alternatives lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned. Be sure to select the one you think you should choose or the one you would like to be true. This is a measure of personal belief; obviously there are no right or wrong answers.*

			Per Cent of Total
1.	a.	Children get into trouble because their parents punish them too much.	12.5
	b.	The trouble with most children nowadays is that their parents are too easy with them.	87.5
2.	a.	Many of the unhappy things in people's lives are partly due to bad luck.	14.6
	b.	People's misfortunes result from the mistakes they make.	85.4
3.	a.	One of the major reasons why we have wars is because people don't take enough interest in politics.	60.4
	b.	There will always be wars no matter how hard people try to prevent them.	39.6
4.	a.	In the long run people get the respect they deserve in this world.	64.6
	b.	Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.	35.4
5.	a.	The idea that teachers are unfair to students is nonsense.	39.6
	b.	Most students don't realize the extent to which their grades are influenced by accidental happenings.	60.4
6.	a.	Without the right breaks one cannot be an effective leader.	4.2
	b.	Capable people who fail to become leaders have not taken advantage of their opportunities.	95.8
7.	a.	No matter how hard you try, some people just don't like you.	10.4
	b.	People who can't get others to like them don't understand how to get along with others.	89.6

TABLE II (cont)

Post-Test - Form 2

			Per Cent of Total
8.	a.	Heredity plays the major role in determining one's personality.	10.4
	b.	It is one's experiences in life which determine what they are like.	89.6
9.	a.	I have often found that what is going to happen will happen.	10.4
	b.	Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.	89.6
10.	a.	In the case of the well-prepared student, there is rarely if ever such a thing as an unfair test.	50.0
	b.	Many times exam questions tend to be so unrelated to course work that studying is really useless.	50.0
11.	a.	Becoming a success is a matter of hard work, luck has little or nothing to do with it.	83.3
	b.	Getting a good job depends mainly on being in the right place at the right time.	16.7
12.	a.	The average citizen can have an influence in government decisions.	87.5
	b.	This world is run by the few people in power, and there is not much the little guy can do about it.	12.5
13.	a.	When I make plans, I am almost certain that I can make them work.	95.8
	b.	It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.	4.2
14.	a.	There are certain people who are just no good.	6.3
	b.	There is some good in everybody.	93.7
15.	a.	In my case getting what I want has little or nothing to do with luck.	93.7
	b.	Many times we might just as well decide what to do by flipping a coin.	6.3
16.	a.	Who gets to be the boss often depends on who was lucky enough to be in the right place first.	10.4
	b.	Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.	89.6

TABLE II (cont)

Post-Test - Form 2

			Per Cent of Total
17.	a.	As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.	22.9
	b.	By taking an active part in political and social affairs, the people can control world events.	77.1
18.	a.	Most people don't realize the extent to which their lives are controlled by accidental happenings.	45.8
	b.	There is really no such thing as "luck."	54.2
19.	a.	One should always be willing to admit mistakes.	100.0
	b.	It is usually best to cover up one's mistakes.	0.0
20.	a.	It is hard to know whether or not a person really likes you.	33.3
	b.	How many friends you have depends upon how nice a person you are.	66.7
21.	a.	In the long run the bad things that happen to us are balanced by the good ones.	33.3
	b.	Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.	66.7
22.	a.	With enough effort we can wipe out political corruption.	85.4
	b.	It is difficult for people to have much control over the things politicians do in office.	14.6
23.	a.	Sometimes I can't understand how teachers arrive at the grades they give.	20.8
	b.	There is a direct connection between how hard I study and the grades I get.	79.2
24.	a.	A good leader expects people to decide for themselves what they should do.	27.1
	b.	A good leader makes it clear to everybody what their jobs are.	72.9
25.	a.	Many times I feel that I have little influence over the things that happen to me.	29.2
	b.	It is impossible for me to believe that chance or luck plays an important role in my life.	70.8

TABLE II (cont)

Post-Test - Form 2			Per Cent of Total
26.	a.	People are lonely because they don't try to be friendly.	89.6
	b.	There's not much use in trying too hard to please people, if they like you, they like you.	10.4
27.	a.	There is too much emphasis on athletics in high school.	31.3
	b.	Team sports are an excellent way to build character.	68.7
28.	a.	What happens to me is my own doing.	93.8
	b.	Sometimes I feel that I don't have enough control over the direction my life is taking.	6.2
29.	a.	Most of the time I can't understand why politicians behave the way they do.	8.3
	b.	In the long run the people are responsible for bad government on a national as well as on a local level.	91.7

*Rotter, J. B. Generalized Expectancies for Internal Versus External Control of Reinforcement. Psychological Monographs, 80, 1966, 1-28.

TABLE III

Post-Test - Form 3
All Respondents

		PERCENTAGE PATTERNS				
		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1.	The objectives of this institute were clear to me.	12.8	72.3	4.3	6.4	4.3
2.	The objectives of this institute were not realistic.	0.0	4.3	6.4	63.8	25.5
3.	The participants accepted the purposes of this institute.	10.6	80.9	8.5	0.0	0.0
4.	The objectives of this institute were not the same as my objectives.	4.3	8.5	4.3	76.6	6.4
5.	I have not learned anything new.	0.0	4.3	0.0	48.9	46.8
6.	The material presented seemed valuable to me.	21.3	74.5	4.3	0.0	0.0
7.	I could have learned as much by reading a book.	0.0	2.1	2.1	59.6	36.2
8.	Possible solutions to my problems were not considered.	0.0	2.1	6.4	68.1	23.4
9.	The information presented was too elementary.	0.0	0.0	2.1	66.0	31.9
10.	The speakers really knew their subject.	17.0	74.5	2.1	6.4	0.0
11.	I was stimulated to think about the topics presented.	19.1	61.7	10.6	8.5	0.0
12.	We worked together well as a group.	27.7	66.0	6.4	0.0	0.0
13.	The group discussions were excellent.	29.8	61.7	4.3	4.3	0.0
14.	There was little time for informal conversation.	0.0	6.4	0.0	63.8	29.8
15.	I had no opportunity to express my ideas.	0.0	0.0	0.0	61.7	38.3

TABLE III (cont)
Post-Test - Form 3

	PERCENTAGE PATTERNS				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
16. I really felt a part of this group.	36.2	61.7	2.1	0.0	0.0
17. My time was well spent.	31.9	63.8	4.3	0.0	0.0
18. The institute met my expectations.	21.3	66.0	8.5	2.1	2.1
19. Too much time was devoted to trivial matters.	0.0	17.0	8.5	59.6	14.9
20. The information presented was too advanced.	0.0	0.0	6.4	74.5	19.1
21. The content was not readily applicable to the important problems in this area.	0.0	8.5	2.1	68.1	21.3
22. Theory was not related to practice.	0.0	6.4	6.4	74.5	12.8
23. The printed materials that were provided were very helpful.	14.9	78.7	4.3	0.0	2.1
24. The schedule should have been more flexible.	0.0	2.1	8.5	76.6	12.8

Note: May not sum to 100 due to rounding.

POST-INSTITUTE EVALUATION

	Percentage Patterns	
	Yes	No
Because of information gained at the institute, I:		
1. Have been able to do a more effective job of planning.	95.6	4.4
2. Have re-evaluated present planning procedures.	95.6	4.4
3. Have organized new planning procedures.	77.8	22.2
4. Have helped others organize new planning procedures.	68.9	31.1
5. Have used manpower statistics more effectively.	65.9	34.1
6. Have used guides, procedures, and models developed at the institute for more effective planning.	86.7	13.3
7. Have been able to initiate a new planning department.	4.4	95.6
8. Have been working more closely with various segments of the community such as business, industry, agriculture, and the local employment security office.	63.6	36.4
9. Have given talks on the planning process.	53.3	46.7
10. Have been working more effectively with other educators.	91.1	8.9
11. Have been constantly using some of the information presented at the institute.	71.1	28.9
12. Have referred to and used the printed materials that were provided at the institute.	93.3	6.7
13. Have definitely learned new concepts which have been valuable to me.	91.1	8.9
14. Have become more aware of the vocational needs of the disadvantaged and/or specific target groups.	55.6	44.4
15. Have become more aware of human element such as student attitudes.	56.8	43.2
16. Have sought new data sources for vocational-technical planning.	75.6	24.4

POST-INSTITUTE EVALUATION, Cont.

		Percentage Patterns	
		Yes	No
17.	Have modified some of my present or planned activities in vocational education.	88.9	11.1
18.	Have explained new concepts in planning for vocational-technical education to vocational teachers in the school district, institution, or state that I represent.	77.3	22.7
19.	Have written articles or other materials.	24.4	75.6
20.	Have kept in contact with some of the participants and/or consultants I met during the institute.	71.1	28.9

IV. REPORTS, CONCLUSIONS, AND RECOMMENDATIONS

Reports

Besides providing the participants with additional knowledge and skills for improving vocational education program planning, the institute was planned to achieve two other objectives. One important objective was to give participants leadership and staff development experience. The other was to result in the preparation of a guideline booklet on strategies and procedures useful to vocational educators in urban areas as they develop annual and long-range plans, budgets, and evaluation procedures for vocational programs.

The work sessions proved to be the most valuable input in the institute. Participants were divided into five work groups. One objective was to provide a setting where each participant would have an opportunity to interact with other participants in a thorough review and synthesis of papers presented in such a way as to obtain group consensus, where possible, as to the best strategies and techniques of program planning available. A copy of the work group assignment may be seen in Appendix E.

A work group leader and a recorder were selected by the directors prior to the institute to give leadership to each group. The leaders and recorders were given special instructions and an opportunity to ask questions at a meeting held the afternoon before the opening of the institute. Scheduled staff meetings also provided an opportunity to check on the progress each group was making and to provide new inputs when needed. A clerical staff was maintained each evening and assigned the responsibility of typing sufficient copies of the work groups' daily reports for each participant. These reports were distributed to the group recorders at the beginning of the next day's work sessions. A major portion of the institute's time was devoted to the work sessions. The group leaders were asked to make an oral final report at the last general session on Friday morning, the closing day of the institute. The full text of each report may be found in Appendix G.

The final outcome sought by each group was the development of a general guide on strategies and procedures that could be used by others responsible for planning vocational education programs.

Conclusions

The institute was planned so as to focus on three major purposes or expected outcomes. They were as follows:

1. Provide participants with staff development experiences in annual and long-range program planning.

2. Introduce to participants various sources and validity of all needed data necessary for effective planning in vocational education.

3. Prepare a guideline on strategies and procedures useful to vocational educators as they develop annual and long-range plans, budgets, and evaluation procedures for vocational programs.

After analyzing participants satisfaction with the total program, reviewing the guidelines on strategies and procedures for effective planning developed by the five work groups, and studying the results of the follow-up evaluation, it is concluded that the Institute on Annual and Long-Range Program Planning for Vocational Education was successful in accomplishing its major purposes.

Recommendations

Based on the evaluative comments provided by the institute participants and the experiences of the institute staff, the following recommendations are made:

1. A one-week institute would be more appropriate since it is difficult for participants to be away from their assigned duties for two weeks.

2. Less time should be allotted to formal presentations by consultants and more time allotted to small work group sessions.

3. Procedures should be developed for the selection of work group leaders and recorders that would include specialized training for them prior to the starting date of the institute.

4. Program a smaller number of institutes within one given year. Home work assignments limit participants as to how many institutes they can attend. Also, institutes should not be scheduled in September or October since this is the beginning of a new school year and this adds to the difficulty of obtaining sufficient participants.

APPENDIXES

APPENDIX A

Project Summary

Short-Term Institutes for Inservice Training of Professional Personnel Responsible for Vocational-Technical Education in Western Metropolitan Areas

PROJECT SUMMARY

Introduction

Providing inservice education for vocational educators is one of the formidable tasks now facing the field of vocational education. Skyrocketing student enrollments, expansion in the number of full-time and part-time vocational educators, needed reductions in pupil-teacher ratios, accelerated development of occupational programs for students with socioeconomic or other handicaps, and new innovations in educational techniques emphasize the demand for more and better inservice training of vocational educators.

The need for staff development is further warranted by the Nation's rapid social and economic changes. Moreover, the widening gap between available vocational education offerings and training required by today's youth and adults has added to the urgency for strengthening the inservice training of vocational educators.

To keep pace with these developments, it is imperative that high priority be given to updating the technical and/or professional competencies of practicing vocational educators in order that they might adequately respond to new demands being placed upon them. Seminars, institutes, conferences, and workshops should help vocational educators meet many of the challenges posed by an everchanging technology with its concomitant effect on industrial growth and occupational requirements.

Training Programs

As in earlier years, the Fiscal Year (FY) 1969 short-term training program for vocational and technical education personnel development will concentrate on specific problem areas. The training program for FY 1969 represents a cooperative effort on the part of the Bureau of Educational Personnel Development, Bureau of Adult, Vocational and Library Programs, and Bureau of Research to provide vocational educators and related personnel with relevant short-term training which will assist them to meet the many challenges posed by an ever-changing technology and new patterns of occupational growth and requirements. The FY 1969 training programs are being administered by the Bureau of Research under funds authorized by Part D, Section 531, Public Law 90-35, Education Professions Development Act (Title V as amended, of the Higher Education Act of 1965).

There are many national, social, and economic problems which concern the public and private educational community as well as labor and management. However, pressures of our time bring special concern for

how vocational education can be made more responsive to the occupational needs of youth and adults living in two geographic settings (1) metropolitan areas, especially the inner city, and (2) isolated rural areas where school facilities, financial resources, and styles of learning are often different from more populous regions.

To meet the special needs of metropolitan and rural areas, a portion of the FY 1969 Federal resources for vocational personnel development will be used to help educators respond to the occupational needs of people living in these geographic settings. Toward this end, the Office of Education has awarded two major "multiple institute" grants in support of vocational education in metropolitan areas and one such grant in support of vocational education in rural areas.

Multiple Institute Grants: Each of the two major grants on vocational education in metropolitan areas will support a series of 10 interrelated institutes, and the one major grant on vocational education in rural areas will support a series of 7 such institutes.

Of the two grants for institutes dealing with metropolitan area vocational education needs, one grant will accommodate the training needs of a substantial number of vocational educators from the states in the U.S. Department of Health, Education, and Welfare, Regions I through V (Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, New Jersey, Delaware, Maryland, West Virginia, Virginia, North Carolina, Kentucky, South Carolina, Florida, Tennessee, Georgia, Alabama, Mississippi, Ohio, Michigan, Indiana, Illinois, Wisconsin, Puerto Rico, Virgin Islands, District of Columbia). The second grant will accommodate the training needs of a comparable number of vocational educators in Regions VI through IX (Minnesota, North Dakota, South Dakota, Nebraska, Iowa, Missouri, Kansas, Texas, Oklahoma, New Mexico, Montana, Idaho, Wyoming, Utah, Colorado, Arizona, Nevada, California, Oregon, Washington, Alaska, Hawaii, Arkansas, Louisiana, Guam, American Samoa).

Institutes will be conducted during an eighteen-month period, beginning with the effective date of the grant. One or more of the institutes might logically be conducted during the summer months. Prior commitments of consultants, participants, and instructional staffs, and other factors might also necessitate conducting institutes other than during the summer months. Arrangements will be made to sequence the total program so that "outcomes" of one institute serve as "inputs" for another.

More specifically, training programs will provide qualified participants with inservice training that will help resolve immediate vocational education problems. A mere assemblage of subject matter information is not adequate; successful programs integrate content with training. In keeping with the general intent of the Vocational Education Act of 1963, as amended, these training institutes will provide appropriate emphasis on the special needs of individuals with academic, socioeconomic, or other handicaps. Where relevant or applicable, instruction in new educational methods, media, and

materials will be included. Training program participants will be selected on the basis of needs, qualifications, and experience.

Multiple Institutes

Metropolitan Areas: These multiple institute grants have been awarded for the inservice training of vocational educators and related personnel needed to strengthen vocational education in metropolitan areas. Grant recipients are responsible for conducting (or having conducted) the series of ten short-term institutes, Nos. 1 through 10.

1. Administrative Coordination of Vocational Education in Metropolitan Areas

2. Annual and Long-Range Program Planning in Metropolitan Areas in Accordance with the Vocational Education Amendments of 1968

3. Orientation to New Vocational Education Concepts and Programs in Metropolitan Areas

4. Coordination of Supportive Programs for Vocational Education Students in Metropolitan Areas

5. Improving Preparation of Professional Personnel for Vocational Education in Metropolitan Areas

6. Updating the Process and Content of Teacher Education Courses to Reach Disadvantaged Adults in Metropolitan Areas

7. Updating the Process and Content of Teacher Education Curriculum to Reach Disadvantaged Youth in Metropolitan Areas

8. Improving Occupational Orientation Programs for Junior High School Students in Metropolitan Areas

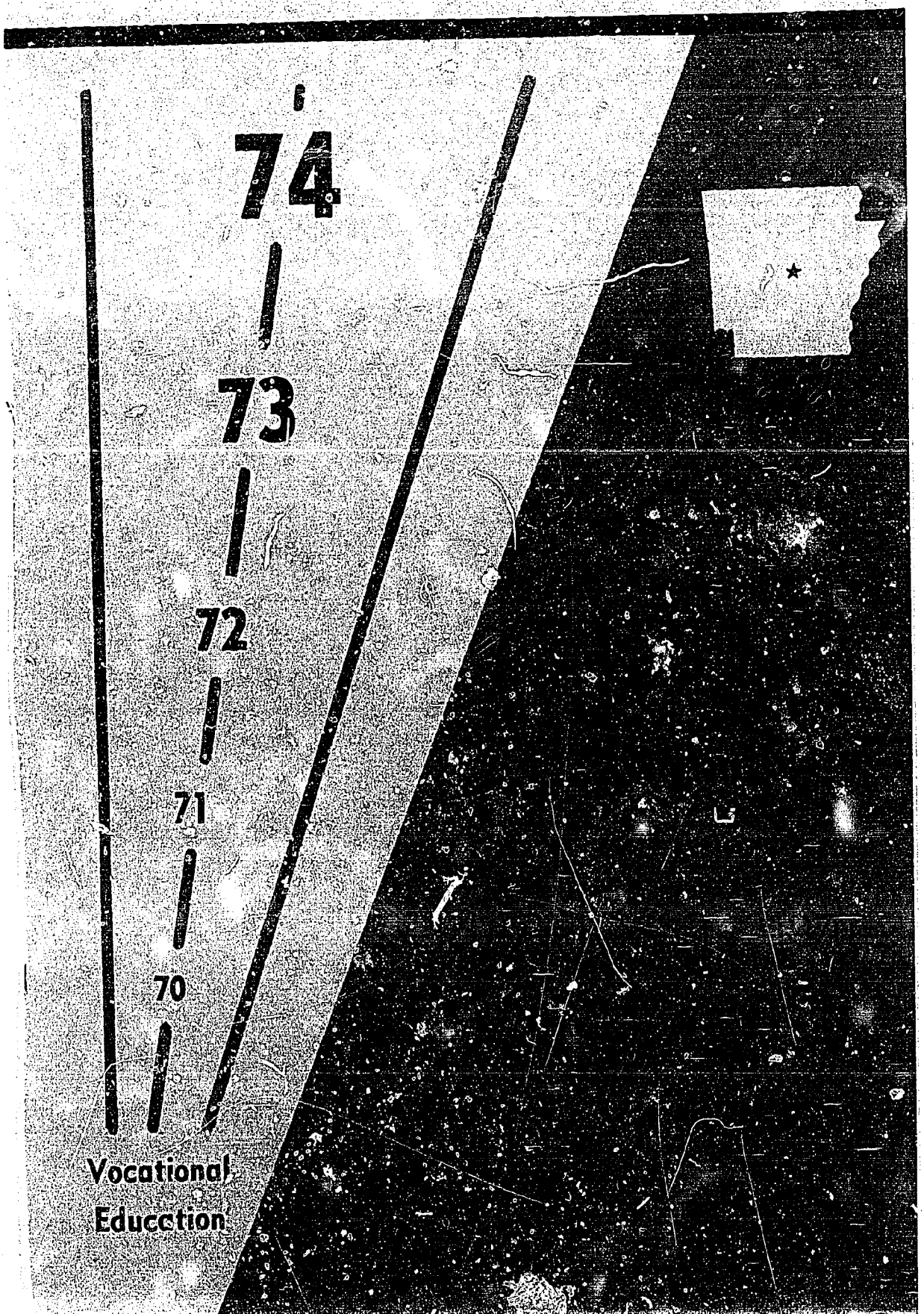
9. Development of Vocational Guidance and Placement Personnel for Metropolitan Areas

10. Metropolitan Area Application of Vocational Education Innovations Resulting from Research and Development Programs

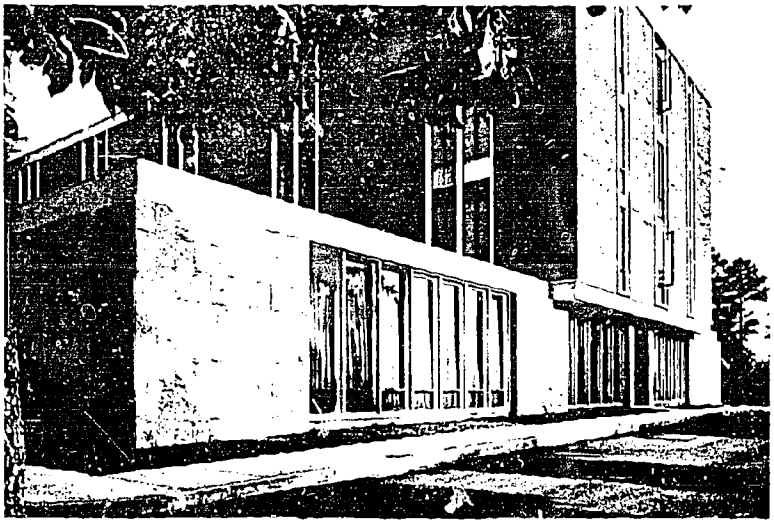
APPENDIX B

Brochure & Application Form

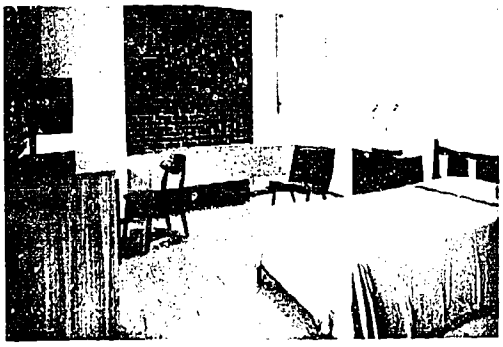
INSTITUTE X



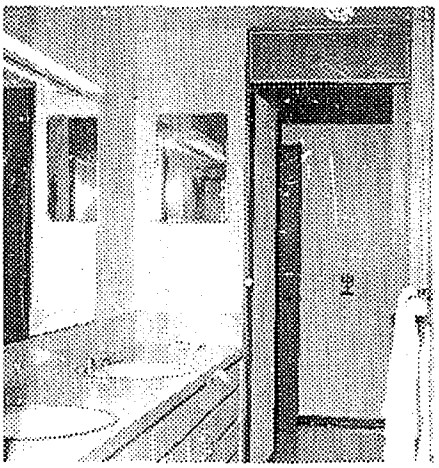
INSTITUTE FACILITIES



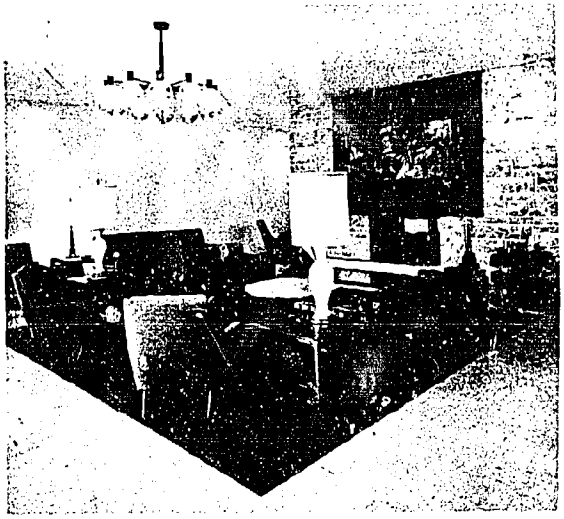
Main Building



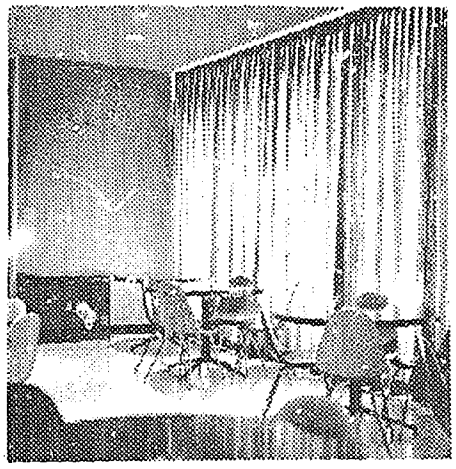
Bed Room



Bath, Services
Two Adjoining Rooms



Lounge and TV Room



Coffee Room

OVERVIEW

SHORT-TERM INSTITUTES FOR INSERVICE TRAINING OF PROFESSIONAL PERSONNEL RESPONSIBLE FOR VOCATIONAL-TECHNICAL EDUCATION IN WESTERN METROPOLITAN AREAS

Providing inservice education for persons responsible for vocational education is one of the formidable tasks now facing the field of vocational education. Skyrocketing student enrollments, expansion in the number of full-time and part-time vocational educators, needed reductions in pupil-teacher ratios, accelerated development of occupational programs for students with socioeconomic or other handicaps, and new innovations in educational techniques emphasize the demand for more and better inservice training.

The need for staff development is further warranted by the Nation's rapid social and economic changes. Moreover, the widening gap between available vocational education offerings and training required by today's youth and adults has added to the urging for strengthening the inservice training of educators.

THE PROJECT

The Short-Term Institutes for Inservice Training of Professional Personnel Responsible for Vocational-Technical Education in Western Metropolitan Areas is a multiple institute project, coordinated by Colorado State University, under the auspices of the United States Office of Education. The project consists of ten separate institutes, conducted in various cities of the Western United States during the calendar year of 1970, and directed toward the involvement of large city school administrators, vocational education directors, teachers, counselors, State Commissioners of Education, State Directors of Vocational Education, persons responsible for teacher and counselor education programs, and representatives from industry, business, labor, and city government. In all, a total of 800 participants will be served.

THE PROGRAM

Each of the ten institutes is designed to deal directly with the different concerns of persons responsible for vocational education. They are intended to be **working conferences,** from which each participant will obtain concrete materials with which he can operate. Each participant will combine his knowledge and special skills with that of others in the development of these materials, and will commit himself to the utilization of the knowledge and materials he has obtained from the institute to implement a program or project to bring about desirable changes in his area.

INSTITUTE X

TITLE: Annual and Long-Range Program Planning in Metropolitan Areas in Accordance with the Vocational Education Act Amendments of 1968.

DATE: October 5, 1970, through October 16, 1970.

PLACE: Albert Pike Motor Hotel
7th and Scott Streets
Little Rock, Arkansas

TOPICS:

"The Planning Process: Its Role in Education"

"Comprehensive Planning in Accordance with the Vocational Education Amendments of 1968"

"Data Needs for Educational Planning"

"Vocational Education in Perspective of Technological Change"

"Manpower Forecasting"

"Focusing Attention Upon Vocational Education Programs and their Relationship to Manpower, Employment, and Poverty in Urban Areas"

"Socioeconomic Characteristics of People"

"Program Evaluation and Budgeting"

OUTCOMES: Instructional packages, special reports, individual ability to render technical assistance and replicate program planning process in state and local communities.

PARTICIPANTS: 50—Planning officers, program specialists, fiscal officers, and accountants from state and city education departments, and state or assistant state directors of vocational education.

PROGRAM

FIRST WEEK

Sunday:

Registration 1:00 p.m. to 5:00 p.m.

Reception 6:00 p.m.

Dinner 7:00 p.m.

Monday:

8:00 a.m. to 5:00 p.m.

Registration

Welcome to Arkansas — J. Marion Adams, Associate Commissioner for Vocational, Technical, and Adult Education, Arkansas State Department of Education.

Welcome to Little Rock — Floyd W. Parsons, Superintendent of Little Rock Public Schools.

Overview of Institute Purposes — Ernest L. Rush, Institute Director.

Structure and Arrangements for the Institute — Dr. Frank Troutman, Institute Co-Director.

The Planning Process: Its Role in Education — Dr. Charles Nix, Associate Commissioner for Planning, Texas Education Agency.

Work Session — Organization of participants into work groups and instructions from work group leaders.

Comprehensive Planning in Accordance with the Vocational Education Amendments of 1968 — Dr. Otto Legg, Senior Program Officer, Planning and Evaluation Branch, Division of Vocational Technical Education, U. S. Office of Education.

Work Session — Groups will discuss planning required by the Vocational Act of 1968 and the setting of goals and objectives in program planning.

Tuesday: 8:00 a.m. to 5:00 p.m.

Data Needs for Educational Planning — Dr. Herbert Striner, Dean, College of Continuing Education, The American University, Washington, D. C.

Reaction to and Analyzation of the Position Paper by Dr. Striner — Dr. John Peterson, Executive Director of the Arkansas Planning Commission.

Work Session — Groups will discuss data needs in educational planning.

Vocational Education in Perspective of Technological Change — Dr. Daniel Creamer, Manager of Special Economics Projects, National Industrial Conference Board, New York, N. Y.

Reaction to and Analyzation of the Position Paper by Dr. Creamer — Dr. Darrell Spriggs, College of Business Administration, University of Arkansas.

Work Session — The groups will discuss technological change and its relevance to educational planning.

Wednesday: 8:00 a.m. to 5:00 p.m.

General Session — Progress reports, announcements, and instructions.

Sources of Occupational Data for Educational Planning — Sar A. Levitan, Director of Center for Manpower Studies and Research, Professor of Economics, George Washington University.

Reaction to and Analyzation of the Position Paper by Mr. Levitan — Richard Dempsey, Senior Economist, Division of Manpower and Occupational Outlook, Bureau of Labor Statistics, U.S. Department of Labor.

Work Session — Groups will discuss the need for and the sources of data needed in program planning.

Luncheon Speaker: Planning for Creative Flexibility in Vocational Education — Dr. John Letson, member of the National Advisory Council on Vocational Education, Atlanta Georgia.

Work Session — Groups will continue work on data requirements for planning.

Thursday: 8:00 a.m. to 5:00 p.m.

General Session — Progress reports, announcements, and instructions.

Manpower Forecasting — Dr. Frank Troutman, Head, Employment and Income Studies, Industrial Research and Extension Center, University of Arkansas.

Work Session — Discuss the implications of tomorrow's manpower needs for education.

Unfilled Job Openings — Norman Medvin, Manpower Development Specialist, U.S. Employment Service.

Work Session — Discuss the techniques, strengths and weaknesses, and relate them to educational planning.

Friday: 8:00 a.m. to 5:00 p.m.

Work Session — Finalizing the guidelines of methods, procedures, and strategies for securing data needs.

General Session — Capsuling of the week's work — Dr. Frank Troutman.

SECOND WEEK

Monday: 8:00 a.m. to 5:00 p.m.

General Session — Planning for the second week.

Focusing Attention Upon Vocational Education Programs and Their Relationship to Manpower, Employment, and Poverty in Urban Centers — Joseph H. Stephenson, vocational educator, who served as director of the Major Urban Centers Project conducted in California.

Work Session -- Discussion of the California Plan; work on guidelines for procedures and methods.

1. Keeping people in school
2. Programming for dropouts
3. Continuing education
4. Skill up-grading programs

Tuesday: 8:00 a.m. to 5:00 p.m.

General Session — Progress reports, announcements, and instructions.

Socioeconomic Characteristics of People — Dr. Forrest Pollard, Senior Industrial Specialist, Industrial Research and Extension Center, University of Arkansas.

First Work Session — Discuss socioeconomic characteristics of people; work on guidelines for procedures and methods and strategies on how to develop programs that will fit people into manpower needs.

Second Work Session — Develop procedures for better utilization of federal, state, and local community resources.

Wednesday: 8:00 a.m. to 5:00 p.m.

General Session — Progress reports and instructions.

Program Evaluation and Budgeting — Dr. Michael Russo, Chief Planning and Evaluation Branch, Division of Vocational-Technical Education, U. S. Office of Education.

Work Session — Discuss evaluation design; establish budgeting procedures and set priorities.

Thursday: **Work Session** — Structured to assure expected outcomes of the institute:

1. Models should be established
2. Guidelines for methods and procedures, compiled from previous work sessions will be evaluated
3. Set priorities and identify alternatives
4. Finalize guideline booklet on strategies and procedures necessary for effective program planning

Friday: 8:00 a.m. to 12 noon

Work groups will present a final report to the institute participants.

Evaluation of the institute.

CONSULTANTS

Dr. Daniel Creamer — Manager of Special Economics Projects, The National Industrial Conference Board, New York, New York.

Mr. Richard Dempsey — Senior Economist, Division of Manpower and Occupational Outlook, Bureau of Labor Statistics, U. S. Department of Labor.

Dr. Otto Legg — Senior Program Officer, Planning and Evaluation Branch, Division of Vocational Technical Education, U. S. Office of Education.

Dr. John Letson — Member of the National Advisory Council on Vocational Education and Superintendent of Schools, Atlanta, Georgia.

Mr. Sar A. Levitan — Director of Center for Manpower Studies and Research, Professor of Economics, George Washington University, Washington, D. C.

Mr. Norman Medvin — Deputy Division Chief, Division of Manpower Matching Systems, Manpower Administration, U. S. Department of Labor.

Dr. Charles Nix — Associate Commissioner for Planning, Texas Education Agency, Austin, Texas.

Dr. John Peterson — Executive Director of the Arkansas Planning Commission, Little Rock, Arkansas.

Dr. Forrest Pollard — Senior Industrial Specialist, Industrial Research and Extension Center, University of Arkansas.

Dr. Michael Russo — Chief Planning and Evaluation Branch, Division of Vocational Technical Education, U. S. Office of Education.

Dr. Darrell Spriggs — College of Business Administration, University of Arkansas.

Mr. Joseph Stephenson — Vocational Educator, Directed Major Urban Centers Project, California.

Dr. Herbert Striner — Dean, College of Continuing Education, The American University, Washington, D. C.

GENERAL INFORMATION

REIMBURSEMENT: Board and room will be furnished by the subcontracting institution. Travel reimbursement will be on the basis of air tourist rate exempt, within the continental United States. If the total costs of institute travel do not permit full reimbursement, a pro rata distribution of funds will be made which will cover most, if not all, of the travel cost. In summary, the participants may expect to have air travel and living costs provided.

REGISTRATION: Pre-registration forms will be sent to the selected participants. This form will be used primarily to furnish us with information so that we can set up activities that will make your two weeks' stay in Little Rock a pleasant and enjoyable one. Registration fee will be: participants — $20; wives — $10.

FACILITIES: The Institute will be held at the Albert Pike Motor Hotel, 7th and Scott Streets, Little Rock, Arkansas.

HOSTS: Sponsoring Institution — Little Rock Public Schools, Mr. Floyd W. Parsons, Superintendent, and Dr. Paul R. Fair, Depury Superintendent.
Arkansas State Department of Education, Dr. A. W. Ford, Commissioner, and Mr. Marion Adams, Associate Commissioner-Vocational Education.

INSTITUTE CO-DIRECTORS

Mr. Ernest L. Rush
Director of Vocational and Industrial Education
Little Rock Public Schools
West Markham and Izard Streets
Little Rock, Arkansas 72201

Dr. Frank H. Troutman
Head, Employment and Income Studies
Industrial Research & Extension Center
University of Arkansas
P. O. Box 3017
Little Rock, Arkansas 72203

ABOUT ARKANSAS:

Arkansas is ideally located so that it is in the path of vacationers and travelers from all sections of the United States. Its location in the south central part of the United States, where it is some two hundred miles from the Gulf of Mexico, creates a mild climate that suits travelers the year round. In October the colorful beauty of the natural woodlands in the hills of Little Rock will entice visitors to leisurely boat trips on the Arkansas River, fishing excursions to nearby Lake Maumelle and Lake Ouachita, a motor trip to Hot Springs National Park and its "world wonders," or a bus trip through the beautiful Ozarks to see Arkansas native crafts and to hear Rackensack music. Little Rock is the home of three capitols of Arkansas dating from 1824; beautiful ante-bellum homes have been preserved and restored so that visitors may see the authentic furnishings and architecture dating from the late eighteenth century. October is the month to visit Arkansas.

The short term institutes for inservice training of professional personnel responsible for vocational-technical education in western metropolitan areas are sponsored by the Organization and Administrative Studies Branch, Division of Comprehensive and Vocational Education Research, Bureau of Research, U. S. Office of Education, and offered through and coordinated by Colorado State University, Fort Collins, Colorado.

NOTES

Printed by Vocational Printing Students
Metropolitan Vocational-Technical High School
Little Rock Public Schools
Little Rock, Arkansas

ARKANSAS STATE CAPITOL, LITTLE ROCK, ARKANSAS

APPLICATION FORM

INSTITUTE X

Annual and Long-Range Program Planning in
Metropolitan Areas in Accordance with the
Vocational Education Act Amendments of 1968

Please type all responses.

Name Miss / Mrs. / Mr. / Dr. _____ _____
(Last) (First) (Initial)

Mailing Address _____

_____
(Zip Code)

Office Phone _____ Home Phone _____

Current Position _____
(Title) (Years Held)

_____
(Employer's Name) (Address)

Major Responsibilities _____

_____

Degrees Held _____

If selected for participation, would you be willing to contribute to the institute by:

_____ 1. Serving as a work group leader?

_____ 2. Serving as a work group recorder?

_____ 3. Acting as a resource person?

What knowledges, abilities, or materials do you perceive your participation can contribute most to this institute?

Briefly describe your present or future activities which relate to the institute.

What are your primary reasons for wanting to participate in this institute?

I AGREE that if accepted to participate in this institute, I will be in attendance for the entire period unless prior arrangements have been made. Further, I agree to accept provision of room and board offered by the sponsoring institution. I understand that reimbursement for travel will be made separately and will be on the basis of air tourist rate, tax exempt, within the continental United States. If the total costs of institute travel do not permit full reimbursement, a pro rata distribution of funds based on cost of air tourist fare will be made. Futhermore, I understand that the programs developed by this institute will be evaluated, and I agree to furnish the information necessary to evaluate my segment of the program.

_____

(Signature)

PLEASE COMPLETE AND RETURN TO:

(Applications must be received no later than July 1, 1970)

Mr. Ernest L. Rush
Director, Industrial Education
Little Rock Public Schools
West Markham and Izard Streets
Little Rock, Arkansas 72201

Discrimination prohibited—Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the ground of race, color, creed, sex, or national origin, be excluded from participating in, be denied the benefits of, or be subject to discrimination under any program or activity receiving Federal assistance."

Little Rock Public Schools, sub-contractor, and Colorado State University, contracting agency, comply with the spirit and intent of this law.

APPENDIX C

List of Participants, Consultants, and Advisory Committee

INSTITUTE PARTICIPANTS

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Center
University of Arkansas

Mrs. Lela Willis
Director
Communicative Skills Project
Little Rock Public Schools

APPENDIX D

Program Schedule

INSTITUTE X
October 4-16, 1970

PROGRAM SCHEDULE

Sunday, October 4

1:00-5:00 Registration

2:00-4:00 Meeting of Group Leaders and Directors

6:00-7:15 Reception - Top of the Rock Dinner Club, Tower Building

7:15 Dinner - Mr. John Pride, local humorist, speaker introduced by Mr. Forrest Cherry, Industrial Cooperative Coordinator, Little Rock Public Schools

Monday, October 5

8:00-9:00 Late Registration

9:00-10:00 General Session
Mr. Ernest L. Rush and Dr. Frank Troutman, Institute Directors, presiding

Welcome to Arkansas
Mr. J. Marion Adams,
Associate Commissioner
Vocational, Technical, and Adult Education
Arkansas State Department of Education

Welcome to Little Rock
Mr. Floyd W. Parsons
Superintendent
Little Rock Public Schools

Report on Short-Term Institutes
Dr. Duane L. Blake
Project Director and
Head, Department of Vocational Education
Colorado State University

Institute Objectives
Mr. Ernest L. Rush
Institute Director

Institute Structure
Dr. Frank Troutman
Institute Co-Director

10:10-10:30 Break

10:30-11:45 General Session
Presiding: Mr. J. B. Whiteley
Assistant Superintendent for Vocational Education
Houston Independent School District

"The Planning Process: Its Role in Education"
Mr. Charles Nix
Associate Commissioner for Planning
Texas Education Agency

11:45-1:00 Lunch

1:00- General Session
Presiding: Mr. Joseph F. Malinski
Director of Program Planning and Development
Minnesota State Department of Education

"Comprehensive Planning in Accordance with the Vocational Education Amendments of 1968"
Mr. William Hogbin
Program Officer
Planning and Evaluation Branch
Division of Vocational-Technical Education
U.S. Office of Education

2:15-2:35 Break

2:35- Work Session
Assignment: Organization of participants into work groups and instructions from work group leaders. Groups will discuss planning required by the Vocational Act of 1968 and the setti[illegible] goals and objectives in program planning.

Tuesday, October 6

8:30-10:30 General Session
Presiding: Dr. Frank H. Troutman
Institute Co-Director

"Data Needs for Educational Planning"
Dr. Herbert Striner
Dean, College of Continuing Education
The American University

Reaction to and Analyzation of the Position Paper by Dr. Striner
Dr. John Peterson
Administrative Assistant to the Governor
State of Arkansas

10:30- Break
10:50

10:50- Work Session
12:00 Assignment: Groups will discuss data needs in educational planning.

12:00- Lunch
1:00

1:00- General Session
3:00 Presiding: Dr. Walter J. Robinson
Head, Department of Industrial Education and Technology
Northwestern State College
Natchitoches, Louisiana

"Vocational Education in Perspective of Technological Change"
Dr. Daniel Creamer
Manager, Special Economics Projects
National Industrial Conference Board
New York, New York

Reaction to and Analyzation of the Position Paper by Dr. Creamer
Dr. Darrell Spriggs
College of Business Administration
University of Arkansas

3:00- Break
3:20

3:20- Work Session
4:30 Assignment: Groups will discuss technological change and its relevance to e' ational planning.

6:45- Olde West Dinner Theatre
Dinner and Show

Wednesday, October 7

8:00- General Session
8:30 Progress Reports and Announcements

8:30- Presiding: Mr. Marvin Rasmussen
9:45 Director of Career Education
Portland Public Schools
Portland, Oregon

"Sources of Occupational Data for Educational Planning"
Mr. Sar A. Levitan
Director, Center for Manpower Studies and Research
Professor of Economics
George Washington University

Reaction to and Analyzation of the Position Paper by Mr. Levitan
Mr. Richard Dempsey
Senior Economist
Division of Manpower and Occupational Outlook
Bureau of Labor Statistics
U.S. Department of Labor

10:30-10:50 Break

10:50-12:00 Work Session
Assignment: Groups will discuss the need for and the sources of data needed in program planning

12:15-2:00 Luncheon
Presiding: Mr. Floyd W. Parsons
Superintendent
Little Rock Public Schools

"Planning for Creative Flexibility in Vocational Education"
Dr. John Letson
Superintendent, Atlanta Public Schools and
Member, National Advisory Council on Vocational Education

2:15-4:30 Work Session
Assignment: Groups will continue work on data requirements for planning.

Thursday, October 8

8:30-9:00 General Session
Progress Reports and Announcements

9:00-10:15 General Session
Presiding: Mr. Jennings M. Lee
Director, Salt Lake City Metropolitan Operations
Utah Department of Employment Security

"Manpower Forecasting"
Dr. Frank H. Troutman
Head, Employment and Income Studies Section
Industrial Research and Extension Center
University of Arkansas

10:15-10:35 Break

10:35-12:00 Work Session
Assignment: Groups will discuss the implications of tomorrow's manpower needs for education

12:00-1:00 Lunch

1:00-2:15 General Session
Presiding: Dr. Ben A. Yormark
Director of Vocational Education
Highline School District #401
Seattle, Washington

"Unfilled Job Openings"
Mr. Norman Medvin
Deputy Division Chief
Division of Manpower Matching Systems
U.S. Department of Labor

2:15-2:35 Break

2:35-4:30 Work Session
Assignment: Groups will discuss manpower forecasting techniques, their strengths and weaknesses, and relate them to educational planning.

Friday, October 9

8:30-10:00 Work Session
Assignment: Finalizing the guidelines of methods, procedures, and strategies for securing data needs.

10:00-10:20 Break

10:20-12:00 Resume Work Session

12:00-1:00 Lunch

1:00-2:15 Resume Work Session

2:15-4:30 General Session
Capsuling the Week's Work - Dr. Frank Troutman, Institute Director

Saturday, October 10

8:30-3:30 Trip to Petit Jean Mountain with a tour of Governor Winthrop Rockefeller's farm and Old Car Museum. Lunch will be served at the Petit Jean State Park Lodge.

7:00 Football Game, Arkansas vs. Baylor, War Memorial Stadium

Sunday, October 11

Free Time

Monday, October 12

9:00-10:15 General Session
Presiding: Mr. Marion B. Gentry
Dean of Occupational Preparation
Long Beach Community College District

"Focusing Attention Upon Vocational Education Programs and Their Relationship to Manpower, Employment, and Poverty in Urban Centers"
Mr. Joseph H. Stephenson
Vocational Educator who served as Director of the California Major Urban Centers Project

10:15-10:30 Break

10:30-12:00 Work Session
Assignment: Discussion of the California Plan; work on guidelines for procedures and methods.
1. Keeping people in school
2. Programming for dropouts
3. Continuing education
4. Skill up-grading programs

12:00-1:00 Lunch

1:00-2:15 Resume Work Session

2:15-2:35 Break

2:35-4:30 Resume Work Session

Tuesday, October 13

8:30-9:00 General Session
Presiding: Institute Directors

Progress Reports: Group Leaders

9:00-10:15 General Session

Presiding: Mr. Richard Pulaski
Program Officer
Advisory Council for Vocational-Technical Education
Austin, Texas

"Socioeconomic Characteristics of People"
Dr. Forrest H. Pollard
Head, Population and Household Studies Section
Industrial Research and Extension Center
University of Arkansas

10:15-10:35 Break

10:35-12:00 Work Session

Assignment: Discuss socioeconomic characteristics of people; work on guidelines for procedures and methods and strategies on how to develop programs that will fit people into manpower needs. Develop procedures for utilization of federal, state, and local community resources.

12:00-1:00 Lunch

1:00-6:00 Boat Tour of the Arkansas River Navigation Channel Development

Wednesday, October 14

8:30-9:00 General Session

Progress Reports and Announcements

9:00-10:15 General Session

Presiding: Mr. Kenneth C. Govaerts
Program Grants Officer
Oklahoma State University Technical Institute

"Program Evaluation and Budgeting"
Dr. Charles O. Hopkins
Planner, Division of Research, Planning, & Evaluation
Oklahoma State Department of Vocational & Technical Education

10:15-10:35 Break

10:35-12:00 Work Session

Assignment: Discuss evaluation design; establish budgeting procedures and set priorities.

12:00-1:00 Lunch

1:00-2:15 Resume Work Session

2:15-2:35 Break

2:35-4:30 Resume Work Session

5:30 Fish Fry, Burns Park, North Little Rock, Pavilion #7

Thursday, October 15

8:30-4:30 Work Session (Breaks and Lunch as previously)

Assignment: Structured to assure expected outcomes of the institute:

1. Models should be established
2. Guidelines for methods and procedures, compiled from previous work sessions will be evaluated
3. Set priorities and identify alternatives
4. Finalize guideline booklet on strategies and procedures necessary effective program planning

Friday, October 16

8:00-12:00 General Session

Presiding: Institute Directors

Final Reports of Work Groups
Group Leaders

12:00 Adjournment of the Institute

APPENDIX E

Work Group Assignments

Institute X
Annual and Long-Range Program Planning in Metropolitan Areas
In Accordance with the Vocational Education Act Amendments of 1968

Group Assignments

Group 1 - Tiki Room

Hopkins, Charles O. - Group Leader
Harris, Chalmers - Group Recorder
Bazzetta, Louis
Dyer, Jimmie
Hunt, Malcolm
Levendowski, J.C.
Pulaski, Richard
Rasmussen, Marvin
Ross, Ralph
Sibley, Alfred
Stewart, Louis

Group 2 - Room 616

Ruppert, J. C. - Group Leader
Rathbun, Warren C. - Group Recorder
Beach, Theo
Bell, Clarence
Govaerts, Kenneth
Labay, Walter
Oka, Robert
Rolfs, Dean
Wheeler, Wayne
Yormark, Ben A.

Group 3 - Room 716

Smart, Grant - Group Leader
Duncan, J. Alan - Group Recorder
Brooks, Dale
Glattree, Norman
Hollis, George
Knight, Grady
Malinski, Joseph
Multanen, Monty
Reddell, A. Rex
Smith, Earl
Sutton, Jack

Group 4 - Room 816

Hellekson, Joan - Group Leader
Svabek, William - Group Recorder
Goff, Maurice
Griffith, Weldon
Lee, Jennings
Little, Elmo F.
Norton, Robert
O'Gara, James
Reese, Bobby
Ruth, Barney

Group 5 - Room 316

Bobay, Jack - Group Leader
Ralph, Pearl D. - Group Recorder
Carpenter, Leonard
Dunton, W. K.
Gentry, Marion B.
Grusy, Bill
Marrs, John
Page, Germaine
Powell, Phillip
Shaw, Bill W.

APPENDIX F

Text of Formal Presentations

THE PLANNING PROCESS: ITS ROLE IN EDUCATION

by

Charles W. Nix*

Introduction and Philosophy of Planning

About a year ago I was in Little Rock for a meeting sponsored by the Arkansas State Department, and I had an opportunity to sit in on a meeting with Ernest Rush, Earl Willis and Mrs. Willis, and others who were just beginning to make plans to conduct an institute on long-range planning for vocational education. I was glad to see that there was a strong interest in strengthening the planning base for this important component of the educational program.

Mr. Rush invited me to participate in the institute, and asked me to make some comments on the topic "The Planning Process: Its Role in Education." I am happy to be in Little Rock again and to have the pleasure of meeting with such a group of leading educators from all parts of the United States--even Hawaii, I notice.

I would like to discuss this topic with you in general terms this morning--that is, not with specific reference to any curriculum area or target population. The remainder of the two weeks will be devoted to specific applications of long-range and annual planning techniques to vocational education programs, and you have an impressive array of experts who will focus on specific areas of planning.

I propose to talk about the planning process in terms of four aspects:

- General and philosophical considerations of planning
- Comments on the technical nature of planning, and its relation to management
- The role, or roles, of the planning process in the education enterprise (including some problems and challenges), and
- Some methods for strengthening the planning process

The notion of planning is not new in the world. In its simplest and most universal sense, planning may be said to be any effort to control or direct the course of future events. This implies some foreknowledge (or predictions) about what direction events might take in the future, and it implies some learning from past experiences which can be generalized to future events.

Let us say that an event, in this sense, is anything that occurs--any happening--whether it is judged to be good or bad, whether it is desired or undesired, and whether it represents the continuation of

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*Mr. Nix is Associate Commissioner for Planning, Texas Education Agency, Austin, Texas.

an existing event or represents a change to some new event. In all these cases, events are always the results or outcomes of some other events. These effects are produced by certain causes, although sometimes those causes are not apparent to us. Thus, "good" or "desired" outcomes or events are the stuff of which objectives are made, whether those outcomes represent the maintenance of an existing condition or the change to a new condition. "Bad" or "undesired" outcomes or events are those conditions which we wish to avoid, and in a sense they become "negative" objectives. Sometimes they occur because of negligence or ignorance on our part; sometimes they occur in spite of all of our best efforts to prevent them; sometimes they occur as the negative side effects of a program we are conducting which also produces desired outcomes.

The pre-Socratic Greeks believed that everything in the world, all events and conditions, are in a constant state of flux and that nothing ever remains exactly the same from one instant to the next, but is always changing. One of them said that you both can and cannot step into the same river twice because the waters of the river are always changing, yet the configuration of the river remains the same. The French have an expression "the more things remain the same, the more they change." From this point of view, another common sense view of planning is that it is a conscious effort on our parts, through the application of intelligence and experience, to control and direct the course of these inevitable changes and to channel them into directions that we prefer. Accordingly, we might say that planning is the process of identifying and promoting desirable change, resisting undesirable change, and determining what we can do to bring both kinds of change under the maximum degree of our control. Let me stress that I am not saying that planning is change, or that its principal aim is change. In many cases its aim is to maintain (Chart 1) conditions or events that are judged desirable and to resist their deterioration. The school principal who is well-satisfied with the performance of his faculty may not wish to lose those teachers he now has and bring in new teachers next year. His goal then is maintenance-oriented rather than change-oriented. Whatever plans he makes to ensure that his teachers are satisfied so that they will choose to remain on his faculty are quite the opposite of the plans he would make if he wanted to replace some of his teachers with new recruits. Planning, therefore, has as its target some mix of maintenance and change. What is desirable or good, and what is undesirable or bad, and what conditions might be replaced by certain other more desired conditions, are a matter of value judgments which must be made by those with authority to make these determinations. Whether such judges are one or two persons, or whether they constitute the entire population of an area, is another question that must be decided in connection with the planning process. The point is that someone must be responsible for deciding which events or conditions are desired, and which are not desired. Someone must make sure that plans are made to pursue desired outcomes and to eliminate or avoid those undesired conditions.

Let me really bring planning down to everyday terms. Any time I become conscious of the fact that my ties are out of date, or that

Chart 1

my shoes are worn out--really not facts, but judgments on my part--and I decide that something ought to be done about it. I am engaging in the initial steps of planning. Those judgments are based on information that I have at hand--all my ties are perceptibly narrower than those everybody else is wearing (or wider, or whatever the current norm happens to be), or there is a hole in the sole of one of my shoes--information which I have collected through my own observations or which my wife has collected, processed, and delivered to me as a report. I then decide, or I receive a mandate from my wife, to buy some new ties or get the shoes repaired; so I go to a men's clothing store to look at the alternative ties which I might buy, or I look in the yellow pages to see what alternatives I have among shoe repair shops, including the fees they charge to do the shoe repair job required. I then select a couple of new ties (considering both the desirability of the tie and its price) and pick one of the shoe shops in whose care I will put my shoes. When I get home with the ties, my wife likes one but laughs at the other and says something like "Where did you get that tie? Win it as a prize at an amusement park?" I refuse to accept her judgment and I decide I will get an independent accomplishment audit by wearing the tie to work and asking my secretary what she thinks. She says, in more tactful terms, of course, the same thing my wife said. Thus I have received information from two sources and have had two independent evaluation reports on the success of my tie-buying strategy. Perhaps I use this information as a basis for future planning of tie-buying operations and suggest as an alternative strategy that my wife buy ties for me in the future. This craftily relieves me of the chore of shopping and ensures me against future failure in this enterprise. If after three weeks the soles of my repaired shoes come loose or if they squeak, again I have information about the success of the shoe repairing operation. If the outcomes are not satisfactory, I will probably seek another shoe repair shop next time.

I have taken this little side trip to show that planning (or the lack of it) is nothing new in the world, and that it is clearly not unique to the educational enterprise, or even to business or government in general. Taking thought for the morrow pervades everything we do. Some of us take little thought for the future; others take so much thought that we develop ulcers or anxiety reactions. You all know the fable of the grasshopper and the ant. The ant meticulously prepared for the winter, while the grasshopper spent his summer in singing and other forms of dalliance. The ant had made some long-range projections which had not even occurred to the grasshopper and when winter came, the ant was cozy and well fed while the grasshopper was surprised and disconcerted.

One other foray into the literature, and then we will get down to the technical process of planning and its role in education. I am sure you are all familiar with Robert Burns' (who was a notorious non-planner) poem "To a Mouse." You remember he turns up the field mouse's nest in the ground as he is plowing the field, and he has a conversation with the mouse (really a monologue) in which he laments the fact that he has destroyed the mouse's carefully laid plans to protect herself from the approaching winter. He says (and I have paraphrased somewhat

because of the tongue-twisting Scottish dialect):

> But Mousie, thou are not alone,
> In proving foresight may be vain;
> The best laid schemes of mice and men oft go awry,
> And leave us nought but grief and pain for promised joy.
>
> Still, thou are blest compared with me!
> The present only toucheth thee:
> But, Oh! I backward ca' my eyes on prospects drear!
> And forward, though I can'na see, I guess and fear!

While there are some palpable hazards in trying to direct the course of future events, I think we all agree that both mice and men will do much better to make and carry out plans than to give up planning as useless. The mouse could forecast the coming of winter, and provision herself against it. She could not forecast Mr. Burns' plow, however, and that lack of information was her undoing. Whether or not she was able to conduct a formative (process) evaluation and revise her plans accordingly before winter came, Mr. Burns did not stipulate. For the sake of a happy ending, let us assume that she found another spot to build another nest--one that would not collide with the plans the poet had made for the care and development of his farm.

The Planning Process

I have spoken generally about planning in everyday life and in general philosophical terms. Now let us consider what planning is in the technical sense of the professional planner, or more accurately of the professional manager, one of whose major functions is to ensure that adequate thought is taken for the future and that adequate direction is given for guiding future actions of his enterprise. And to get to what one does when he plans, we must begin with defining what the manager does. Let me be clear that I do not mean only top management. I mean everything from the superintendent of a large metropolitan school district to the classroom teacher in a rural school who has an aide assigned to assist him half-time. Both are concerned with management (Chart 2) and with the direction of courses of action and performance of personnel. Obviously the superintendent's scope of responsibility is much greater, but the classroom teacher performs management responsibilities similar in nature.

In its simplest sense, any enterprise may be thought to consist chiefly of certain actions which its personnel takes or operations which its staff performs. These are the operations, strategies, steps, or whatever you wish to call them, that the enterprise is expected to perform in its task of operating an organization or system. Obviously, if the enterprise consists of more than one person, there must be some degree of organization in the performance of these jobs: they must be planned in advance to some degree, the actions of various staff members must be coordinated into a total pattern, and the actions taken must be selected on the basis of their likelihood to achieve certain pre-determined outcomes (either maintenance or change). Thus, planning is

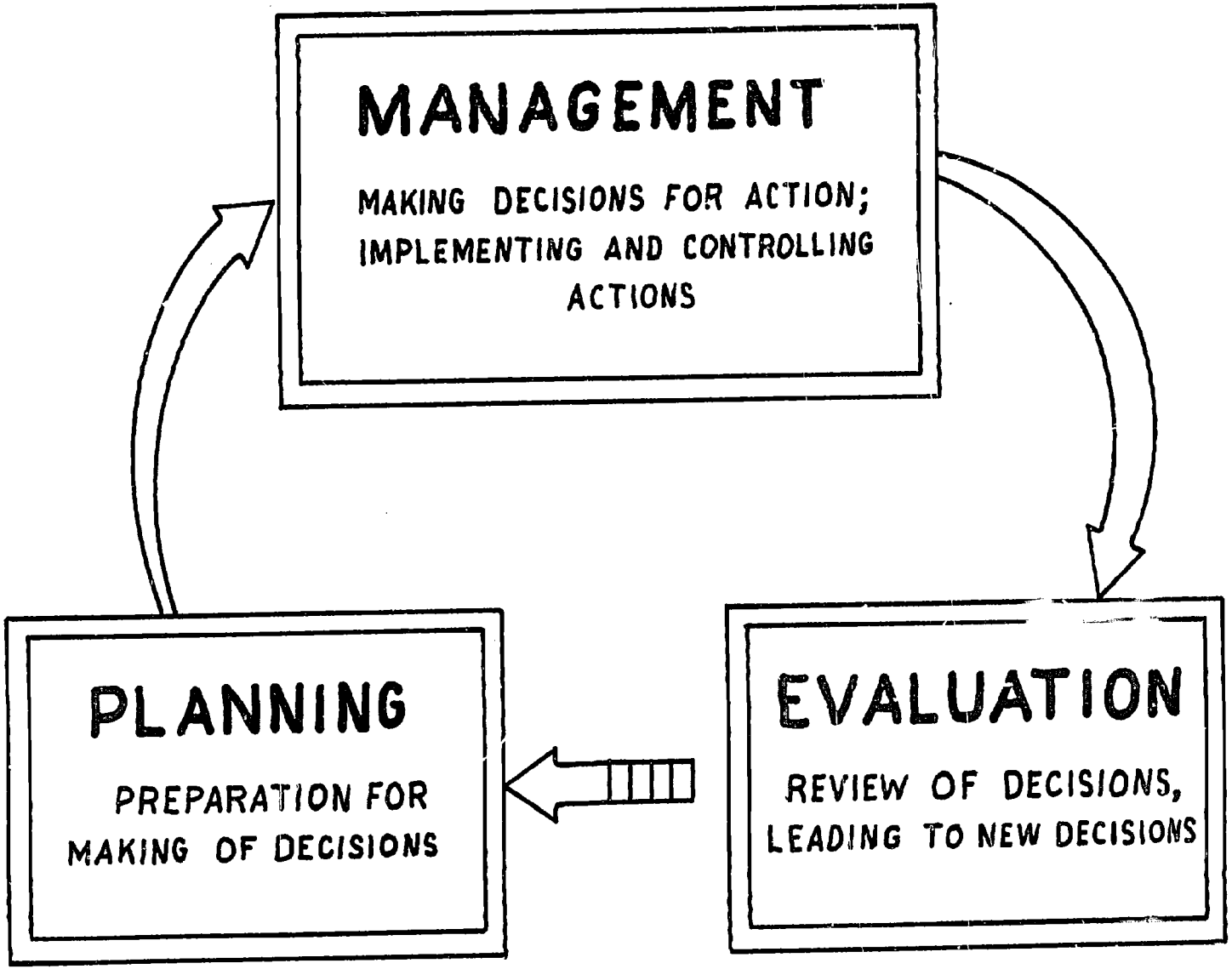

MANAGEMENT
MAKING DECISIONS FOR ACTION; IMPLEMENTING AND CONTROLLING ACTIONS
PLANNING
PREPARATION FOR MAKING OF DECISIONS
EVALUATION
REVIEW OF DECISIONS, LEADING TO NEW DECISIONS

Chart 2

before-the-fact and consists of thinking done before the actions are taken. Planning is not the actions or operations themselves, but serves as the symbolic representation of those operations--a kind of blueprint for action. The third major dimension of management is after-the-fact in relation to action, and is what I have termed here evaluation--accountability, assessment, appraisal, all the other terms used to mean that after action has begun or has terminated, the manager has responsibility to study its process, its results, and its problems. Why study the operations and their effects after-the-fact when they have already become history? For one principal reason--the study will serve as the primary input to subsequent planning, or to the re-planning of the existing program operations. Another reason is to ensure accountability to properly constituted authority, but that is less important for management purposes.

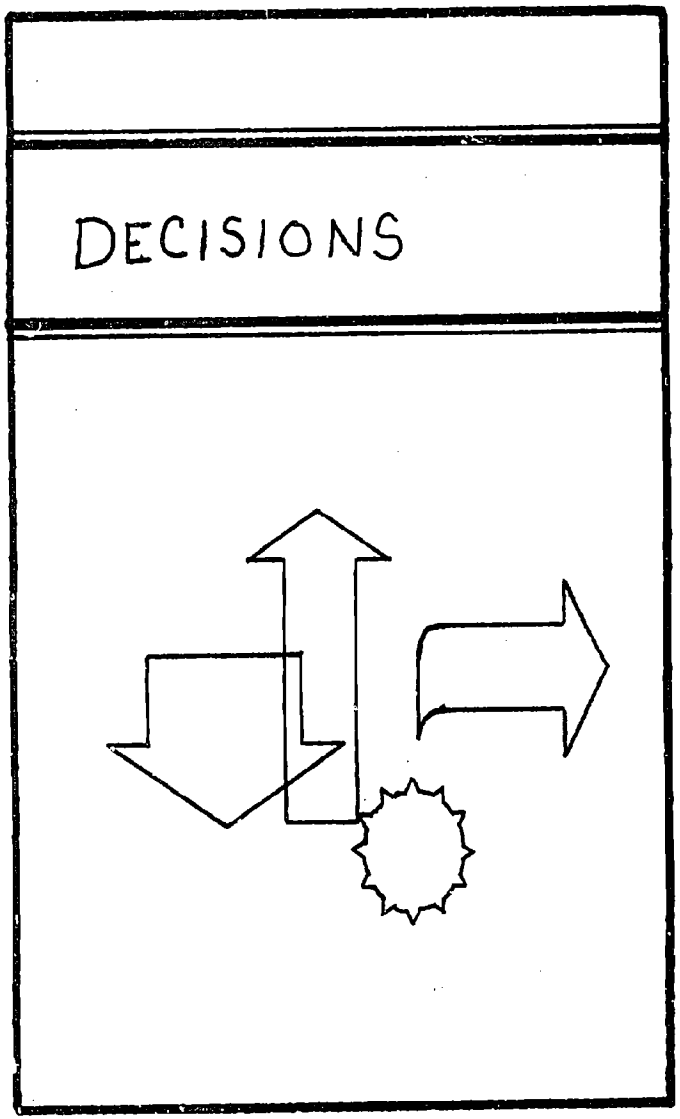
Thus, management consists of operations which have been prepared and directed through planning and which will be refined through control and evaluation. Management in this sense is independent of the nature of the enterprise--whether it be buying ties, or running a high school, or operating a business. Management is also independent of the level of responsibility whether it is that of the chief executive of an enterprise or of those at the lowest level of supervision and direction.

One useful way of looking at management is to view decisions (Chart 3) as the units of behavior of both planning and evaluation.

What kinds of decisions are we talking about? What is it that the human being does when he finds himself at a point of choice with two or more alternatives, and he makes what learning theorists call a decision or a choice? It seems to me that in education, as in other enterprises, there are at least five general classes of decisions that can be identified.

First, parameters decisions have to do with determining the scope of responsibility of an organization or an enterprise, or perhaps of a unit or an individual within an enterprise. Parameters decisions deal with drawing the boundaries around the area within which we may operate or we choose to operate. The manager of a unit or his policy board decides this is all his unit can do, and draws fences around it saying that this is the area in which they are going to operate. This represents the scope of concern, the area of responsibility.

The second class of decisions is what I call value decisions. To put it simply, value decisions are decisions about "what should be." These are the desired kinds of conditions that we are seeking. They are the kinds of things we call good. They are not the kinds of things that can be demonstrated by proof, but they are things we come to agree upon by consensus, and we say this is what should be. It seems to me that there are two special classes of value decisions. One is what we call goals or objectives which have to do with directions of growth that we think are desirable. The second is priority decisions. There might be a large array of goals that we think are desirable, but we cannot deal with all of these at once, so we have to do some rank



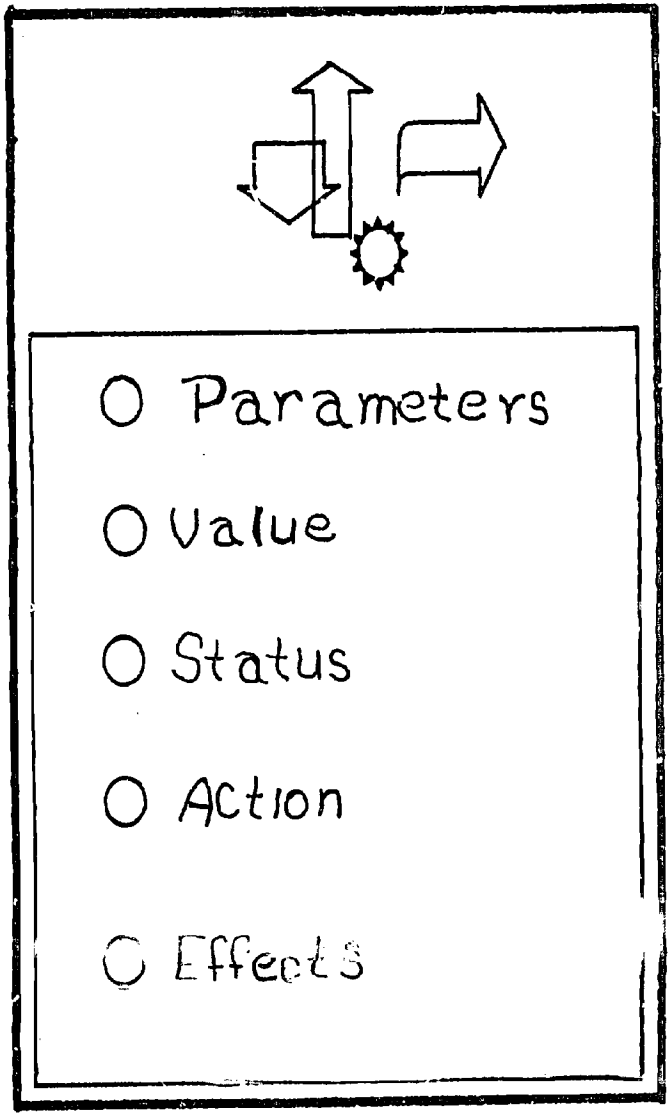


Chart 3

ordering of them from high priority to low. These value decisions--goals and priorities--are not subject to empirical proof, but represent subjective consensus or compromise.

Then there seems to be a third general class of decisions which I would call status decisions. These are concerned with "what is," independent of "what should be." These status decisions might simply be the verification of reality in the best terms that we are able to sense it or to measure it.

A fourth class of decisions has to do with commitments to take action, to do something. These action decisions specify how we are going to commit resources, what actions we are going to take. Action decisions might be described as symbolic representations of programs. We in education deliberate a great deal about what a program is. Yet I think a program can be defined in essential terms, whether it is a national program of space exploration or Mr. Brown's seventh grade class in life science. We could say a program (Chart 4) has three elements: deployment of resources (money, manpower, time, facilities, materials), and organized pattern (a plan), pursuit of a specific outcome. Planning becomes a preparation to make decisions and a commitment to take action in certain ways. Taking action or establishing a program is simply the positive expression of a plan in terms of operations. The fifth class of decisions that I will describe here is what I call effects decisions. These decisions are essentially evaluative judgments, feedback, or cause-effects reasoning. They have to do with whether a particular effect was produced by a particular cause. In other words, what were the effects of the action taken?

These five classes of decisions are not in any sense mutually exclusive. We will probably not find many decisions that could be classified as solely one class or another. However, these five classes may be useful as conceptual guides for the kinds of decisions that we make. There appears to be a general sequence (Chart 5), or flow, of these types of decisions. This sequence probably starts with parameters decisions. There are always some kinds of parameters around whatever we do. We also operate within some kind of value context, whether it is clearly stated or vaguely implied. There are also some status decisions. We are bound to know something about things as they are, even though that knowledge may be based upon very subjective and inaccurate information. At the same time, we have some information about the effects of previous courses of action. We know something about what happened in the past and what effects it has produced although this knowledge may exist at various levels of objectivity and sophistication. All of this flows into some kind of information pool which somehow leads us to certain kinds of action decisions, which then lead to direct expression in action. That action leads us then to further kinds of effects decisions which feed back into the whole cycle of information and decisions.

Another way of looking at decisions is to think in terms of decision points (Chart 6), recognizing that decisions are made, implemented, and evaluated at various points up and down the hierarchy. In

RESOURCES ..... DEPLOYED IN ..... AIMED AT

PATTERNED

ARRANGEMENT

SPECIFIED

OBJECTIVE(S)

Chart 4

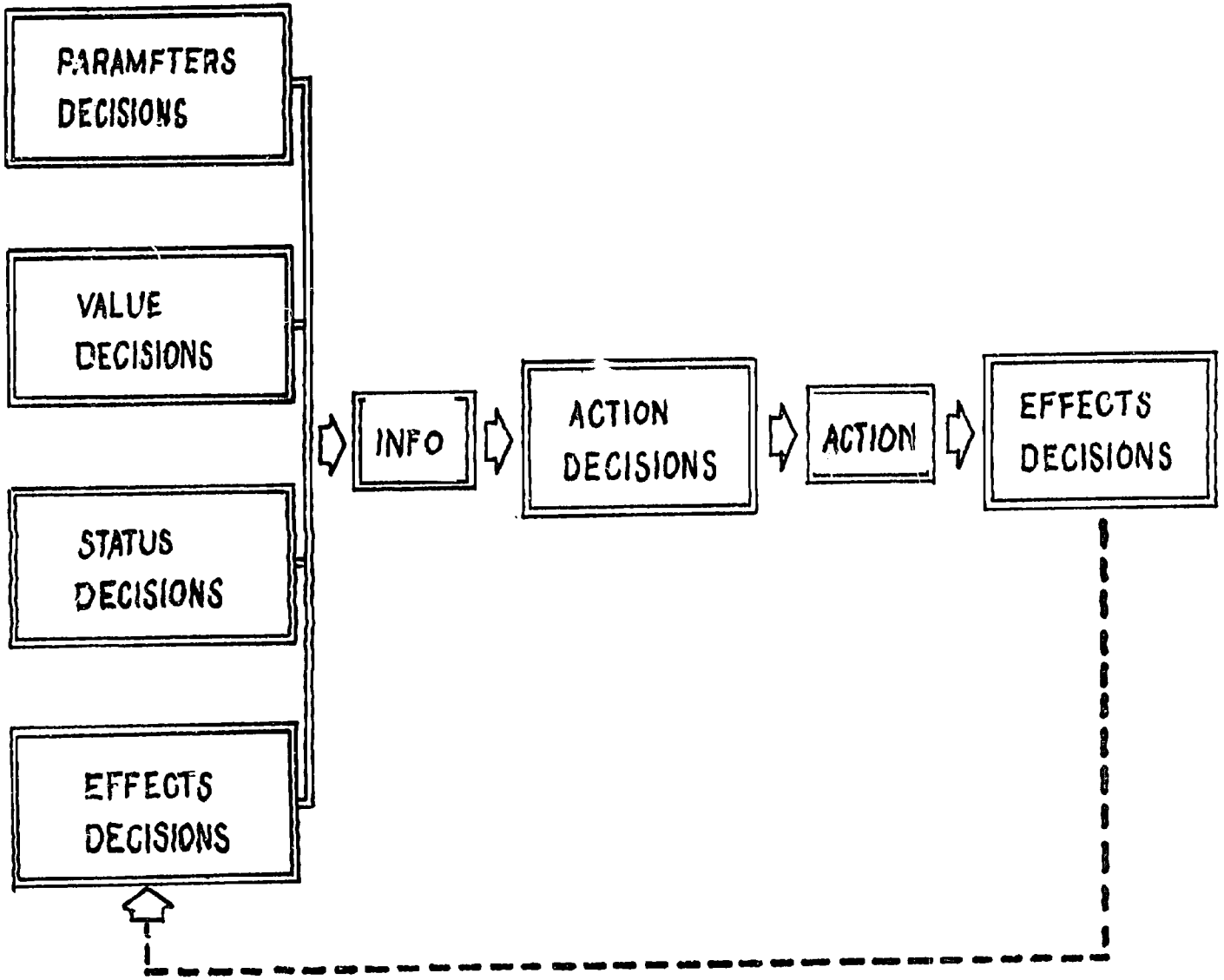

PARAMETERS DECISIONS
VALUE DECISIONS
STATUS DECISIONS
EFFECTS DECISIONS
INFO
ACTION DECISIONS
ACTION
EFFECTS DECISIONS

Chart 5

DECISION POINTS

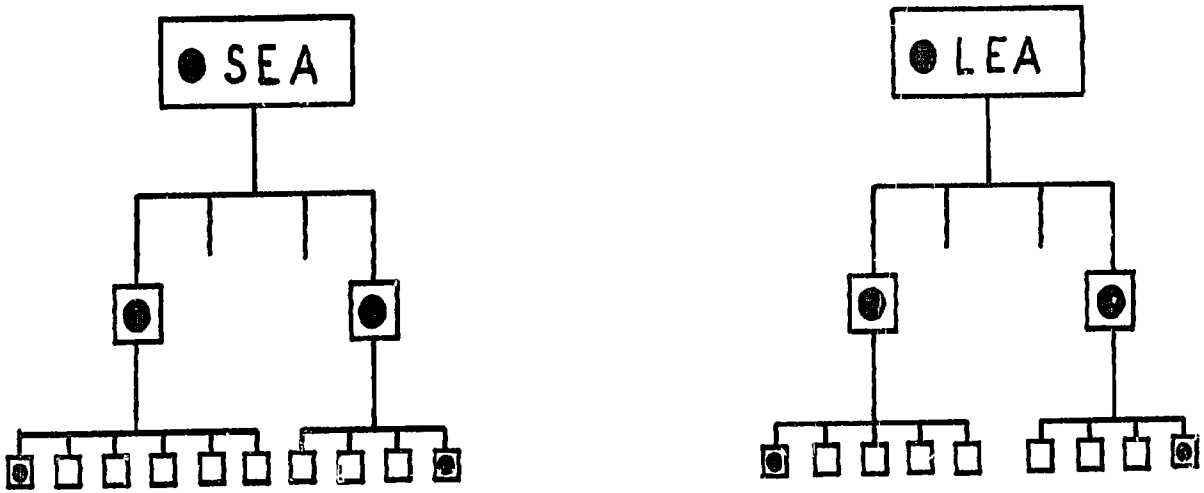


Chart 6

the local school district there is top management; there is middle management which might be school principals or department heads; there are others who work right down on the firing line. The same is true at the state education agency. There is a commissioner or superintendent, there are assistant superintendents or directors, and there are personnel we call consultants or program operators of some kind. Decisions of all five types take place all up and down this scale.

Another way of laying this out is to think in terms of a kind of chain of what I would call agents and clients, or a chain of what one might call actors and receivers of action. What we do to support programs, or what courses of action we take, might be described in terms of a flow (Chart 7) of resources, regulation, information, and assistance. These things flow from one agent out to a client. We may intercept this chain at any point and define the active agents and their target clients accordingly. We all agree that in education the ultimate client of all our endeavors is the pupil. The pupil should be learning or developing as a result of the impact of the educational system upon him. Back of that pupil are teachers, counselors, nurses, etc., who work directly with the pupil. These personnel are organized in what we call a school, or campus.

There is campus administration, the principal and his staff, who do some organizing, and influence the way teachers, counselors, etc., perform their tasks. There is the central school district management, the superintendent and his immediate staff, and some auxiliary types of management personnel such as supervisors, consultants, etc. Thus, within the local school district there can be seen a flow of regulations, information, assistance, and resources from the superintendent to the principal to the teacher and ultimately to the pupil. Let us extend this chain a little bit further.

It is clear that the state education agency is several steps removed from directly acting upon pupils. We might divide state education agencies into central management versus operating divisions or units, and say that the primary connection is between these operating divisions or units and central management of school districts. Coordinating the work of all of these various divisions or units, so that they operate as a system, is the responsibility of central management in the state agency. Assisting in that coordination may be a planning office or planning machinery. The flow is from left to right as you can see in the flow chart. Then we might extend the chain further to include other types of agencies that are concerned in an ancillary manner. Teacher-training institutions are obviously concerned. Their principal targets are teachers, counselors, nurses, etc., and at the same time those teacher-training institutions are influenced and managed, at least in some ways, by one or more divisions of the state education agency. In many states there are regional service agencies that may be extensions of the state agency or they may be relatively independent units. These regional centers affect the superintendents, the principals, and the teachers. In some cases they may directly teach or treat pupils. By and large, these regional agencies are

FLOW OF RESOURCES, REGULATIONS, INFORMATION, ASSISTANCE

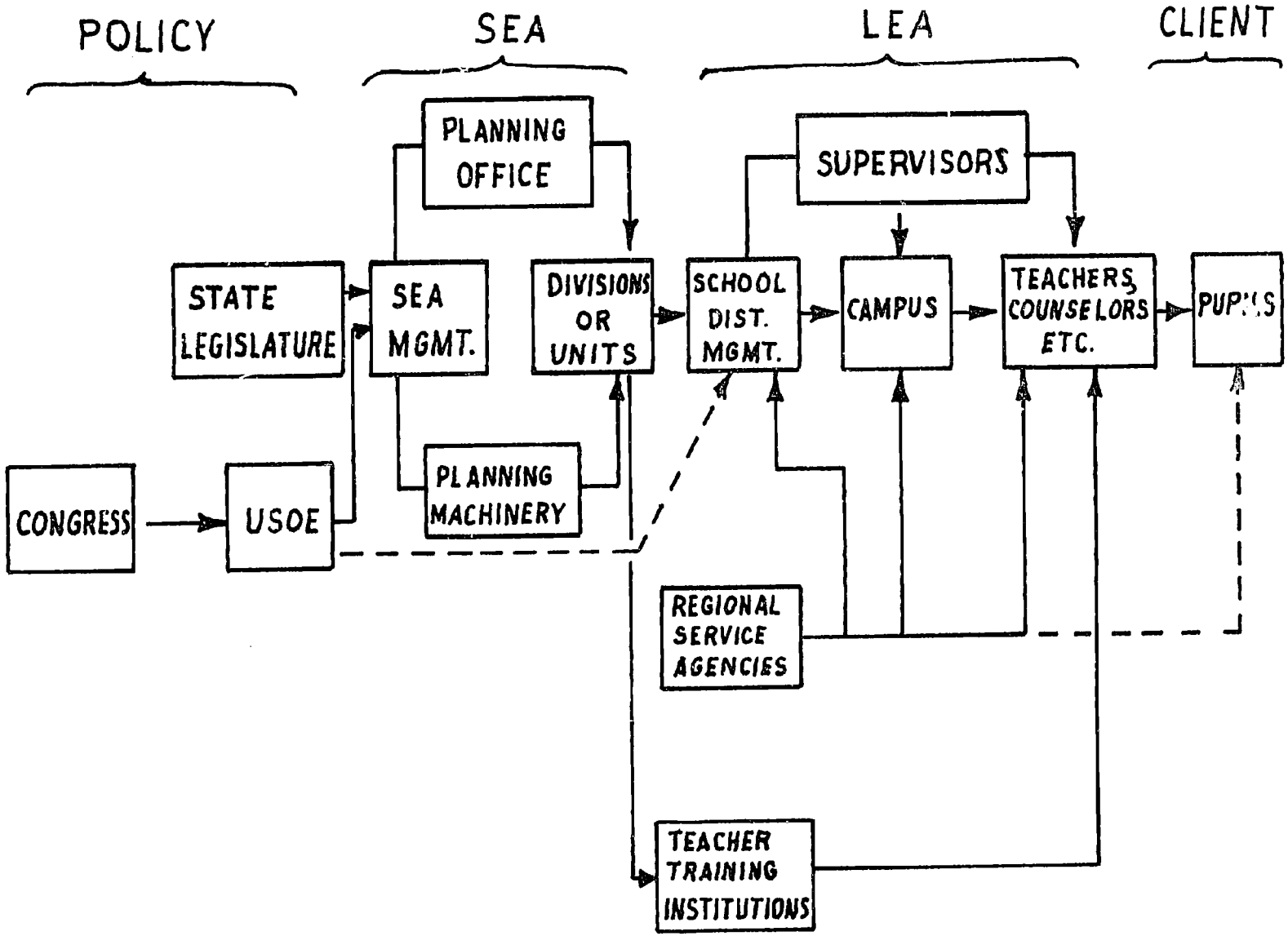


Chart 7

probably directed at the staff of the public schools and their programs rather than at the pupils themselves.

Reversing the direction of the chain to the sources of support and direction for education, we find the state legislature, the Federal Congress, and the U.S. Office of Education all providing resources, regulations, information, assistance of various kinds to state departments or to local school districts--but not to pupils directly. What this is designed to show is that it is a long series of steps from the formulation of general plans and policies to the transformation of these into teacher-learner interactions at the end of the chain. What I am suggesting is that decisions are made up and down those steps, plans are made, results are evaluated, and action is taken at all points along the chain. It is the taking of action at all these points that we describe as a program.

Another way to describe the series of decisions which managers make is to place them in a management cycle (Chart 8). Somewhere we start this cycle. We never enter the planning process with a tabula rasa. It is never that. There is always some degree of planning already taking place, and what we do is intercept it at some point. It may be good, or it may be poor, but something is going on. There are some kinds of goals operating; they may be clear, they may be poor, but there are some goals. Similarly, there is information available. It may have been gained from sheer guesswork, or it may have been gained from the most sophisticated scientific method of inquiry; but somehow we have some information about the status of the situation in which we have responsibility. Discrepancies between these goals, or "what should be," and the information we have about "what is" constitute the needs that exist among pupils, among teachers, among programs. We make a list of these needs. Then, recognizing that we do not have unlimited resources, we set some priorities. We decide which of these needs should be met right now and we give our attention to those.

If the need is a condition that we think is not satisfactory, then the objective is to work to set up a condition that we would regard as more acceptable and desirable. Our aim then becomes to move from the need condition to the condition specified in the objective. The statement of objectives becomes the signal for the action to be taken. The failure of educational planners to formulate clearly stated, relevant, operational objectives is probably the biggest stumbling block in the management of education today. It follows that the kinds of strategies or actions that we take ought to be dictated by the kinds of objectives that we hope to accomplish. We seek to identify or invent several alternative strategies, so that we can choose the "best" one. Frequently, it is the other way around. We decide what we want to do, which specific strategy we prefer, and then we devise some objectives that can support or justify the action we have already decided to take.

The next step is to consider the resources needed to carry out the alternate strategies. I have defined a program as the allocation of resources in some kind of planned or designed arrangement in pursuit of an objective. Thus, this combination of objectives, strategies, and

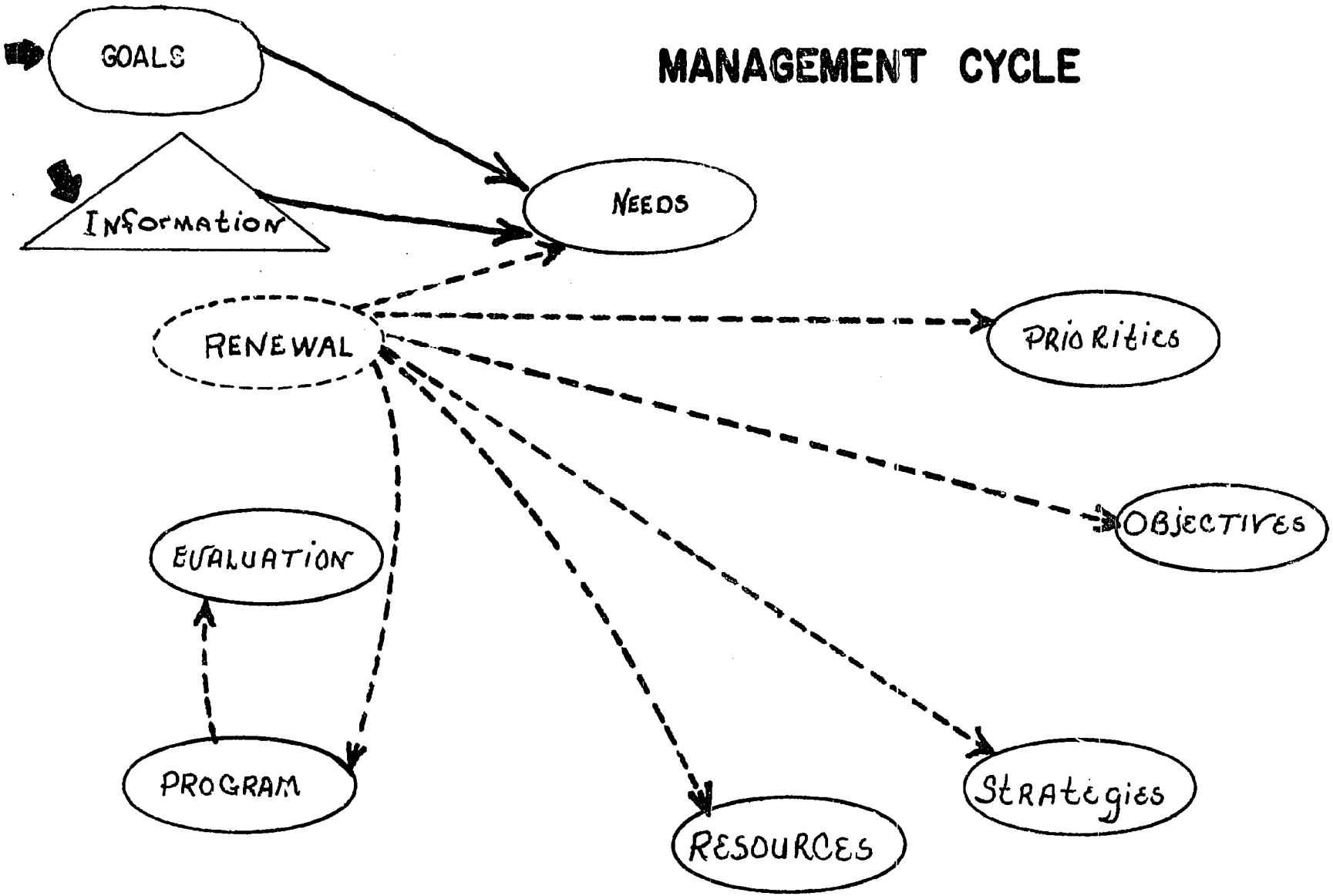

MANAGEMENT CYCLE
GOALS
INFORMATION
NEEDS
RENEWAL
PRIORITIES
OBJECTIVES
STRATEGIES
RESOURCES
PROGRAM
EVALUATION

Chart 8

resources, when they become activated, become the program. Then at some point after the program has become operational--perhaps two minutes later, or two months, or two years--we take a retrospective look at what we have done and how much we have accomplished. This is evaluation, or feedback.

This evaluation is mainly for the purpose of renewing the decisions that we made before as a guide to making better decisions in the future. An academic exercise of evaluation, no matter how brilliant, has no value unless it can provide a more rational basis for what we are going to do in the future and help us to implement courses of action that get the job done. At the same time, this evaluation process provides additional evaluative information and updated status information that flows into the information pool.

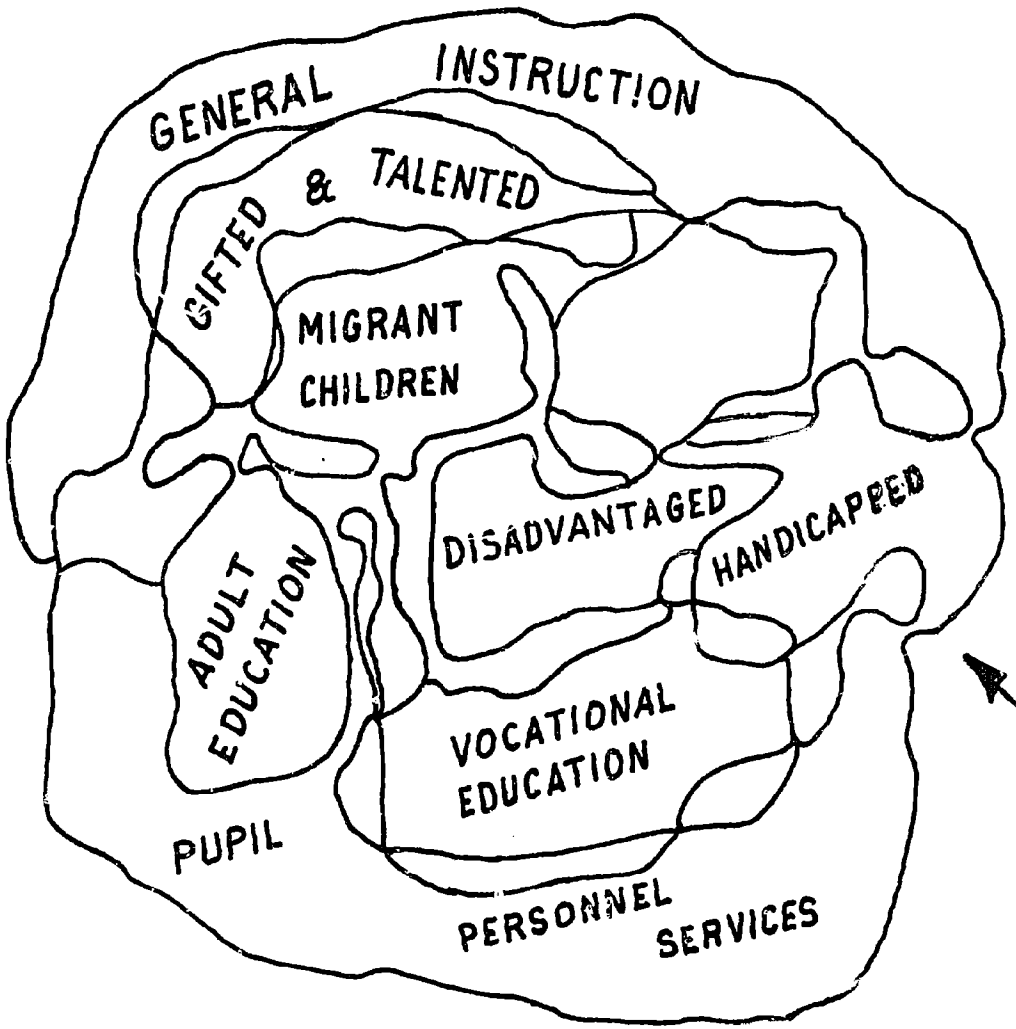
The process of renewal is the point at which much of our most productive planning occurs. Evaluative information leads us to reconstitute the needs, or to identify new needs. We might discover that some of the needs identified before have now disappeared because the objective was achieved and so we revise the priorities. It might also tell us something about the content or the structure of our objectives. We might decide that the objectives were stated in a way that would not be useful for further planning. As a result we might have to restate and clarify them. No doubt we will gain some insights about the strategies we have been using and begin to consider other alternatives for future operations. In this way the cycle never terminates but continues to loop as long as the program is in operation.

I am not suggesting that the steps outlined here are stubbornly sequential, that each step must be fully accomplished before the next is considered. We know that this is not the way planning works. What happens is that we crisscross these steps, work forward and then backward, but always we are striving to maintain the general direction of the cycle. It is a conceptual framework that might be useful for identifying the kinds of steps the manager takes. Obviously, we cannot do very much to finalize priorities until we know something about the resources available. It is only because of limitations upon resources that we have to set priorities in the first place.

Let us look more specifically at some of the elements of this management cycle. I have said that the information bank might consist of data of varying levels of reliability. Typically in education we do not have a single information bank but a number of separate information banks (Chart 9) representing the various program elements in the total program. We tend to have a very fragmented information system--or, as some pundits like to remark, a non-system. Everywhere there are overlaps and duplications of data. There are major gaps and important data missing. And, worst of all, we tend to collect much information which is relatively useless and probably not worth the effort and cost of collection. I think the basic problem is that we do not select data to collect on the basis of management decisions we know we will have to make. Instead, we set out to collect every item of information we can think of, thinking that someday someone might need it or that we will suddenly get an inspiration to analyze

FRAGMENTED INFO SYSTEM

- OVERLAP & DUPLICATION
- GAPS --- IMPORTANT DATA MISSING
- COLLECTION OF MUCH USELESS DATA



ADD:
- INSERVICE
- BILINGUAL ED.
- DROPOUT PREVENTION
- R & D PROJECTS
- ETC.

Chart 9

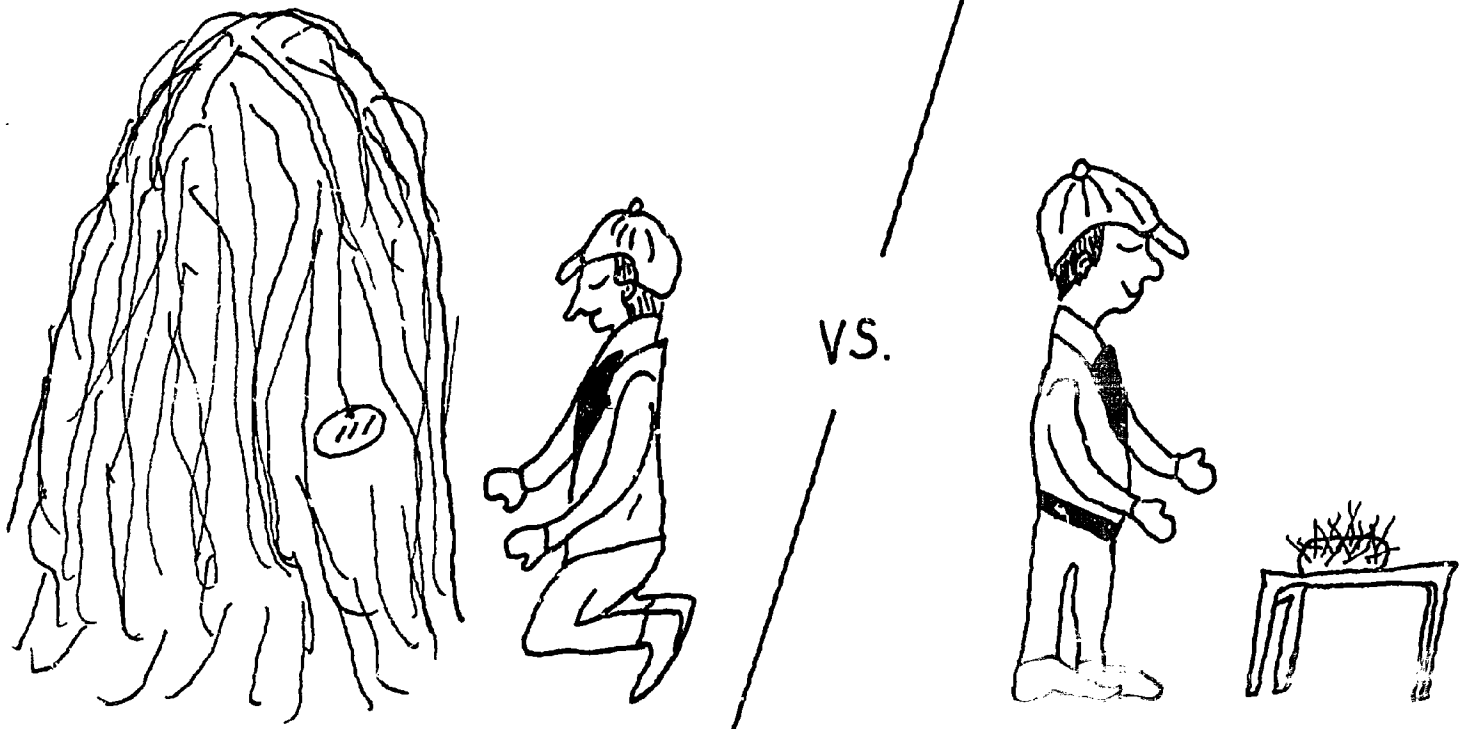
and interpret these mountains of data and come out with some world-shaking conclusions. It will never happen. Our rationale for data collection and processing is all wrong. We stuff file cabinets with data until they overflow, and then we stack the reports in the hall. Or we put it all on the computer and expect the computer to make a silk purse out of a sow's ear. Trying to get hold of required information in our present systems is like looking for a needle in a haystack (Chart 10). An orderly information system, with carefully selected, lesser amounts of data, could more readily provide us with the information required to make management decisions.

Now let us consider the identification, or assessment, of needs. This is one of the thorniest problems in education. Educational needs are defined in various ways by educational practitioners. My preference is what is referred to as the discrepancy model for needs assessment (Chart 11). This model holds that a need is a discrepancy between a desired condition (what should be, a goal) and an actual condition (what is). Algebraically stated, the need is the difference between what should be and what is: $x - y = z$. Considerable confusion results if needs are stated in terms other than this discrepancy model. Following is an example of a need statement consistent with the discrepancy model: Seventeen percent of students graduating from high school in Jonestown are not adequately prepared to gain and hold a job of their choice. Some might state this same idea in the following way: There is a need to improve the preparation of students for a chosen occupation so that they will be able to obtain and hold a job upon graduation. This statement appears to me to be an objective, rather than a need. Or it could be stated like this: There is a need to offer a greater range of occupational courses in Jonestown High School so that appealing opportunities will be available to all students. This seems to me to be a statement of a strategy or a course of action which the school should take, rather than a student need. Further, some would make this statement in the following form: There is a need to have more qualified teachers and more money to support occupational education programs. This is more like a statement of resource requirements than a statement of student needs. All of these are valid and significant statements concerning conditions in Jonestown High School. Only the first, however, is a need statement in discrepancy terms.

An important dimension of needs has to do with presently existing needs versus needs projected in the future. If a pupil is a low achiever in mathematics and there is reason to believe that he could be achieving normally in this area, this is identified as a present need. On the other hand, if we are concerned with the goal of vocational competence for all citizens, the level of vocational competence of a student in the seventh grade is not presently relevant. It is relevant to say that five or ten years in the future the junior high student may have a need unless he can develop a saleable skill in the meantime.

Projection of future needs is an essential element of long-range planning. We must be able to predict future conditions among learners which will need attention if we are to anticipate directions of growth for the educational enterprise.

INUNDATION OF DATA

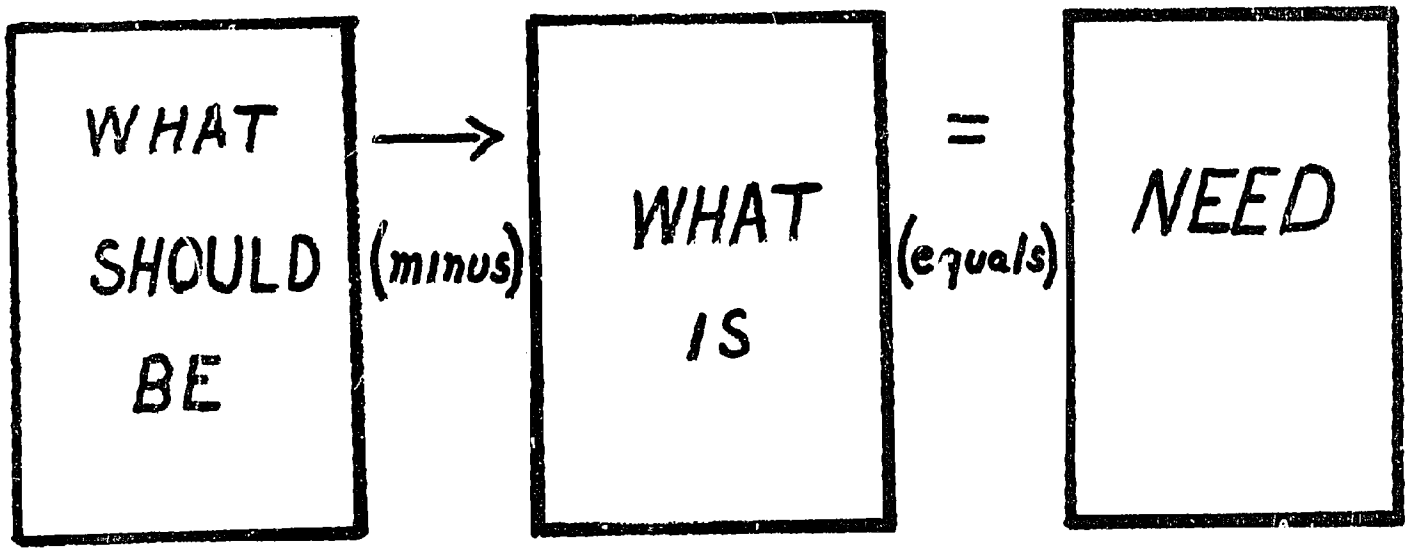


LOOKING FOR A NEEDLE IN HAYSTACK

FINDING RIGHT NEEDLE IN ORDERLY PIN CUSHION

Chart 10

X - Y = Z



NEEDS AS DISCREPANCIES

Chart 11

However we define needs, they must be specific to some persons or things. It is possible to think of needs (discrepancies between "shoulds" and "actuals") among the school staff, the school program, and the manpower requirements of business and industry. While these are not student needs, they do represent areas of needs which may directly affect student needs.

This leads us to another kind of consideration, and that is the setting of objectives, which are the positive statements setting the specifications for growth or forward movement. If we have stated needs well, the objectives should not be difficult. It is a matter of deciding how much progress we can expect to make in moving away from the condition which we described as a need. If an objective is to be useful for planning, it must deal competently with five points (Chart 12).

First, it has to specify whose behavior or characteristics we want to change. Second, it must describe or specify the particular type of behavior or characteristic. Third, it must contain an estimate of the amount of change we expect to occur. Fourth, it must specify the time period within which we expect the change to occur. The fifth point is very important--what kinds of evidence will we accept that these things have happened as we predicted? What kinds of measurement or observation devices will be used to determine whether or not something has happened that we call change?

Is this a statement of an objective that meets these criteria?

> To develop skills and understandings necessary for an employment interview.

Is this?

> By the end of the first semester in distributive education each student will have developed sufficient understanding of the employment interview and will have developed the skills necessary for the conduct of such an interview. The teacher will arrange for an actual employment interview with a consultant from the Texas Employment Commission, who will subsequently judge whether or not the student completed the interview successfully.

These objectives, if adequately stated, become the criteria for evaluation of the program. This function of evaluation has three primary purposes (Chart 13):

The first, and most important, is to feed back into the system itself for self-renewal--for determination of how well we are doing, how well we are accomplishing our objectives, and for deciding which strategies are working well. The second is to send reports to other agencies which should receive an accounting. The third is to disseminate results of the planned action to other local districts which may want to install the program.

Let us look for a minute at some of the aspects or dimensions of

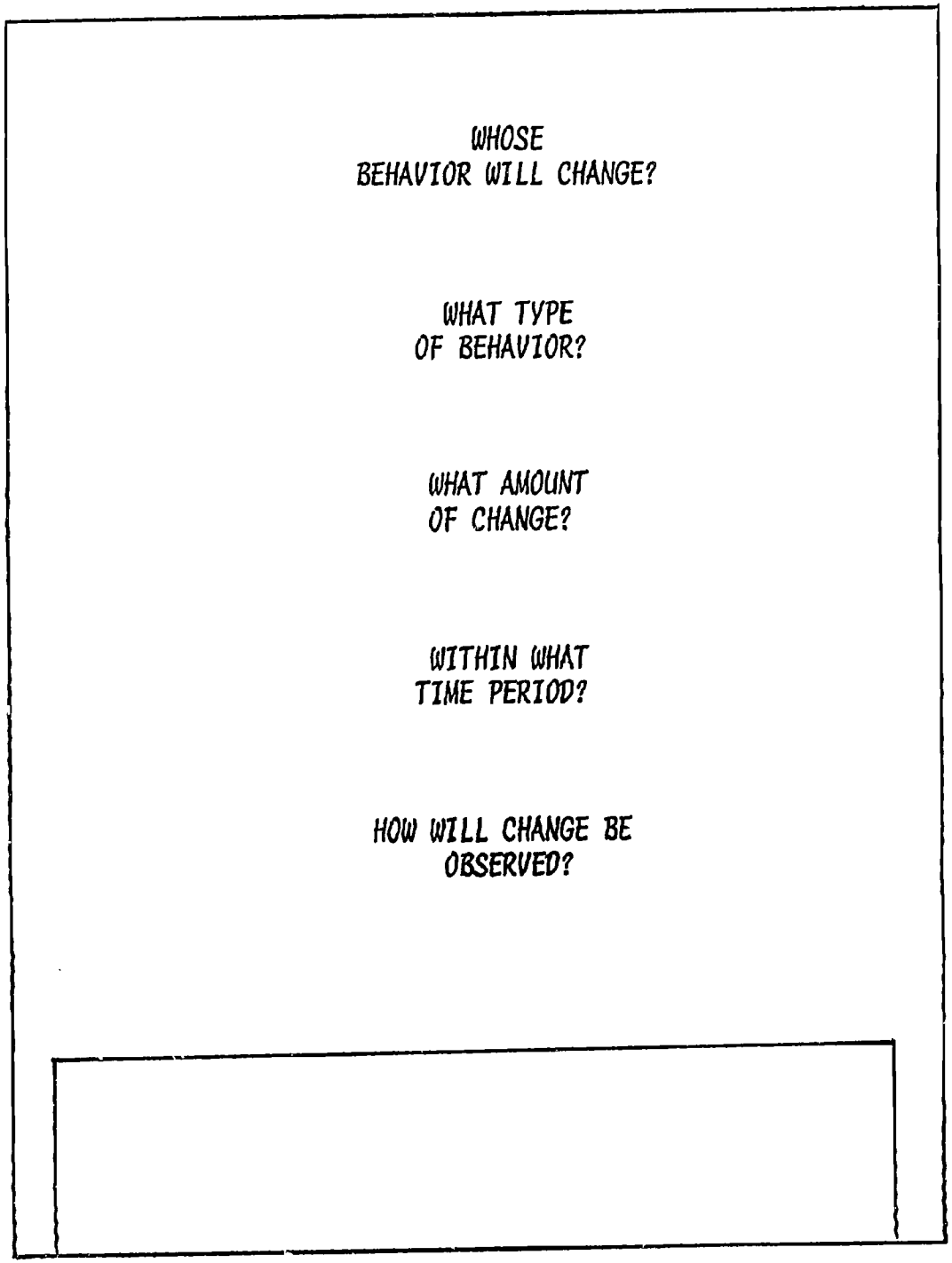

WHOSE
BEHAVIOR WILL CHANGE?
WHAT TYPE
OF BEHAVIOR?
WHAT AMOUNT
OF CHANGE?
WITHIN WHAT
TIME PERIOD?
HOW WILL CHANGE BE
OBSERVED?

Chart 12

PURPOSES OF EVALUATION

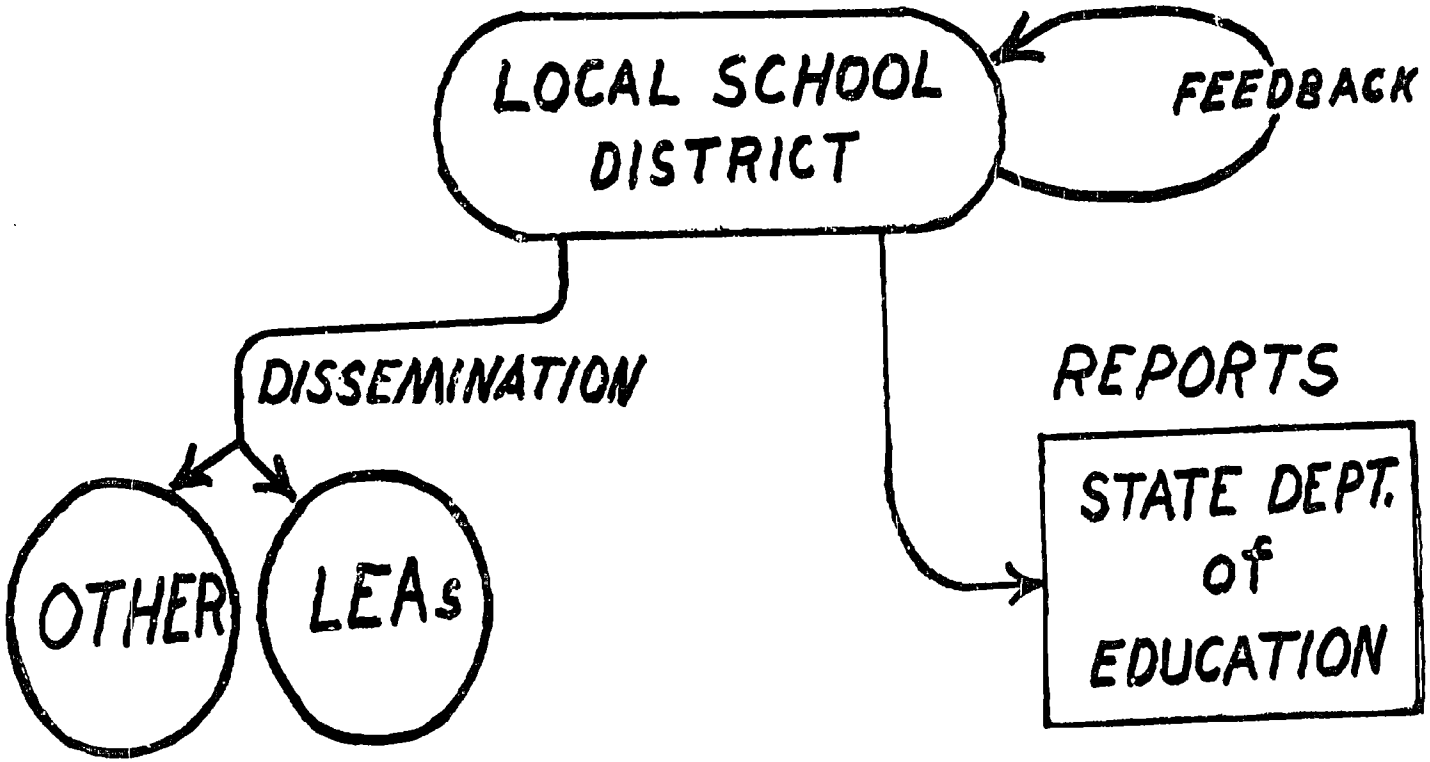


Chart 13

this evaluation or feedback function. We have to differentiate here between product and process (Chart 14). Product refers to the kind of effect which we hope to have upon certain clients or upon some kinds of things or ideas we expect to produce. Process refers to whatever program operators do to create that product or the change in clients. Evaluation, then, is concerned with the relevance of both product and process. Was the product sought really important? We may have produced extensive changes in people. But we might ask if they really make any difference? Were they the really high priority outcomes? Was the process that we employed logically related to the production of the outcome?

Evaluation is also concerned with the effectiveness of the program: Was it carried out according to the plan, and did it produce the outcomes we expected? Did it produce any undesirable outcomes?

A third concern of evaluation is that of efficiency. Was the program cost-effective? Were the outcomes worth the cost? Could the same outcome have been achieved by another less costly strategy?

What does this mean in the total management perspective? It means that evaluative information enables the manager to decide among three alternatives:

- maintain the program exactly as it is, because it is working well;
- abandon the program entirely either because it has attained its objective or because it is working poorly; or
- change parts of the program while maintaining other parts.

Simply stated, this is the renewal process.

About two years ago a group of seventeen state departments of education and the U.S. Office of Education undertook a joint effort to study and refine the evaluation and reporting requirements for all the various federally-assisted education programs. The project is sponsored jointly by the Council of Chief State School Officers and the U.S. Commissioner of Education. In the early meetings of the project, a mission (Chart 15) was agreed upon, and a series of subgoals were derived from the mission statement. This mission statement placed decision-making in the central position, place the evaluative process in the service of decision-making, and cited a valid and reliable information base as a necessity for evaluation.

You can see that the elements outlined on the management cycle make up a PROGRAM PLAN. The definition I like best of a plan (Chart 16) is that it is:

- a commitment by an agency or by one of its units
- expressed in written form, either narrative or graphic
- to take a series of programmed or scheduled actions
- using a given set of resources (manpower, facilities, money)
- over a specified period of time
- to achieve specified outcomes or objectives.

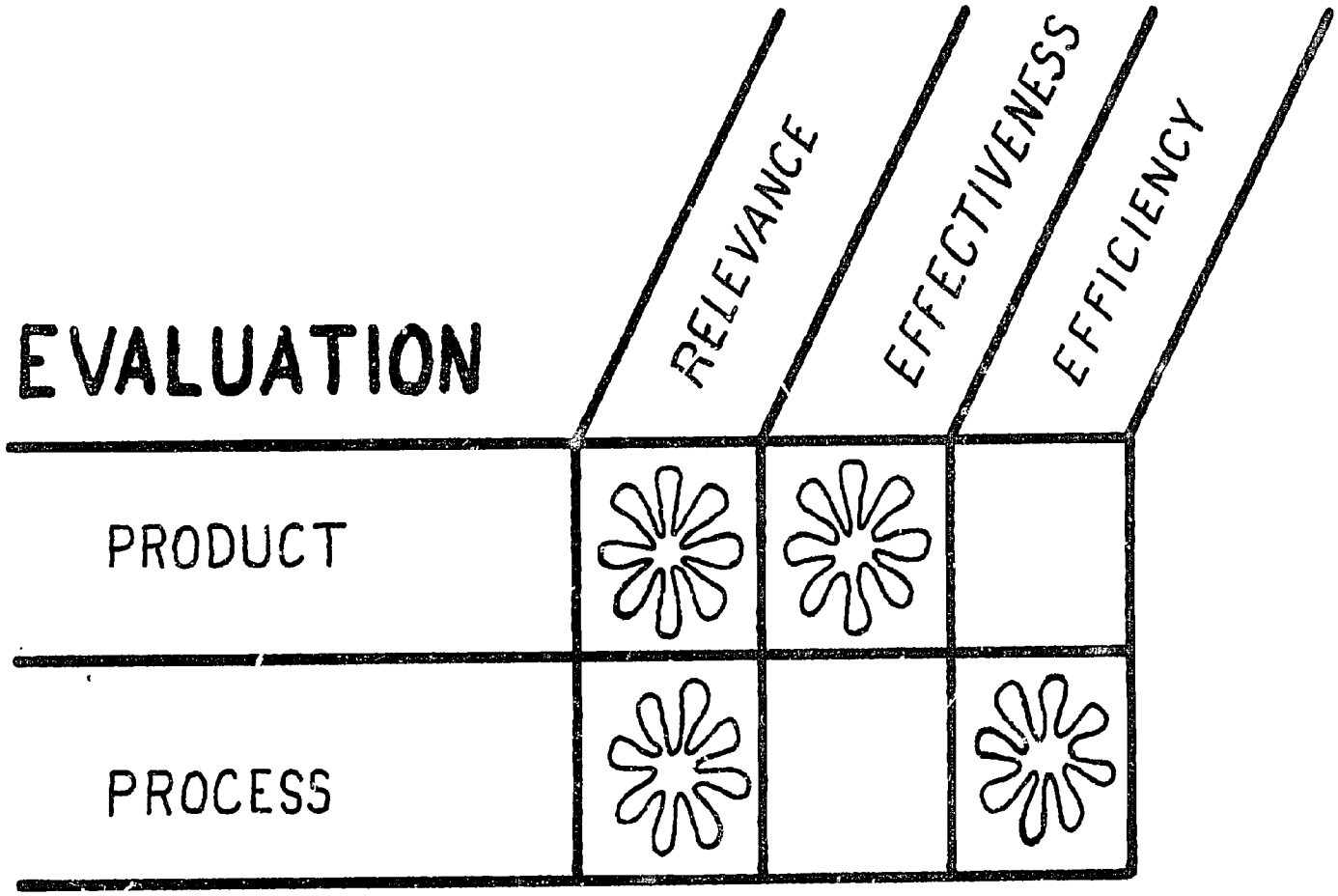

EVALUATION
RELEVANCE
EFFECTIVENESS
EFFICIENCY
PRODUCT
PROCESS

Chart 14

mission: improve the evaluative process (more valid and reliable information base) in order to make better decisions

Chart 15

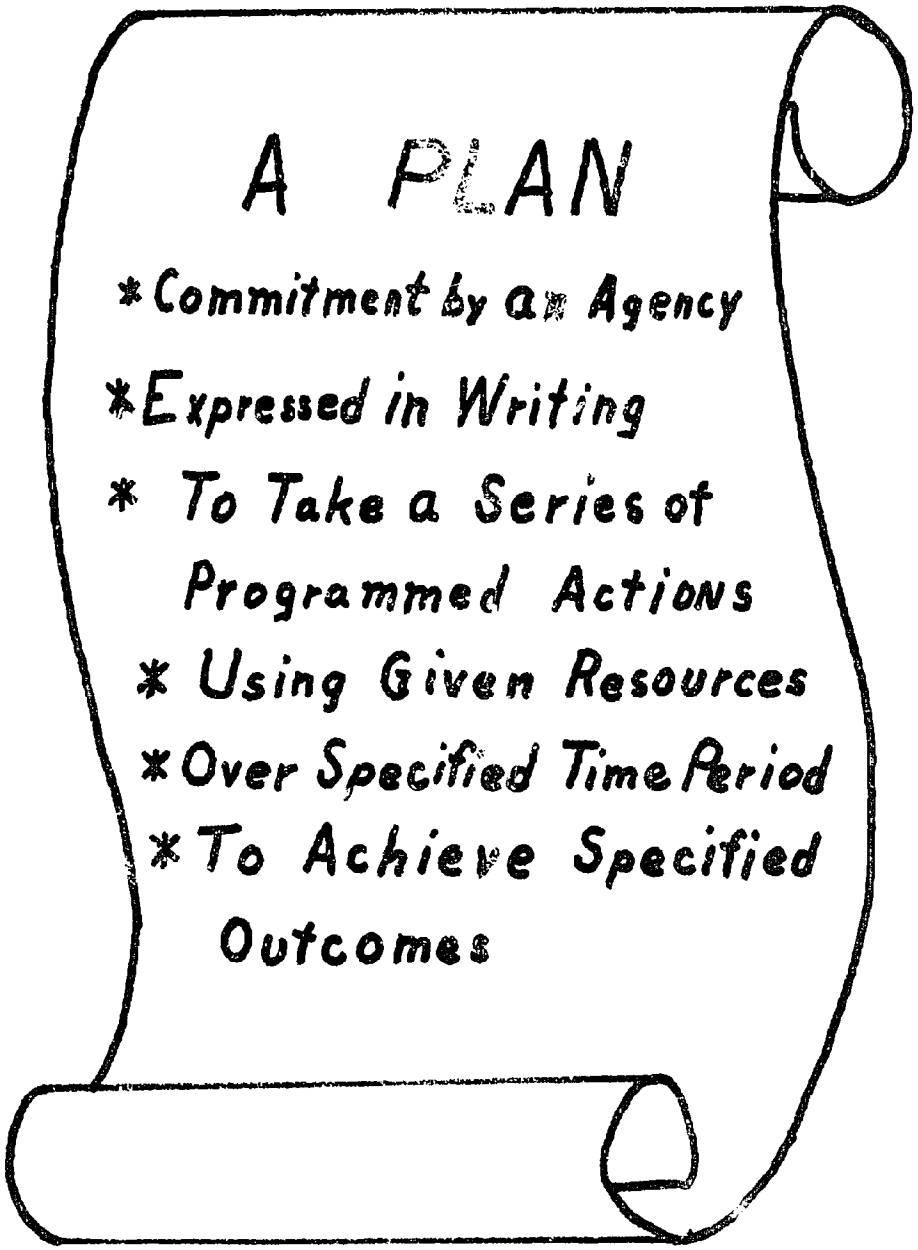

A PLAN
* Commitment by an Agency
* Expressed in Writing
* To Take a Series of Programmed Actions
* Using Given Resources
* Over Specified Time Period
* To Achieve Specified Outcomes

Chart 16

Accordingly, a program (Chart 17) is the performance of that series of actions and is signaled and directed by the specifications in the plan. Ordinarily a plan has at least two parts:

- a program plan, which specifies the needs, objectives, actions to be taken, and the resources needed, and
- a financial plan, which specifies the amount and distribution of funds budgeted to support the program.

It is important here to stress several important distinctions (Chart 18).

1. The planning process is not a plan; it is a set of skills and tools by means of which a plan is produced.
2. A plan is a product, an actual thing, that is produced by the planning process. But it is not action and it is not a program. It is a written representation of a set of related decisions which signal and authorize action.
3. A program is that set of actions which are signaled by the plan. But the program is not results. The behaviors performed by the staff in carrying out the program are not the behaviors pursued as the objectives of the program. They are the means, not the ends.
4. It is the results that are the ends, the objectives of the program. These must be stated in terms of expected behaviors of the target population of the program.
5. Evaluation is not planning. But it is a method of collecting and interpreting information to be used in the next cycle of planning. Planning is a forward view; evaluation is a backward view of the same set of decisions.

This evolutionary process may be shown graphically as a series of events proceeding from a central point outward in a spiral (Chart 19). The process begins with information, with some level of awareness of things as they are, or as we perceive them to be. From that we make some kind of plan, statements of expected change and ways of producing that change. We make firm commitments to these objectives and strategies in the form of decisions. Then we carry out the actions. Evaluation produces new information, which brings us back again to the information point. However, the information should now be better--more accurate, more relevant, and more accessible--than it was when we began. From this point a continuous replanning process takes place.

I have described educational planning, particularly as it relates to the total responsibility of management.

Let us consider now some of the characteristics of this behavior that we call planning. It has at least four aspects that we need to consider (Chart 20), and all of these are related to making effective decisions.

Planning has certain technical competencies connected with it, including:

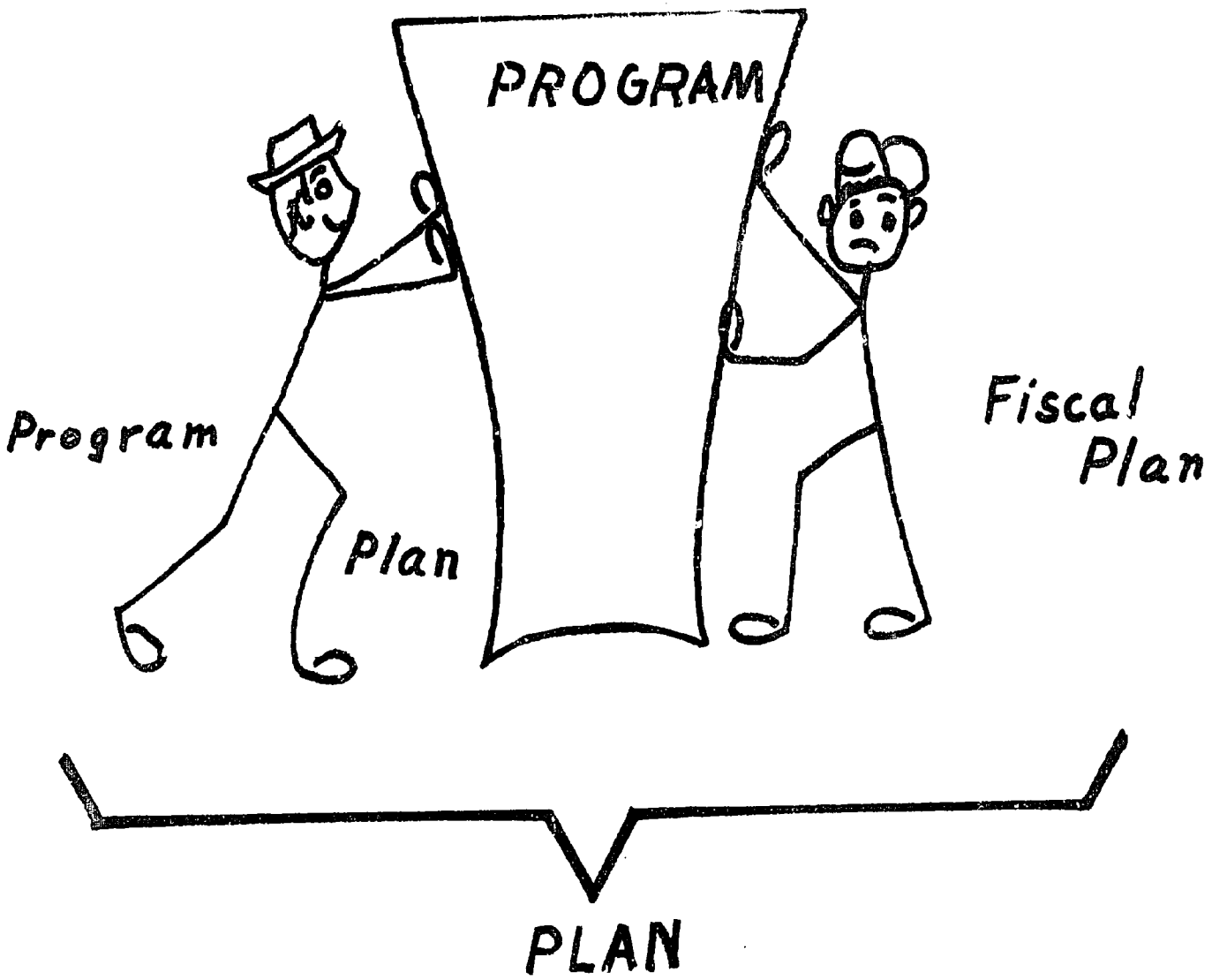


Chart 17

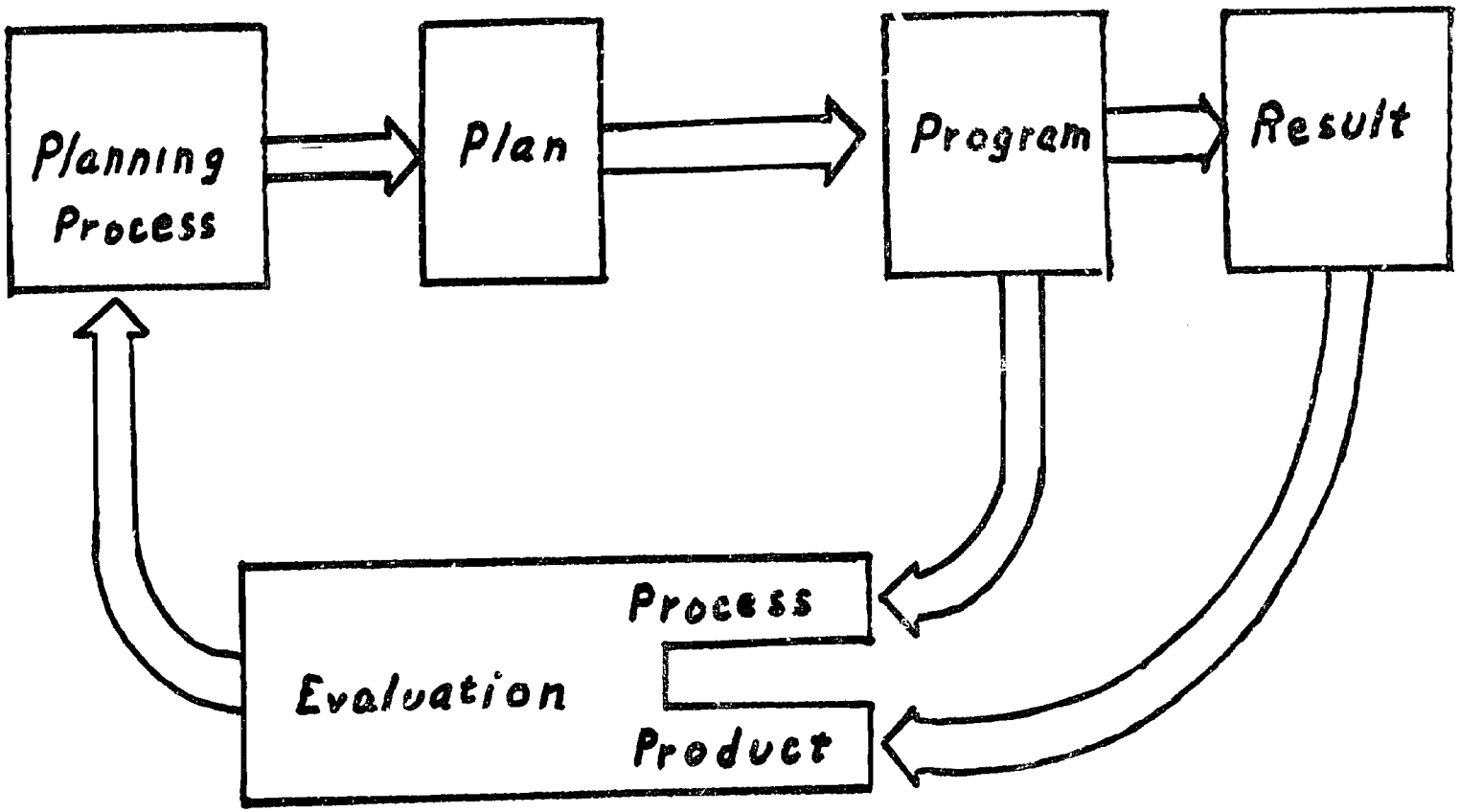


Chart 18

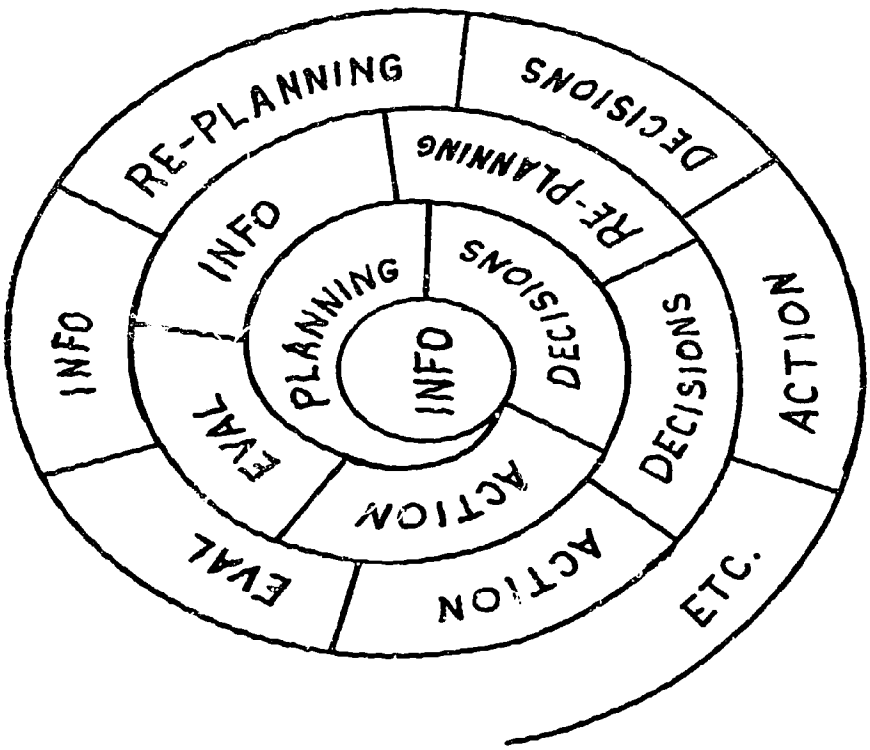

INFO
PLANNING
DECISIONS
ACTION
EVAL
INFO
RE-PLANNING
DECISIONS
ACTION
ETC.
EVAL
INFO
RE-PLANNING

Chart 19

CHARACTERISTICS OF PLANNING

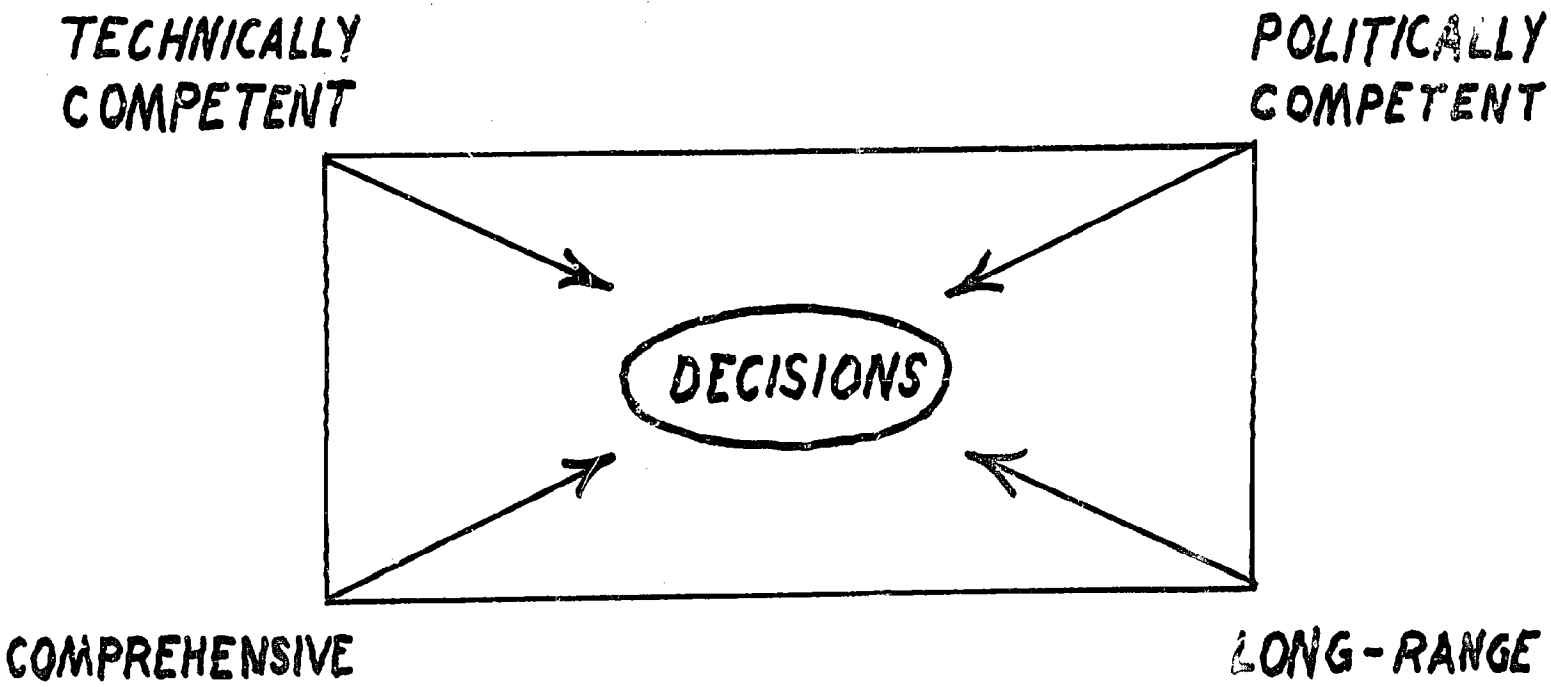


Chart 20

- collecting and analyzing information
- devising and assessing various alternate strategies
- projecting alternative futures and outcomes
- stating needs, priorities, and objectives that are clear and communicable and that can serve as a basis for action
- designing and conducting research and evaluation
- programming or scheduling actions to be taken

In connection with the last of these technical skills, I would like to mention two specific techniques which I have found particularly useful. The GANNT Chart is a way of laying out a series of specific tasks which are interrelated and is especially good for making manpower and cost estimates projected over a period of time. It is easy to comprehend and serves as both a planning and control device. Network diagramming techniques, such as PERT and CPM, are also useful for depicting a complex network of tasks to be performed. Both have highly sophisticated time projection procedures. This technique is especially useful for long-range planning, since it is possible to show multi-year plans with detailed networks for the early stages and more general networks as they project further into the future.

In addition to these technical competencies of planning, there is another kind of competency that is related to the human dynamics aspects, or the political dimension, of planning. I am referring to the relationships with the people with whom the planner works. How does the planner recognize that people bring to an organizational framework certain kinds of personal values, personal ambitions, mental sets that cause them to interact with one another in certain ways? How does the planner sense this and employ constructive compromise to achieve a blend of the best possible plan or design coupled with the support and enthusiasm of all persons involved or affected? This is especially critical with regard to value decisions, where technical competency is probably less important than political or human dynamics competency. There are two other aspects of planning that are less complex but equally important--comprehensiveness and long-range perspective.

Comprehensiveness (Chart 21) is a feature which is receiving a great deal of attention currently. By "comprehensive" we mean that all of the things we do in education exist in systems, that there are pieces of the whole puzzle that tend to be scattered out in many directions, and that these should be brought together into a harmonious pattern. As the circle of conscious awareness and coordination increases, we expand the comprehensiveness of our planning. As we move away from provincial, isolated planning and perceive a larger system with working parts, we become more comprehensive.

One of the problems that has caused us to become more concerned with comprehensive planning is connected with education legislation, particularly that originating from the Federal level. Each new title or program was assigned to a new division or section in the U.S. Office of Education for administration. State departments of education established similar organizational structures and so did many local school districts. This has resulted in a large number of parallel lines of

TOWARD COMPREHENSIVE PLANNING

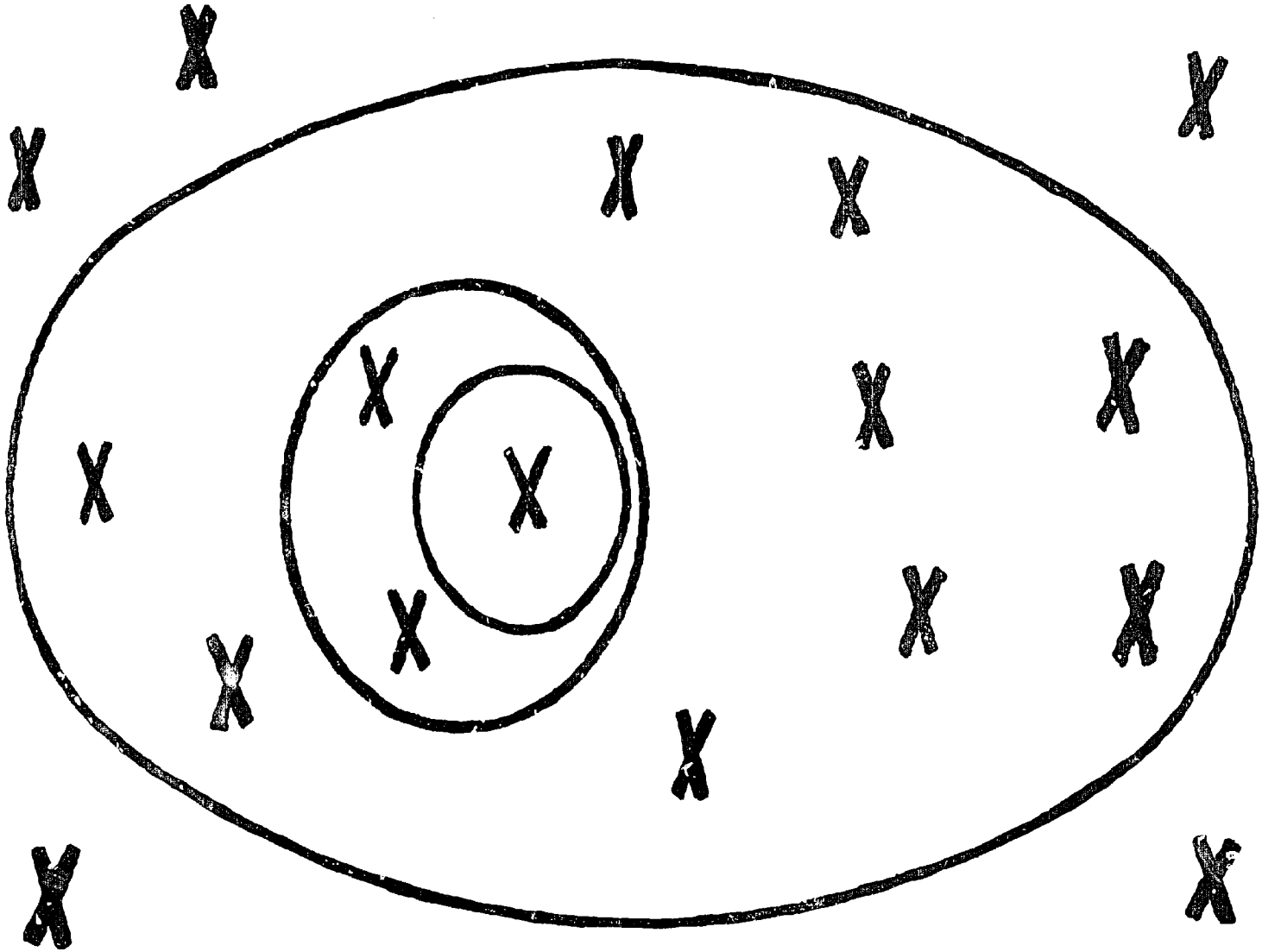


Chart 21

responsibility and reporting and a concomitant splintering of educational programs. The aim of comprehensive planning is to bring these back into a system of communication, coordination, and mutual effort.

A fourth characteristic of planning deals with its long-range (Chart 22) features. Some decisions are made for the immediate present. For other decisions it is important to project either needs or outcomes into the future one year, three years, or even further. The important aim is to establish a system of information which will permit needs assessment, scanning of alternate futures, and the generation of a variety of alternative strategies over a long period of time.

Of particular interest nowadays is planning for a five-year period (Chart 23). This is required for vocational education programs, and we are requiring it in our state for several other program components as well. Obviously, more firm decisions, more specific commitments, can be made for the first year of the five-year block. This is the annual plan and represents a specific outline for action accompanied by a specific request for funds to pay for it. Years II and III are not so specific, although they should represent thoughtful projections of directions the agency intends to move and some tentative actions and projected resources. Years IV and V are considerably further into the future, and plans for them are probably more in the nature of forecasts and projections than of definite courses of action. A truly competent long-range plan would include multiple alternative plans for years IV and V in an effort to have at hand a contingency plan for any reasonable set of conditions that might develop.

We have used the word "toward" in connection with comprehensive and long-range planning. These two aspects of planning are always relative and state a direction of growth rather than a definable accomplishment. By these terms we mean that we want to move from planning a narrowly defined program, in isolation, on a strictly immediate basis, toward planning for a system of interrelated programs over a period of several years.

The Role of Planning in Education

I have discussed extensively the nature of the process of planning. Now I would like to discuss the second part of the title of this presentation--the role of planning in education. One thing is certain: the process of planning has no intrinsic value in itself. No matter how proficiently and elegantly carried out, the process of planning has no meaning or usefulness unless it is applied directly to something which gets planned and which is thereby improved. The value of the planning cannot be greater than the value of the thing planned. If planning is concerned with the making of informed decisions, then the significance of the planning cannot exceed the significance of the decisions with which it deals. One of the principal roles of the planning process in education is that attention be directed to the PRIORITY issues and areas which call for more systematic management attention and focus the planning process upon them. This means badgering decision

TOWARD LONG-RANGE PLANNING

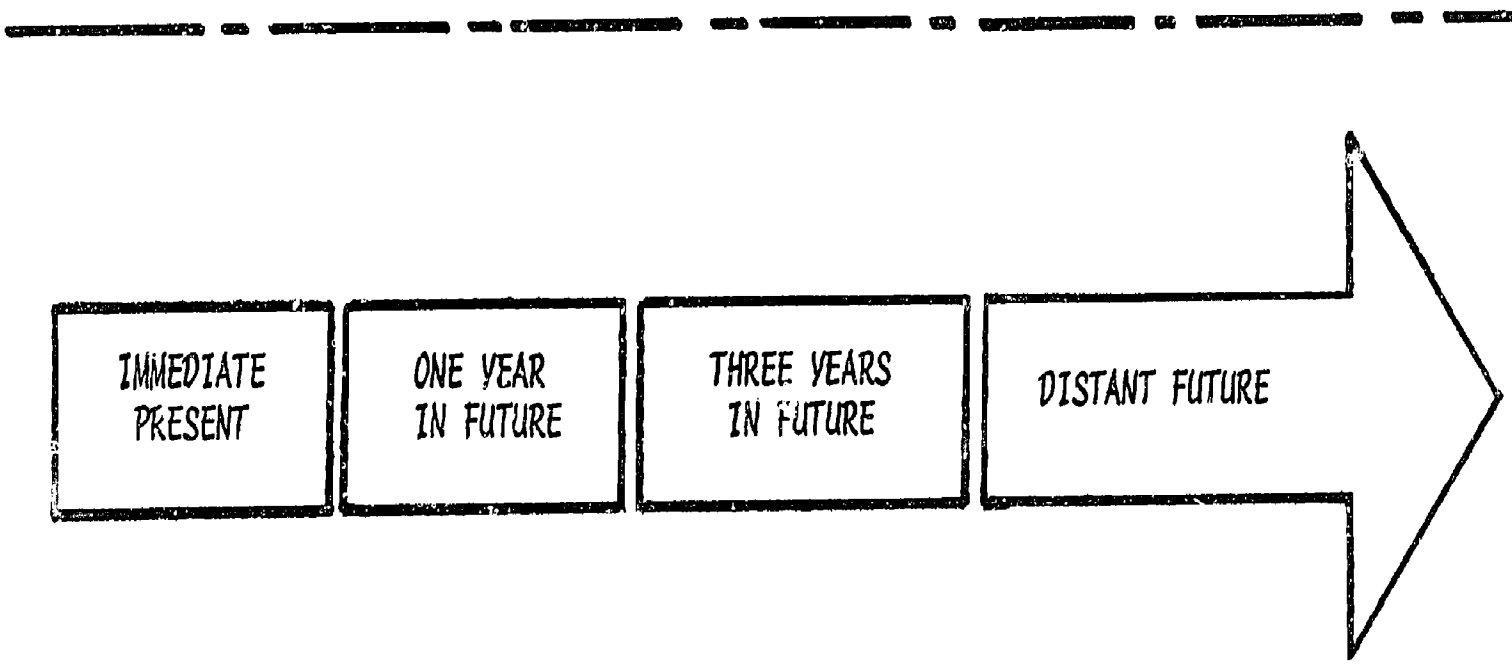


Chart 22

PHASES OF 5-YEAR PLAN

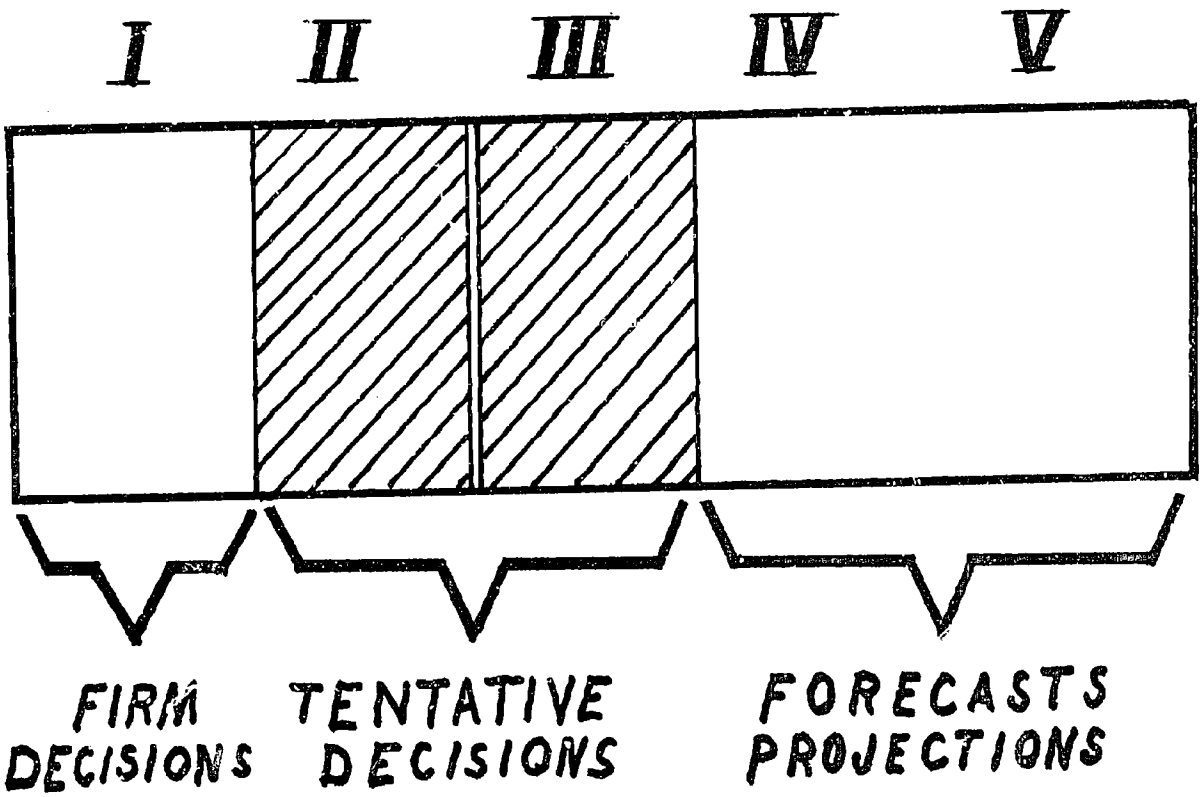


Chart 23

makers and policy makers into identifying the principal elements of the system to be planned and holding their attention on these areas until significant plans are made.

Another important role of the planning process in education is to focus attention upon RESULTS among the targets of the system, rather than upon the behaviors of the system itself. One of the most frequently heard criticisms of bureaucracies (and probably one of the most valid) is that they are preoccupied with what they DO, not with what they PRODUCE. Many laymen feel that administrators in local school districts and personnel of state departments of education are concerned only with how they spend their time and energy and that they are not concerned with whether or not processing paper and providing consultative assistance and developing curriculum publications and holding conferences actually produce any worthwhile results. The planning process, if applied in meaningful ways, can help to ensure that the educational system does produce the best possible results among its target populations for the time, effort, and money invested.

This leads to another of the roles of the planning process in education--that of making the system ACCOUNTABLE for its actions and for its success or failure in producing desired results. Traditionally, accountability has been used to refer to fiscal accountability--keeping track of public funds, making sure that they are spent for legitimate purposes, and preventing public officials from stashing away a few dollars to make their retirement happier and more comfortable. Accountability in the larger sense is now taken to mean not just proper and legitimate spending of public funds, but the responsibility for bringing about public benefits commensurate with the funds expended. It is no longer sufficient merely to be honest. An enlightened public is also demanding that we be effective as well. In my view, an enterprise can be accountable only insofar as it is systematically planned. If it is not clear what benefits the system is to produce and how it intends to produce them, then it is impossible to determine the extent to which such benefits have been produced. It is not always by oversight or neglect that clear-cut plans are not made. One feature of the bureaucratic game is to be so unclear regarding what is to be produced and to be so vague about any commitments to produce results that nobody can hold the system accountable for any specific results. In that case, about the only criterion for evaluation is whether or not the staff is kept busy at something.

Thus, another role of the planning process in education is to ARTICULATE the educational enterprise--its objectives, requirements, and limitations--for the public and for policymakers. When the enterprise is thus clearly defined and articulated, it becomes possible to involve a broad range of the public, the staff, and the clients of the enterprise in the planning process. This kind of involvement is now believed to be essential if education is to be relevant to students and productive for society. If goals, needs, and activities are well articulated, various groups can be involved in ways in which they can contribute to the total development and improvement of the program. They can function in well defined ways and not get involved in areas of decision-making which are inappropriate for them. If the enterprise

is poorly articulated, they will either fail to get involved at all, or they will become too involved in inappropriate decision-making areas and create confusion and disruption. Through careful planning a proper role can be identified for every element of the community.

Another role of the planning process in education is to place the decision-making function in the central position of all management of the educational system. Where decisions are obscure and indistinct, especially in terms of who should make them, management becomes chaotic. When management becomes chaotic, the quality of the program suffers, not only because management is not helping, but because it may actually be getting in the way. If the planning process can bring to light and make clearly visible the whole range of decisions that must be made, of all the various types that I have described, and can specify who should make those decisions and when, then the whole process of management can proceed with a minimum of waste motion and with maximum efficiency. By providing and interpreting the kinds of information needed by these various decision makers, the planning process can contribute to raising the quality and effectiveness of decisions and their results.

Still another important role for the planning process is to connect the evaluation and assessment functions, and the information produced by them, with the planning and decision-making functions. To do this, plans must be made in such a way that they can be evaluated--that is, that they provide clear-cut criteria for evaluation. And the planning process must anticipate the nature and scope of evaluation in the earliest stages of planning. If evaluation is left to the last and not considered until operations are almost completed, then it is highly unlikely that its findings can be made relevant or can be fed into future planning. Through the integration of planning and evaluation, it is possible to benefit from experience in such ways that random behavior can be reduced, needless mistakes avoided, unanticipated duplications eliminated, and serious gaps in the system filled.

Another important role of the planning process in education is the integration of program planning with fiscal planning. Too often separate plans are made for programs and for the expenditure of funds, even made by different people. We often talk about "program people" and "budget people" in education with the assumption that they are two entirely different worlds that can never meet--except at the executive level, where the buck stops. In addition, we tend to think that technical program planning and fiscal planning are both totally different from political planning that is, the strictly human and social aspects of getting decisions made and supported. The planning process, competently and fully exercised, ought to bring together program decisions, fiscal decisions, and political considerations under a single framework, open and accessible to all involved and affected. Unless integration of these three aspects of decision-making can be achieved, it is not possible for program planning to serve as the basis for fiscal planning and as the signal for intelligent and responsible political strategy. Only in this way can the generation and allocation of fiscal resources be brought into the service of program plans and their expected outcomes.

Finally, and most importantly, the planning process should fulfill the role of expanding the management perspective of the enterprise--its depth in terms of comprehensive design and tying the various pieces of the program together and its length in terms of long-range forecasts and projections. If this management perspective can be expanded, then the decisions made by managers at all levels in the hierarchy will come out different from those made in a short-sighted, provincial perspective. Every manager can be helped to make decisions that contribute toward the goals of the total enterprise, not just those of his narrowly defined program.

These are some of the roles I believe the planning process can and should fulfill in education if the planning process is to lead to improvement of the system.

Implementation

In view of these concepts of what educational planning is, there are several assumptions (Chart 24) that become apparent. The first is that planning, decisions, actions, and results are always occurring in an organization. The second assumption is that it is the quality of planning that varies, not the presence or absence of it. The third is that the quality of decisions, actions, and results is dependent upon the quality of planning. The fourth assumption is that something can be done to improve the quality of planning done by an organization.

If the management of an educational agency wants to do something to raise the quality of planning, it has several kinds of responsibilities. First of all, top management needs to assess the quality of present planning and evaluation and the planning behaviors of its staff. By that I mean it needs to get information about what is going on (status decisions) and compare those to value decisions about how top management would like to be operating. Once top management has gathered information, the next step is to decide whether the present level of planning is adequate. If the "what is" is consistent with the "what should be," then there is no need or problem. If top management decides that the present level of planning is not quite adequate, then it should take steps to improve it. One of these is to place high priority upon the functions of planning and evaluation.

A second step is to identify some priority skills and competencies to be developed among the staff. In other words, it is not sufficient to say that planning is not what we want it to be. Management must specify where improvement is needed and secure staff support of the effort. Another important step is to determine responsibility for the coordination of planning. There must be some person designated and given the time and the resources to begin the move that will systematically improve the planning level of the organization. A conceptual design has to be developed. Depth attention has to be given on how to proceed, and the improvement of planning itself has to be planned. In addition, resources, money, staff, and time have to be provided. It is very essential that there be sustained attention and support from top management in all these areas. Frequently, in many educational endeavors, top management gives early support to a new endeavor, but

ASSUMPTIONS

- Planning is done, decisions made, actions taken, results obtained
- Quality of planning varies along 4 characteristics
- Quality of decisions, actions, and results follow
- Planning is never totally missing nor perfect
- Quality of planning can be systematically improved

Chart 24

once it gets underway this attention is drawn away to other projects with the result that momentum is lost.

The last important step is to evaluate and refine the process continually, engaging the whole staff so that they learn from their experience and increase their knowledge about planning and their ability to plan and evaluate programs.

There are several alternatives which top management of an educational agency might choose to strengthen its planning and evaluation. One of these is to establish a special unit with a full-time staff to direct and manage planning tasks. A second is to establish a system of permanent and ad hoc committees, drawn from various divisions, which constitute different groupings of resources from the line authority pattern. A third alternative is to bring in external consultants to provide new ideas and encourage more flexible attitudes among the staff. Advisory committees can be used to gain a different perspective and to lead staff members to new views and patterns. Participation in projects involving other major agencies in the community or state promotes more comprehensive and long-range viewpoints among staff. A sixth alternative is a program of intensive staff development. This might be a formal staff development program, or it could be a matter of analyzing on-the-job experiences of staff as they participate in committee planning efforts. Somehow there must be a conscious effort at staff development if the aim of systematically improving staff competencies in planning and evaluation is to be achieved.

I have discussed some general ideas of educational planning and some ways in which some of those ideas may be put into practice. Above all, it is always something that gets planned--a program, a project, an activity. Only when the planning process and the plans it produces are focused upon significant goals and actions are they of real value in the educational enterprise.

COMPREHENSIVE PLANNING

by

W. O. Hogbin*

My remarks will focus on planning and systems analysis pertaining to vocational education. We are concerned with the present status of programs and evidence of program results. We are concerned with how to present evidence in a most acceptable manner.

Many of know that the individuals gathered here and the organization that they represent are powerful forces in perfecting public vocational education. While our country leads the world in volume of education, certain imbalances must be adjusted--the incidence of unemployment, dropout, delinquency, and inequality of education. Increasingly, these imbalances have caused us to look critically upon traditional methods of providing educational services that do not fully allow for those significant primary factors which affect the education of the individual.

Expectation is growing that modern concepts of education will be fully applied. These concepts encompass the total education of each individual as he grows and matures in American society.

ELEMENTS OF PLANNING

With increasing expectation of more effective delivery of educational services, systematic planning is demanded for a more accurate balance of programs in response to people and in consideration of available resources. This planning concerns itself with comprehensive vocational education which consists of three divisions of activity: (1) the effort directed toward initial educational development--that is, those efforts necessary to adjust each individual to a useful occupational and social role in American society; (2) retraining as necessary to help each individual remain productive and adjusted towards the American social system; and (3) continuing education directed to all individuals who may benefit from it vocationally as they mature in the American society.

Many educational institutions do not see their role as comprehensive, nor do they consider their program in the light of overall local and state programs, nor make meaningful comparisons between alternative programs or alternative ways of carrying out programs. Their tendency is to select and justify programs on the basis of intuition or tradition; to plan and budget in terms of object and activity, and to evaluate in terms of effort expended.

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One encounters planning in a vacuum, or compartmentalized planning. The recent interest in "management by objective," or "program packaging" has encouraged state and local communities to conduct broad planning activities to reduce educational and other problems. Planning which is comprehensive must involve all agencies and organizations which contribute to the provisions of occupational education. Such planning considers in a rational and systematic manner the capabilities and contributions of agencies, organizations and systems (both educational and non-educational) which are essential to effectively deliver educational service.

Heretofore, vocational educators have presented a plan. What should another plan include?

Any agency or organization involved in planning for educational programs necessarily has a mission which is imposed by legislation, regulation, charter or other means. The mission specifies the organization's reason for existence, describes the general services or functions it performs and defines the limits of its jurisdiction and authority. The mission remains more or less fixed unless changed by law or other official action. For example, the mission of vocational education is to provide throughout the Nation readily accessible programs of vocational and technical education for persons of all ages in all communities at all levels, which will enable these persons to enter and advance in the Nation's labor force.

Goals are established by the organization's leaders. A goal is a long-range specified statement of accomplishment toward which programs are directed. It may be as ambitious or idealistic as good judgment dictates, but it must be consistent with the mission. A time is not fixed for its achievement. A goal should be stated in terms of completely overcoming an educational problem or reducing it to the extent which the state of the art permits. A goal is not stated in terms of the current availability of resources, although it must depend upon the current state of knowledge. Broad goals will be set by local, state, and federal agencies responsible for overall comprehensive planning.

We should strive for considerable uniformity. Operating agencies and organizations covered by overall comprehensive plans will respond with operational education objectives appropriate to their respective mission; these objectives will be the milestones along the path of achievement of the goal.

An example of a program goal in vocational education is: to maintain and improve existing programs and develop new programs of vocational education directed toward persons with special needs at the secondary level.

An objective is stated in terms of achieving a measured amount of progress towards a goal or maintaining a certain measured level of education required by a goal during a specified interval of time.

An example of an objective for a state is: given tenth grade students who are three years behind average in reading level, to provide remedial reading, occupational education and placement for

employment for 70 percent of the target group (10,000) at the end of the twelfth grade, at an estimated cost of $2,000 per student and ultimately reaching a target group of 50,000 students a year in five years. These are the beginning specifications of a comprehensive educational plan.

The mission goal and objectives must be comprehensive in terms of geographical and population coverage. In addition, a plan should represent comprehensive plans of action for all agencies involved in mitigating all causes of occupational education deficiencies. The plan should be constructed under the general framework of a goal which is stated in terms of educational status. Additionally, the plan which states the educational problems, their causes and related factors should also contain educational objectives quantified in terms of expected terminal behaviors in a specified time.

Educational objectives should be supported by program objectives, which are stated in quantified terms and directed toward ameliorating specific educational deficiencies over similar time projections. Thus the plan must specify in quantified terms those activities which are to be carried out by the specified agencies or persons who will accomplish the program objectives which, in turn, support the educational objectives in ultimate terminal behavior of the students served. These projected activities or plans of action are the heart of comprehensive educational planning. They constitute the blueprint for action, the commitment to do something calculated to help attain the desired educational status. These plans of action cannot be limited to classical educational activity but must encompass activities of other agencies which have responsibilities and authority for certain educational program areas; for example, socioeconomic conditions, health, housing conditions, working conditions, and work opportunities are all factors which may adversely affect educational status, but which are not within the direct purview of official educational agencies. Thus, comprehensive educational planning must consider plans of action to be carried out by agencies which are not educational but which are directed toward these factors. This points to operations analysis.

OPERATIONS ANALYSIS

Operations analysis provides information, not decisions. Analysis makes appropriate material available to decision-makers; and if decision-makers will not use it, then the operations analysis cannot be effective. Find ways to effectively influence decision-makers, if you are not now doing so.

Problem identification is of critical importance. The problem definition may not be too narrow, in order that individuals working in operations analysis must develop social sensitivity; it is on this critical point that educators might lose control to those acquainted with program budgeting and systems analysis techniques. We must be careful of the way in which results are communicated. We must be careful that the data presented is meaningful and correct. We should not develop analysis in a vacuum, and we should describe realistic expectations as a result of analysis.

Maintaining and expanding a program of public vocational education depends greatly upon the proper utilization of reliable sources of data and the sophisticated analysis of these data and consideration of the other vocational education activities which are available. In many public or private organizations the program goals, the program objectives and the budget are expressions of purpose and program; hence their preciseness may be a reflection of past performance, including both successes and failures.

Many decisions must be made at many levels; they must be viewed as best choices among several alternative programs in the context of balancing needs against resources. It would be fair to say that with the exception of planning for the erecting of buildings, most program decisions have been confined to meeting immediate needs and planning for the use of presently available resources. Our task is being expanded to include that of more accurately predicting needed programs and necessary resources for several years in advance. Considerable evidence shows that too narrow a focus on the immediate present and too much reliance on the past structure of administration and operation restricts the utilization of data and limits imaginative assumptions too early in the formulation of many plans. We do not know what structural changes will occur in administration or the amount of resources devoted by the several levels of government to meet the needs of the student population to be served through vocational education. Therefore, the focus should be on what needs to be done for people who will fill occupational roles. We must focus on what is right and not worry so much about who is right.

Usually a considerable amount of confusion surrounds an area of activity before it received definitive attention, such as the needs of inner-city disadvantaged youth and health care. Individuals with considerable experience will need sensitivity in order to state problems in a manner which defines them sufficiently to suggest methods of action. Confusion may result when condtions change from normal or static. Abnormal situations pressing on society may bring problems into sharp focus. Imagination, the ability to perceive problems and knowledge of problem area are required before one may begin to solve them.

Changing value systems bring into focus dormant problems which otherwise might have been ignored. Observations may be of many kinds. Facts and values are usually combined in a creative process before serious consideration is given to the solution of problems or until they achieve priority attention. Postulates are sorted out and combined into theories from which assumptions are ultimately derived. Seldom are all facets of a problem entirely new or unique. New observations combined with old practices may turn up new probabilities of solutions. Expertise is necessary to frame goals and measurable objectives.

Intellectual honesty must be maintained as program plans are developed and alternatives presented. Decisions involve selection of the best alternatives from many possible choices. Decisions are made on the basis of combined facts and values. Facts may be misleading since they are often derived from accepted practices and beliefs which may no longer be valid. One example of an accepted belief was the

saying, "everything that goes up comes down," and space exploration has blown that formerly accepted belief. The same may be true for many of the accepted educational beliefs.

Values are usually derived from accepted and individual practices. The validity of the combination of facts and values leads to acceptance or rejection of this combination at the proper time by the right individual to the ultimate decision-makers. Modern management demands that alternatives be prepared and accompanied by hypothetical results, both desirable and undesirable. Otherwise, a course of action may be relatively meaningless. Action taken on this basis creates an image of the reliability of the organization or of the individuals taking the action. Whether recognized or not, action is taken on the continuum of uncertainty and, most appropriately, from the position of certainty. It must be our desire as planning specialists to strengthen the hand of the decision-makers.

PROGRAM EVALUATION

A point I have not touched upon is program evaluation. The planning process is obviously not complete without a specific plan for evaluation. As noted previously, the criteria for setting objectives and plans of action require that they be measured. Program evaluation is a process of determining the extent to which specific objectives and predetermined levels of operation are attained. Management uses program evaluation to insure that intentions are actually realized and that the desired effect is achieved. Evaluation is not a simple task nor an easy one. Many difficulties are encountered. The basic responsibility of evaluation is the appraisal of services in terms of their impact on the problems of the people that vocational education is intended to serve. In spite of these difficulties, the evaluation process must be performed. Without it, no plan of action can be valid and reasonably expected to be carried out successfully. Evaluation is thus used in all phases of program planning and program evaluation; it represents a feedback mechanism that consistently provides information necessary for the appraisal of any phase of the operational process. It reduces the gap between foresight and hindsight. The group assembled here is well qualified to select the method or methods to be used for evaluation of educational services.

The uniformed development in the use of a basic information system will facilitate evaluation of program progress at any time interval and help to establish the cause and effect relationships.

IN CONCLUSION

I hope this talk has given you an overview of a task that we are all dedicated to accomplish. I would like to make a couple of statements which will further reinforce what I have tried to present.

Joe Hall of Miami said, "One thing we all know is that change will come whether we plan for it or not, but the piecemeal approach of the past will no longer provide the kinds of solutions our schools need

today. We can no longer move from one program to another in linear fashion, cutting an uncertain path as we go. We must have a clear idea of the ultimate destination of all of our programs in education and we must map our itinerary with the utmost care and precision."

Simply stated, this means that educational leaders must give attention to the process by which changes are made as well as to the changes themselves. We need to bring more systems design to educational planning. This is nothing new, really. We live in an era of systems--systems analysis, systems management, systems engineering. Systems-designed research is transforming the structure of American industry and technology. Systems strategy applied to education would help us look at problems more comprehensively to define mission, goals, and objectives more clearly, and to plan and evaluate programs much more effectively than ever before.

We have serious competition for resources. Alice Rivlin, of the Department of Health, Education and Welfare, commented recently concerning information to support budget, "For some programs we had good information. For others we had less good, and vocational education, as the Advisory Commission has pointed out, was one of the weak areas. It's very hard at the national level to see what the money is being spent for, what are the characteristics of the students and what is happening to them. We've learned that hard information on the effectiveness of Federal programs is very hard to come by. This is true of vocational education, but it is true of almost everything else. There's nothing very special about vocational education in this regard."

We have not said much about cost/benefit, but it's in the picture. It's going to be a very long time before the cost/benefit analysis can have anything useful to say about big decisions. There are a number of reasons; one is that the benefits are difficult to measure. We really need more work on smaller decisions--the decisions of how to run a particular program better and how to gain the proper balance of programs in response to labor force requirements and the requirements of people.

I will enumerate a few other factors that are believed to be of critical importance, but I will not elaborate upon them. They are the several groups served through public information about vocational education; models for planning; federal, state, and local relationships; and the uniformity of terminology.

Is it possible to develop uniform mission, goal, and objective statements, and uniform evaluation, without utilizing a uniform terminology? We believe that standard terminology for local and state school systems will be a great aid in establishing uniform terminology. This has been developed by the U.S. Office of Education's Terminology Compatibility Branch, Division of Statistical Operations. The Taxonomy of Occupational Titles and Instructional Programs, developed by the Division of Vocational and Technical Education in cooperation with the Department of Labor, should also be useful in forming a data base in planning, evaluation, and reporting.

Immense amounts of information are needed for establishing vocational program projections. Information may be provided by surveys or, in many cases, by syntheses of available statistical and qualitative data. But regardless of the types of studies conducted or the research methodology utilized, studies should be initiated only after consultation with the state directors of vocational education or their designated planning officers. All that is said about program planning and information systems is not to imply that these will do the decision-making, but that they will increase the capability of the decision makers at the various levels of activity in local, state, and federal programs.

DATA NEEDS FOR EDUCATIONAL PLANNING

by

Herbert E. Striner*

In preparing this paper on data needs for future educational planning I am reminded of two humorous asides. The first is the statement that Angel Gabriel made in "Green Pastures," the great play and movie of some years ago, that "Everything nailed down is coming loose." This is certainly true in the field of vocational education specifically, and education in general.

With regard to developing a paper concerned with data needs for educational planning, after having looked at a good deal of the data which is available from various agencies concerned with education and attempting to square this with what I think we should do with regard to a better utilization and development of data for educational planning I am reminded of the old joke about the traveler going through Ireland. He asked someone for directions on how he could get to Dublin. The response he received was, "Well, if I were going to Dublin, I wouldn't start here."

When we look at much of the data which is available and ask ourselves what we would do about the problem of providing better information for educational planning, I am moved to say if I were going to design the system I wouldn't start with what we have. I doubt that we are going to get either to Dublin or to a decent system for planning our educational programs with the data available now. However, there are a few things which have been happening in the last four or five years which are encouraging in terms of beginning to change our perspective not only of the institution of education itself, however we may wish to define it, but also of the sort of data which may be most relevant for judging how effectively the educational institution is relating to the other institutions in our society. Though we here today are concerned with vocational education, I feel it is important to point out that vocational education can no longer divorce itself from the providing of the basic skills of communication and mathematics for students in the educational system prior to coming into the skills training end of the spectrum. By this I mean that unless we are aware, as vocational educators, of the reading and computation ability levels of our students, we have no real way of designing a truly effective skills training program for the large numbers of individuals who wish to come into such a system. Not only does it leave us relatively unprepared to deal with the numbers with which we should deal, but also it gives us no warning of the nature of the reading and computational problems which

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we may inherit when these students come into our system. Those educators in vocational institutions who have been confronted with the necessity of teaching reading an computational skills which were presumed to have been in the hands of the students know full well the lost time, the lost money, and the frustration of losing students with whom we can't deal properly because of these deficiencies. I know I am not saying anything new, and that many vocational educators would argue with me over this point. I am saying this because in order to provide a statistical program for improving the planning of our vocational educational system, we must obviously also improve the nature of data concerning very basic areas of education. Too few vocational educators have seen this as a part of their responsibility. We are beginning to get some help in this particular area. It results from the work being done to develop accountability standards and performance criteria for education in a handful of school systems receiving funds from the Office of Education.

The beginning of any sound educational program must start with a rather clear definition of exactly what it is we are seeking to produce. Now, there is nothing very deep about this statement except, until very recently, the basic philosophy of the educational system has been that education, the curriculum, and the high levels of competence of our teachers and our administrators must be accepted as an act of faith. I say this because whenever I have been involved in looking at efforts to evaluate educational programs based on somewhat more scientific and objective criteria than educators are used to, the response has too frequently been one of defensiveness on the part of the educators and administrators. The reaction has been one which implies personal criticism and a lack of a sense of faith in this basic institution. I believe that no institution in our society should be regarded as being beyond reproach or questioning; that it should not find itself ready to submit to fundamental questions concerning the efficiency with which it turns out products, given the needs and values of the society.

During the last two years the Office of Education has moved very slowly, too slowly, I believe, in the direction of establishing performance criteria on the basis of which, after having asked ourselves what it is we are supposed to be turning out in our schools we seek to measure now closely we are approximating this goal. This new effort will call for the development of a rather sophisticated statistical program. And it will have to be one which must be developed on the basis of a local orientation rather than one which is state or national in nature. It makes little sense to develop any educational statistical program which cannot help a local school district to determine how effectively it is performing its task. Hence, at the very outset I will say that we must cease to look to the easy task of gathering and using national statistics as the basis for our determining how well we are doing locally. It makes no sense to use national or even regional statistics as a jumping off point to determine what we are doing locally if, in the final analysis, the only real question we are confronted with is how our local schools are doing and how we measure their performance. Hence, any basic statistical program in the field of education must be related to the local school district and the data must be compiled on

the basis of individual schools within that district. Anything less than this really means playing a guessing game with numbers and attempting to allocate national or state data on the basis of our local needs. We learned as economists that gathering data unrelated to a district doesn't work with regard to regional or local economic problems and I have no reason to believe it will work with regard to state or local school needs either.

A further point I wish to make is that, except where it permits us to determine the productive efficiency of a teacher or an administrator, data alone have little use in any planning system. Data will do little or nothing in the case of one of our state's schools where girls physical education regularly chalks up far more F's than any other course. A study of the reasons for this situation indicated that gym teachers were measuring competency by tallying whether Jane kept a dirty locker or failed to take a shower. The grade hardly reflected performance in physical education. Requirements such as punctuality, neatness, order and time served ought not to be used to reflect subject mastery. In addition, we have to be aware of certain inherent fallacies which we can build into any statistical system by virtue of value judgments which we make, even in defining such seemingly harmless things as column and stub headings. For example, when we talk about grouping youngsters, a good deal of what we do in assigning group labels is more in the nature of demonology rather than of good educational practices. But this is not supposed to be a paper which deals with basic philosophy and methodology, but rather statistics for educational planning and I'll make every effort to stick to the task assigned to me.

To give you a bit of the flavor of the types of data which will have to be forthcoming from school systems as they become involved in performance contracts, such as is the case of the Texarkana plan, just think of the data that will have to be produced when we look at some of the items which were called for in the performance contract proposal for Texarkana. First, a fixed amount of money per student is related to achievement on general educational development equivalency test certification, demonstrating that at the agreed upon students have completed all five subtests (administered by a certified administrator) and received a standard score of not less than 40 on any subtest or achieved an average of 45 on all five subtests. Secondly, a fixed amount of remuneration for each school for each student for demonstrating an least n percent per month increase in agreed upon behaviors, as recorded by the use of a behavior check list. Thirdly, a fixed remuneration per student who is gainfully employed within a certain number of days of his departure from the institution. The employer must be a state, federal, or governmental political subdivision or bona fide representative of the private sector of the economy, including privately financed nonprofit organizations. Fourthly, perhaps a fixed amount of remuneration per student, for the first year only, who is gainfully employed in the first year after departure from school, such employment to have been continuous with the employer of record at the end of twelve calendar months for at least a certain number of months.

I think this gives you some flavor of what we are talking about

although we may not necessarily agree with certain of these indicators. As an economist, for example, I think that the attempt to relate education and skill-training to employment is a bit tricky because of the rather obvious fact if graduation coincides with a downturn in economic activity, there is a much lower probability of employment than would have been the case if graduation took place coincident with a high level of economic activity. However, even that can be dealt with if we take correlations which relate employment and placement rates of graduates with changes in the local employment rate for given types of occupations.

Now I would like to become a bit more specific in terms of the actual types of data which are needed for the development of a more effective local planning program in vocational education. To begin with, I think we have to completely turn around some of our basic attitudes as to the relationship of the educational institution to the rest of the society. Briggs* states: "The basic problem in education is to ascertain what should be taught. Ideally, the curriculum should determine everything -- the financing of our schools, the buildings and equipment needed, and the kind of teachers employed." Such a statement really assumes that the social priorities have been determined and that we are aware of these priorities. And so, for this reason we skip immediately, usually as educators, to the problem of determining the curriculum, buildings, equipment and teachers to be included in our systems. Unfortunately, this is easier assumed than an operational reality! At the outset educational statistics must now start with and incorporate a whole new vista of local manpower and employment statistics, not only for the private sector but for the public sector as well. This data must be gathered at least on an annual basis. In the case of certain industries, possibly even on a semi-annual basis. If this seems to be an impossible task let me assure you of the fact that I am being pragmatic. Not only is the educational system terribly dependent on the private and public sectors for information by means of which it can develop effective curriculum, etc., but the public and private employment sectors are terribly dependent on the educational system to fill the demands for all sorts of skills, without which it runs into higher production costs as well as irate taxpayers. I have been involved in a number of manpower programs where an effort was made to develop a vocational education system which was far more responsive to the unmet skill needs of a local area. Most frequently, there was very little communication, on a continuing basis, to develop a formalized information flow from employers, private and public, to the educators so the curriculum could reflect not only changes in gross labor force needs but changes concerned with the actual technology of the job itself. I found that, although data needs for planning were rather substantial, once it was communicated to the employer that he was going to be the major beneficiary of radically redesigned educational programs, this flow of information was much less difficult to develop than anticipated. We have also learned through the work done in the Bureau

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*T. H. Briggs, "Research in Education," Phi Delta Kappan, November, 1964, p. 99.

of Labor Statistics over the last five or six years, that local employers are more capable of predicting their skill needs than many people had conceived of. I would suggest that when we speak of educational statistics for planning purposes our primary emphasis must really be, especially in the vocational field, on the development of locally-oriented, annual data coming from the private and public sector. I would like to place special emphasis on the public sector because up until fairly recently our almost sole concern has been with data coming from private employers; but we now know that the unmet needs of the public sector represent a tremendous potential for employment of graduates coming out of our vocational programs.

At present, the great majority of school systems are utilizing local data which is made available to them from the local employment service. However, the data which is generated by too many local employment service offices is of limited use or even misleading. The samples are terribly inadequate quite frequently, and in too many instances they don't rely on a survey technique but rather on the job orders which are placed with the local employment service. Unfortunately, many firms don't file job orders but seek employees without going through the local employment service. Hence, what we have quite often in a local situation is a highly misleading set of indicators concerning the nature of the job needs of the locality. I would suggest that what is most essential is that the educational institution itself now build into its own system individuals who are competent to design and run, cooperatively with local employers, manpower and skill needs surveys, job content analyses, and work performance analyses. A direct relationship between educator and employer is essential. I would add quickly that a bonus of this sort of a relationship can often develop in terms of a far more effective counseling and placement system for the graduate of the school system. Frequently, in those instances in which I have been personally involved, I have observed that once employers become concerned with the designing and providing of data necessary for planning in a vocational education system, they also become concerned with a more effective use of that system as a source of skilled manpower. Thus, what we have is the potential of not only developing a better statistical system but also a better production line for moving graduates into jobs. The data which must be generated will have to reflect changes in manpower needs, shifts in hiring patterns, changes in technology which affect curriculum and teacher training, and, if you will, the effectiveness of the product turned out by the school. Such types of data, however, are not only of use in terms of producing graduates for effective placement but are also of significance to us in terms of a more rational programming of faculty needs and physical facilities. Once we are aware of the nature of the projected demand for certain types of skill needs, we begin to have the basis for determining what level of instruction is needed, how many people are present in the current supply system and the degree to which that supply is adequate. The same can be said with regard to the physical facilities picture.

Thus far, I have alluded to the education system, and the data necessary to plan for that system, within the narrow context of the public system. But a larger system does, and should, see beyond this

limited view. In all I have said thus far, I have sought to enlarge our scope of data needs because of the larger scope within which our public subsystem exists. Planning for an optimal system should lead us to data and analysis which calls for a more economical, in the best sense of that word, combination of our scarce human, physical, and social resources. Recently in a study done by A. H. Belitsky, at the Upjohn Institute, he pointed out the tremendous potential for low-cost but highly effective training by private vocational schools. If we assume that performance criteria becomes an increasingly effective means of judging society's use of its educational dollar, then we may find local school systems beginning to use private vocational training programs. Whether they be for profit or not really doesn't concern me. In order to bolster up or flesh-out parts of an educational program which must expand in the short run, but can't because of shortages of physical plant, funds, or personnel in the public system, the use of private programs should be looked into. Indeed, I would see some of the demand data which come out of the sorts of surveys I have been talking about pointing the way to the development of an overall means of dealing with the public responsibility for vocational education. Projections of short-run skill needs coupled with an inability to expand faculties and facilities to meet such needs, would indicate contractual arrangements for private vocational centers or programs within a private school. Equally, a lessening in the demand for certain types of skills should not lead to an abandonment of a program, but rather a phasing down which could combine a tapering off of a large public program with a short-run private program which acts as a stopgap measure. Thus, we can satisfy a market demand which may be diminishing relative to other large programs, but are nonetheless large enough for us to continue them by using private institutions. Just as it was once said that war is too important to be left to the generals, so also is education too important to be left solely to the public institutions.

Now, I would like to shift for a moment to an area of data collection where there has been too little interest. This has to do with the supply of faculty. In a community we tend to view the supply side only in terms of a known supply of credentialed teachers, or those in the production pipeline, that is, our schools of education. However, in a number of instances, voluntary agencies such as the Red Cross and the Community Fund have found in examining their records that substantial numbers of individuals who have made themselves available for voluntary work have had backgrounds which suit them for teaching positions. In speaking with some of the people who have appeared on such rosters of available volunteers, I have found that their attitude with respect to the local educational system is that there would be accreditation obstacles preventing them from teaching in the public school system. Though this might be true with regard to general education, in a large number of instances the skills and background of such individuals would have fitted them admirably for positions which were in demand in the vocational education system. I would think that a vocational system would do well to relate its needs to such organizations. This should take the form of an annual survey which would have such organizations collect data concerning formal educational backgrounds, occupational specialities and teaching experience of the individuals volunteering

for service in these types of community type enterprise. This could be an important pool of part-time as well as full-time teachers for those types of systems which are expanding into new vocational areas. It struck me in discussions with some of these individuals that there was a heavy concentration of potential teachers who had formerly been involved in distributive, administrative, and scientific or technical positions, all of which are areas which have been expanding in our vocational educational system. Information concerning such individuals should be gathered annually as a normal part of supply side information. Its use is obvious for any educational planning system.

A further important area for educational data would have to do with skill cluster analysis. One of the major problems which confronts us in a society with rapidly changing technology is the degree to which we are aware of clusters of skills which are necessary for job training. Unless the faculty member and the administrator are aware of skill clusters which go to make up jobs, it is difficult to determine proper curricula content. Here again, an annual survey which produces statistical information based on inputs from local employers, both public and private, could provide the school system with a matrix of skill clusters which relate to specific job titles. This would not only be of significance concerning curricula design but also as a means of providing insights into horizontal as well as vertical job mobility.

Along with the shifts in technology and its implications for training, faculty, and physical facilities, there is the problem of determining what the employment experience has been of graduates from our vocational schools and the obvious implications for educational planning. I would suggest that an important ingredient in long range planning concerning the effectiveness of our vocational system will have to depend on the initiation of an annual survey of where our graduates have gone, what their job experiences have been and what changes, in terms of geographical as well as job mobility, have taken place. A survey program which follows a student for, let's say, five years post graduate, and indicates what jobs he has held and for how long, where these jobs have been and what shifts in the rates of pay have been, would be of great significance in any evaluation of the effectiveness of the particular type of training he has taken and the nature of the labor market we serve.

Thus far, I have said nothing concerning the nature of the data which must be generated within our school systems concerning the operating efficiency of the system. We know very little about dropout rates from vocational schools and the characteristics of the individual who has dropped out. Nor do we know what has happened to the dropout following his leaving the school. We have only sporadic exit interviews which have been carefully designed to provide insight into the efficiency of faculty and administrative procedures, as well as relationship of the training programs by years of training to job placement even for school leavers. A standardization, within a geographical area for all schools, of exit interviews, which should be

conducted by highly skilled counselors, could produce an annual statistical series with reasons for leaving as well as longitudinal datum on job experience, unemployment rates, etc., of school leavers from vocational institutions which would be of obvious value. Institutions could begin to design more effective means of holding students within the system. A longitudinal survey of graduates as well as dropouts, should have a counterpart regarding the source of origin of students as well as faculty and administrators coming into our vocational education. We know little concerning where our faculty have come from and the nature of their training as well as shifts through time in the characteristics of our faculty. We also know too little about the educational and experiential background for students coming into our vocational education programs. I would suggest that such historical data for students, as well as faculty and administrators, would provide us with the means of developing more effective remedial curricula as well as the development of more rational ties between vocational school and elementary school programs in the literacy and computational areas.

Finally, I indicated earlier that I feel that for the development of an efficient planning program in vocational education, data must be gathered by relatively small units. I feel this is necessary for several reasons. To begin with, the use of national data present very little which is helpful for a local situation. What may be happening throughout the nation may have little significance for an educational system in a particular community. Furthermore what may be happening even at the state level may have very little significance for a particular community. Thus, to be relevant, data must be of a local nature. Secondly, I would suggest that the data must be of a local nature because of the need for comparative statistics between like units. I suggest here that one means of judging the performance of a local school system would be to compare it to a community with similar types of socioeconomic characteristics. Though an indicator will tell us something, in order to judge how that situation should or can be changed we can obtain valuable insights from a comparative analysis of such indicators and data with other school systems in communities which are substantially close to our own in key socioeconomic and educational characteristics. Having said this, however, I will quickly add that in many instances we may only find a whole group of similar community education systems are all doing equally poor! My point is, however, that we must be able to compare our local systems, or even schools within the same system, on the basis of whatever standard of comparison we think makes most sense. To do this, our data must be highly local or disaggregated.

In closing, the major problem confronting us in data for educational planning is that of providing a local educational system with a proper awareness of the need to allocate substantial funds over a period of time for these types of statistical programs. Typically, especially in the vocational education field, there has been too little research, statistical methodology and awareness of the need to provide data for continuing analysis in order to improve our educational planning. Also, too frequently the vocational education system has looked to outside sources or other institutions for inputs into its own planning procedures. I would state, unequivocally, that the massaging and

manipulation of manpower data, productivity statistics, or other types of information which have been designed primarily for noneducational purposes will continue to be of little value to the educator. The educational establishment must now begin to include within its own bailiwick those experts in these fields who will tailor statistical programs to the specific needs of the educational establishment.

COMMENTS ON HERBERT E. STRINER'S PAPER

"DATA NEEDS FOR EDUCATIONAL PLANNING"

by

John M. Peterson*

Herbert Striner has presented a very thought-provoking paper on the data needs for planning vocational education programs in public schools. Since the participants in this institute will break up into discusssion groups shortly, my role is to point out some issues raised by this paper. Personally, I might be inclined to agree with Striner's suggestions, but let me raise a series of questions for the participants. Perhaps they cannot afford to agree as cheaply as I could.

The first question is, Are local schools ready for comprehensive planning and evaluation? Striner sounds very logical, but only economists have the "irrational passion for passionless rationality." Do school boards face any pressures for such a completely rational approach? The general education curriculum is largely unplanned since it is traditional and determined by college entry requirements, accreditation standards, and teachers colleges. Occasionally public clamor arises for a particular course, such as economic education or sex education. Vocational education, likewise, is traditional and rigidly maintained by federal funding categories.

But if schools do wish to plan, Striner's program has a very high cost to it. He suggests that metropolitan school districts need their own personnel to collect and analyze data, to evaluate performance and curricula. His performance evaluation suggestions also may applying severe standards to just one part of the school or it is in danger of starting a fight with the whole school by testing the general education deficiencies of students entering vocational education.

I recognize that this question seems impertinent in a conference on planning. But I do not think the Vocational Education Act of 1968 requires planning at the local school level, nor does it set as stringent a standard of goal planning and performance evaluation as Striner advocates. At the state level, or even metropolitan-wide, only broad guidelines and funding allocation policies may be needed at this stage. For this purpose, national data and data from employment agencies may be quite useful.

The second question is, How much outside participation in planning do schools want? Striner wants "to completely turn around some of our basic attitudes as to the relationship of the educational institution

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to the rest of the society. . . . Once employers become concerned with the designing and providing of data necessary for planning in a vocational education system, they also become concerned with a more effective use of that system as a source of skilled manpower."

Now I can assure you that employers will be critical and that their demands will be diverse and changing. But school administrators have been insulated from public pressures by a traditional curriculum and professional standards. Even at the state level, I do not see much willingness of administrators to consult advisory bodies. Why should local schools do more?

Now if schools plan for goals determined by educators, they may be more similar in different cities and more stable from year to year. Long-range trends in social needs may be more relevant than the annual needs of local employers.

A third and related question is not suggested directly by Striner's paper, but it is relevant to the current drive for vocational education planning by the federal government. The question is, How much responsibility can local schools accept for the labor market? So far in American history, formal schooling of any kind has provided only a small fraction of the skill training required by private or public employers. Skills are largely learned on the job and through work experience. Public funds train only a minority of youth who do not enter college. So far in American history, also, government employment services have placed only a minor fraction of workers on jobs. We do not even have very good current information on demand and supply conditions in any local labor market. Furthermore, American history and many recent studies emphasize that our labor force is remarkably mobile. There is great movement, especially by youth, among employers, among occupations, among industries and among geographic areas. So far, even national policy is not very clear and firm as to how much responsibility the federal government accepts for assuring each worker a job and for funding training for every worker. Are metropolitan school districts, let alone state education departments, in any position to assume a real responsibility for preparing every student either for college or for a job? And even if the school was responsible for every student, could it expect to be responsible for matching school supply with local demands in a quite fluid market?

The point of these comments is that schools may not have to plan very accurately for local demand and supply conditions. In an undersupplied market, their graduates usually will be in demand if the curriculum is reasonably related to market data projections. The main national problem has been to get funds reallocated from declining fields like farming and coal mining and toward newer skills required by growth industries.

A fourth question is, Should the goal of vocational education be to prepare students for specific jobs? This question may sound rather narrow and perhaps not exactly what Striner intended. However, he says, "our primary emphasis must really be . . . on the development of locally-oriented, annual data coming from the private and public sector." He

urges involving employers in the "designing and providing of data," because he wants "a better production line for moving graduates into jobs." He also urges the surveying of graduates during their first five years of employment experience.

I raise this question because I understand that some educators argue that it is wrong to train for initial jobs. Because of the mobility of youth and the rapid changes in technology, training should be aimed, they say, to make workers more adaptable. Some educators even view specific training as merely skill experiences and a broadening part of general education.

Perhaps neither extreme is desirable, the specific job training nor the skill-oriented general education. Students expect to move into real jobs in local industry. Striner makes reference to the need for data for skill cluster analysis. He seems to want these to relate to specific job titles, but he mentions their value in relation to horizontal and vertical job mobility. As a matter of fact, I do not believe that most employers expect a school to completely train youth for jobs in these firms. What they do expect is training in certain specific skill clusters. The employer can adapt this training to his own unique conditions and he may be able to promote more rapidly the worker who has these fundamentals. The importance of Striner's urging of surveys to involve employers in school planning, therefore, is to enhance the understanding between teacher and employer on what specific skills the student is gaining.

A fifth question is, What level of skill should the school aim to provide? Apprenticeship programs and technical institutes aim for rather long periods of training. On the other hand, most federal manpower programs provide very short periods of training in low-order skills, often a mere job-readiness or employability training. I believe that an important criterion for the worth of any training is the difference it makes to the youth in earning power. Can he get a job easier and will he earn more than he would have without the training? Unfortunately, some of our school programs [illegible] to train youth for very low-wage jobs with little pro[illegible]vancement. Also, our vocational educators often expose the weakness of their own curriculum when they complain that employers do not show any indication of paying higher starting wages for their graduates. Even if the school program is designed only to serve the students and not the employers, the results should show that the training was worth the student's investment in time effort, and foregone earnings.

If you get past all of these questions in complete agreement with Herbert Striner, then I think you will agree with his suggestions on data needs for planning. Very logically, he says, plan your curriculum and course content in terms of the jobs local employers are offering. Test your entering students for reading and computational deficiencies. Keep historical records on the sources and progress of students and faculty. Test the graduates for skill performance. Survey employers on student performance, and survey graduates on their employment experiences. Compare your performance with other schools of similar size and environments.

If you don't agree with Striner, don't despair. I judge from the topics of the speeches for the rest of the conference that other types of planning and data will be presented as alternatives.

CHANGING TECHNOLOGY AND VOCATIONAL AND TECHNICAL EDUCATION: SOME PERSPECTIVES

by

Daniel Creamer*

Introduction

A student of long dedication to the subject of technology and vocational education would, I am sure, shy away from the assigned subject as being too complex for adequate presentation in the form of a position paper for a study group. Only a Johnny-come-lately to both fields would have the brashness to undertake the assignment. In this respect, I am eminently qualified since my introduction to examining the interface between changing technology and changing manpower needs began only in 1967, and, even during this brief intend, my involvement has been only on a part-time basis.

These few autobiographical details should explain why you are most unlikely to find any fresh insights. My much more limited objective is to set out a few general considerations which may be helpful to a group starting out on the mission of formulating five-year plans for vocational education.

There are at least three general aspects of technology that can be said to have impacts on technical and vocational education. (Hereafter vocational education will be used to embrace technical education requiring some post-secondary education but not as much as a bachelor's degree.) The most obvious and important impact is the effect of technological changes on the content, level, and number of jobs. Through technology new products and services are introduced. These play an important role in causing some existing industries to decline and new or other industries to expand. Other technological innovations result in more economical methods of fabrication and processing which also can affect the survival and/or growth of particular industries as well as the content of jobs, hence training for employment. Both types of innovations, of course, can have some influence on the geographic location of jobs.

The second general aspect of the interrelations between changing technology and planning for vocational education consists of the new and developing techniques, relying usually on electronic devices, to assist, improve, and extend the teaching function.

To some, the third general aspect may seem to strain the more conventional usage of the word "technology." What I have in mind for this category is the possibilities of some breakthroughs in estimating

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and projecting manpower demand and supply that may result in more detailed and precise projections than are currently available. The relevance of this to the planning process is obvious.

This paper consists in elaborating these first and third aspects by which changing technology impinges in planning of vocational education. I am obliged to omit the second aspect since my ignorance in that particular subject is virtually total.

Technological Innovation and Vocational Education

Since the past can sometimes be read as a prologue to the future, it might be helpful to consider how product and process innovations over the past few decades have wrought changes in the job content of occupations, the number employed, and geographic location, etc. Of all of these impacts, the one upon the job content of occupations is perhaps the most important single impact in the context of this discussion. While we are not completely ignorant of what has happened to job content in recent decades, our information nonetheless is grossly inadequate, particularly for planning purposes. These informational gaps exist, despite the collection of a considerable volume of occupational statistics, especially as a component part of the decennial census of population. It is essential that those charged with the planning responsibility understand the limitations and inadequacies of the Census occupational statistics as well as occupational data from other sources.

For our present purposes there are two principal deficiencies to the Census of Occupations. One is the occupational classifications and the other is the method of data collection. With respect to the classification system, it is one that dates from the turn of the century and was conceived to reflect socioeconomic classes in order to test the validity of Marxian predictions of the impact of capitalism on the working population. According to one student of occupational data, James G. Scoville, "Although Marx envisioned the elimination of the jobs of operatives and attendants, he emphasized that the process of capital accumulation led not only to the substitution of capital for labor, but of unskilled labor for skilled. The substitution of women and children for men is also a part of this general process."[1]

The information provided by a classification system directed to checking on Marx's prediction is wholly irrelevant to vocational educational planning and, more importantly, it does not go the heart of the matter. What does matter, as Scoville persuasively argues, is the job content (the nature of the work performed) and the level of the job (more about this later). The Census occupational classifications by design do not capture these essential attributes of jobs.

Another major limitation is the lack of precision in the information reported. Before the last Census of 1970, census data were based

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[1]James G. Scoville, The Job Content of the U.S. Economy, 1940-1970, (McGraw-Hill, Inc. 1969), p. 3.

on information obtained by an interviewer from a member of each household, who frequently was not the person who was employed. Such respondents often do not know the nature of the jobs performed by other employed members of the household. This undoubtedly has resulted in considerable misinformation on occupations even at the level of one-digit classification. The use of mail-back schedules for a majority of households in the 1970 Census may result in greater accuracy owing to the possibility of the employed members of the household participating in the completion of the schedule. This innovation, however, cannot possibly alter the inadequacies of the classification system itself.

There is still another serious shortcoming to the census classification system. Educational planners, teachers, and young people have a special and necessary interest in the content and number of entrance jobs as well as the job ladder--the lines of promotion typically open as one performs well in the entrance job and acquires additional training and experience. This knowledge requires the identification of job families. The census classification scheme, however, has virtually no information for us on these critical considerations.

A second possible source of information about job content is the Dictionary of Occupational Titles (D.O.T.) which has now been issued in three editions, the latest revision appearing in 1965. The Dictionary has been a project of the U.S. Employment Service and has been designed to assist the Employment Service in its placement function; i.e., the matching of the qualifications of job applicants with the job content of unfilled jobs of employers. Thus in the words of the U.S. Employment Service the "Dictionary is aimed . . . directly at the needs of the operating offices of the public employment service. It was thought of as a central device in a general program of furnishing information about occupations with [illegible] detailed job descriptions complementing it and adding supplemental information both about an industry as a whole and about its component occupations."[2]

Regardless of the aptness of the occupational titles for the placement function of the Employment Service, the Dictionary can make no contribution to the estimate of the job content of the U.S. economy since there are no employment data associated with the titles. The refinements introduced in the third edition of 1965 attempted to measure the degree to which each job defined by an occupational title emphasizes work with data, people, and things. These sorts of involvement, however, say very little about what the worker really does in the job. It is the latter that is relevant to the economic and technological questions of training, wage structure, and worker movement.[3]

The Occupational Outlook Handbook, prepared and issued by the Bureau of Labor Statistics, may well be the ones source that is most

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[2] Dictionary of Occupational Titles, 1939. pp. xiii-xxviii. (Quoted by Scoville, p. 7)

[3] Ibid., pp.8-10.

familiar to you since this Handbook is especially designed for use in guiding youth toward career goals and because it has been available as a working tool since 1949. The most recent edition is the ninth, dated 1970-71, and includes occupational projections to 1980 for 700 occupations.

Although I have never had occasion to use the Handbook for its intended primary purpose, I am sure, nevertheless, that its descriptions of each occupation, the training requirements, the well-informed guesses as to which occupations are expected to expand, stabilize, or contract, along with references to additional information are all helpful to counselors and youth alike. However, generalizations concerning trends in broad occupational groupings, based as they are on data from the censuses of occupations, suffer the limitations of the original classification system, i.e., socioeconomic designations in place of a more relevant classificatory system of content and level of jobs.

Another limitation from your point of view needs to be mentioned. The occupational trend projections are national in terms of geographic coverage, and your mandate from Congress is to prepare state or regional plans. It is true, of course, that the relevant labor market for certain occupations is indeed national. This has been true for top executives, scientists, engineers and professional athletes. More often, however, the relevant market is regional or local. And it is not necessarily inconsistent for trends in a given state or region to differ from the national trend. Needless to say, this is impossible for industrial trends.

While the identification of past trends for regional, state or local areas, given equivalent data, is no more difficult than the identification of national trends, the projection of past trends into the future at a sub-national level is much more difficult than the projection of national trends. This arises primarily from the fact that a continental economy, such as that of the United States, approximates a closed system. This means that factors originating abroad can be largely ignored without a serious loss in accuracy. At the sub-national level this comforting assumption is no longer realistic.

Summary of Some Occupational Trends

Despite these serious limitations to existing statistical data on occupations it is possible to extract some useful information on past trends. Moreover, it is reasonable to claim that the changes represented by past trends are largely, but not exclusively, traceable directly or indirectly to changing technology.

However, here too a short detour to establish background seems to be indicated. In this instance the detour takes the form of some analytical distinctions. To judge the impact of technological change on jobs, it is usually helpful to distinguish between the changing relative and absolute importance of particular occupations within an unchanging occupational structure and the character of occupations eliminated by new technology as well as the character of occupations that are newly

created. Within a time interval of several decades continuing occupations far outnumber the occupations that are either eliminated or created.

A changing occupational mix within a constant occupational structure is brought about by changing industrial mix. Typically each industry operates with a particular complement of occupations. Therefore, changes over time in the relative importance of specific occupations will depend on which industries have expanded, stabilized, or reduced employment. New occupations may result from the development of a new product and industry, such as the electronic computer, or from the introduction of a new technology into a continuing industry. An example of this is the creation of the job of machine operators when cigar-making machines came into use. These machine operators virtually replaced the hand cigar-maker, a skilled workman, thus illustrating how technological change can eliminate an occupation.

A consideration of occupational change from one decade to the next is bound to be dominated, owing to the weight of their numbers, by the changing mix of the continuing occupations. This fact needs to be borne in mind as we examine the occupational statistics for 1940, 1950, and 1960. (Those from the 1970 Census of Population are not yet available.) Our first statistical reading is based on the conventional, but inadequate, socioeconomic classifications of occupations from the Censuses of Population (Table 1).

The groupings are listed in descending order of their socioeconomic status. In terms of absolute numbers employed, the only category to show a continuously declining trend is that of laborers and kindred workers. This is a classification of unskilled jobs. The persistent decrease is primarily, but not exclusively, due to the falling demand for farm laborers which, in turn, is attributable to the expanded use of labor-saving machinery, artificial fertilizers, pesticides, and weedkillers.

There was also a decline between 1940 and 1960, but not from 1940 to 1950, in the number employed as managers, officials and proprietors. In this group the reduced employment opportunities have been restricted to proprietors both on and off farms. The trend to larger units of operation has been economy-wide.

At the upper end of the socioeconomic ladder, the professional, technical workers just about doubled their numbers between 1940 and 1960 while clerical and kindred workers more than doubled theirs. Of the remainder, craftsmen, foremen, etc., (the skilled workers) increased their employment by 69 percent while sales and kindred workers and operatives and kindred workers (semi-skilled) each expanded by about 50 percent. The smallest increase, but as much as 36 percent, occurred among service workers.

There is, of course, more than one way to summarize these trends. In the current edition of the Occupational Outlook Handbook the authors note:

Table 1: Employment in Census Social-Economic Groups
1940 to 1960

Census Group	In Thousands 1940	1950	1960	Per Cent Change 1940 to 1960
Professional, Technical, etc.	3,580	4.921	7,232	+102.0%
Managers, Officials, Proprietors	8,782	9.348	7,915	- 9.9
Clerical and Kindred Workers	4,382	6,954	9,307	+112.4
Sales and Kindred Workers	3,081	3,907	4,639	+ 50.6
Craftsmen, Foremen, etc.	5,171	7,821	8,741	+ 69.0
Operatives and Kindred Workers	8,080	11,180	11,898	+ 47.2
Service Workers	5,292	5,708	7,171	+ 35.5
Laborers and Kindred Workers	6,285	5,853	4,552	- 27.6
All Groups:	44,653	55,692	61,455	+ 37.6%

Source: Scoville, op.cit., page 45.

Among the most significant changes in the Nation's occupational structure has been the shift toward white-collar jobs. In 1956, for the first time in the Nation's history, white-collar workers--professional, managerial, clerical and sales--outnumbered blue-collar workers--craftsmen, operatives and laborers.

As American industries continue to grow larger, more complex, and more mechanized, fundamental changes will take place in the Nation's occupational structure. Furthermore occupations will become more complex and more specialized.

Because of the continuation of these underlying technological trends, the Handbook concludes:

> Through the 1970's we can expect a continuation of the rapid growth of white-collar occupations, a slower than average growth of blue-collar occupations, a faster than average growth among service workers, and a further decline of farm workers. Total employment is expected to increase about 25 percent between 1968 and 1980. In comparison, an increase of about 36 percent is expected for white-collar jobs, and only about 13 percent for blue-collar occupations. By 1980, white-collar jobs will account for more than one-half of all employed workers compared with about 47 percent in 1968. The rapid growth expected for white-collar workers and service workers reflects continuous expansion of the service-producing industries which employ a relatively large proportion of these workers. The growing demand for workers to perform research and development, to provide education and health services, and to process the increasing amount of paperwork throughout all types of enterprises, also will be significant in the growth of white-collar jobs. The slower than average growth of blue-collar and farm workers reflects the expanding use of labor-saving equipment in our Nation's industries and the relatively slow growth of the goods-producing industries that employ large proportions of blue-collar workers.[4]

These then are the broad occupational trends of recent decades and their projection to the end of the current decade as they emerge from the official statistics cast in the official occupational categories. Clearly they tell some of the facts planners need to know but not nearly enough.

The serious shortcomings of the official system of occupational

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[4] Occupational Outlook Handbook, 1970, pp. 15, 16.

classification have have prompted James G. Scoville to devise a more realistic, and potentially therefore more informative, schema for classifying jobs. In Scoville's words, "Job content is . . . conceived to have two main dimensions: the job family and the level of job content." He elaborates by noting:

> A job family is defined by the material, equipment, or functions about which the jobs in it are centered. In any discussion of job content, it is crucial to determine the focus of the job. The content of the job depends on a number of factors about which one can ask this type of question: does the job involve handling materials, tools, machines, money or dealing with people. Jobs with a similar focus will be grouped into job families by this major focus.
>
> . . . job content concerns the levels of complexity within the various job families. The level of content depends not only on manual dexterity but on the mental function, as well as responsibility and coordinating duties . . . . Such a twofold breakdown will indicate for the whole economy the major technical foci of jobs as well as the relative levels of content.[5]

Unfortunately, it is not now possible to fill in this model with the details that planners for vocational education require. As second best, however, one can do what Scoville has actually done: rearrange the existing statistics on detailed occupations from the Census of Population so as to conform with his classification of job families and within families by job content. This is pouring old wine into new bottles. But in this instance, the wine becomes transformed to a degree and is somewhat more gratifying.

For the purpose at hand, and in light of the data, Scoville distinguishes 18 job families and within each family, a maximum of five content levels with level I the highest and V the lowest (see Table 2).[6]

First a few comments on the relative trends between 1940 and 1960 in terms of job families with attention centered primarily on the combined employment of men and women. One of the striking findings concealed by the official classifications is the growing importance of nonspecialized jobs using tools and machinery and equipment. The specialized jobs in these same production processes have been in relative decline. Both trends have been more consistent and marked among men holding such jobs than among women.

The sales function is the only other job family where the distinction between specialized and nonspecialized is made. Here the

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[5]Scoville, pp. 12-13.

[6]Ibid., Chapter 2.

TABLE 2: PER CENT DISTRIBUTION OF EMPLOYMENT BY JOB FAMILY AND SEX, 1940, 1950, 1960

	Male			Female			Male & Female		
	1940	1950	1960	1940	1950	1960	1940	1950	1960
Tools									
Specialized	4.4	5.0	4.5	3.3	3.6	2.5	4.1	4.6	3.9
Nonspecialized	18.3	21.2	21.7	1.4	2.2	1.8	14.1	15.8	15.2
Machinery & Equip.									
Specialized	2.9	2.7	2.1	.2	.9	.5	2.2	2.2	1.6
Nonspecialized	9.3	10.8	11.4	15.3	15.1	12.8	10.8	12.0	11.9
Inspection	2.0	2.6	3.8	.7	.8	1.1	1.7	2.1	2.9
Vehicle Operation	6.3	6.6	7.3	.1	.3	.2	4.8	4.8	5.0
Farm	23.1	15.4	8.6	4.3	3.7	1.8	18.5	12.1	6.4
Clerical	6.1	6.7	7.6	21.6	27.5	31.8	9.9	12.6	15.4
Sales A+	2.1	2.3	2.6	.5	.8	.9	1.7	1.8	2.1
Sales B°	5.4	5.5	6.0	6.9	8.3	8.0	5.7	6.3	6.6
Personal Services	4.1	3.7	3.6	27.8	18.5	19.6	10.0	7.9	8.8
Entertainment	.6	.6	.6	.9	.9	.9	.6	.7	.7
Protection	1.4	1.5	1.7	*	.1	.1	1.0	1.1	1.2
Administration & Organization	10.0	10.7	11.4	4.1	5.1	4.3	8.6	9.1	9.1
Research & Design	1.2	2.0	3.2	.1	.4	.3	.9	1.5	2.2
Education	.9	1.0	1.6	7.2	5.5	6.3	2.5	2.3	3.1
Health	1.3	1.3	1.6	4.8	5.6	6.7	2.2	2.6	3.2
Welfare	.5	.5	.7	.7	.6	.6	.5	.5	.6

+ A = considerable knowledge of product
° B = little knowledge of product
* Less than .1

Source: Scoville, op.cit., Table 41, pp. 104-107

reverse has occurred--the relative gain of the specialized has been significantly larger than the gain of the nonspecialized. The same relative movements applied to men as well as to women.

Needless to say, this distinction and its associated trends are highly relevant to the planning effort. This follows since the general educational development along with the specific vocational preparation differ as to content and duration depending whether a given job is specialized or not.

Aside from the frequently observed sharp decline in farm jobs and the nearly equally sharp rise in clerical jobs, Scoville's model highlights the significant percentage gains in inspection jobs, in entertainment, protection, administration and organization, research and design, health, and education (though the latter is restricted to men, suggesting that the principal expansion in relative terms has been in post-secondary education). Personal service jobs, however, sustained a relative decline of about one-third, with the loss among the women much larger than among the men. This undoubtedly reflects the shrinkage in the supply of domestic servants owing to the reduction in the immigration of unskilled persons, and the expanding educational and employment opportunities of racial minorities so that fewer had to settle for household employment.

Trends in the level of job content, Scoville's second dimension, are also pertinent to the planner for there are significant differences in the educational and training requirements among the five levels (Table 3). The higher the level, the longer is the duration of both general educational development and specific vocational preparation. Scoville summarizes this dimension over the two postwar decades by noting:

> These figures show the continued strong growth of the upper three job-content groups, with relative stability in the number of workers on lower levels. The two top groups have expanded from one-sixth in 1940 to almost one quarter of the jobs in 1960.
>
> Not only does the over-all distribution of the content level differ between the two sexes, but the rates of change have also diverged widely.
>
> The national advance in the percentage of level I workers comes entirely from shifts in male employment, while levels II and III have experienced their sharpest growth among women, largely in the 'clerical' areas. Declines in the percentage share of workers on the lower levels have largely stemmed from changes in the male distribution.[7]

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[7]Scoville, pp. 35-36.

TABLE 3: PER CENT DISTRIBUTION OF EMPLOYMENT BY JOB LEVEL AND SEX, 1940, 1950, 1960

	Male	Female	Male & Female
I			
1940	4.8	10.0	6.1
1950	6.1	8.5	6.8
1960	8.4	9.2	8.7
II			
1940	11.8	2.7	9.6
1950	14.5	4.1	11.5
1960	18.7	4.6	14.2
III			
1940	27.8	30.7	28.5
1950	30.9	36.5	32.5
1960	31.8	39.0	34.2
IV			
1940	27.0	15.6	24.2
1950	22.6	16.1	20.7
1960	17.5	15.9	17.0
V			
1940	28.5	41.0	31.6
1950	25.9	34.8	28.5
1960	22.6	31.2	25.4

Source: See Table 2.

The most important finding with respect to the regional distribution of job-content levels is that there has been a continued tendency toward homogeneity in the various regions of the country, in terms of the overall balance of job content. A similar finding can also be made with respect to job families.

With a methodology similar to that used by the authors of the Occupational Outlook Handbook in their projections to 1980, Scoville has projected the trends from 1940-1960 period to 1970. Not unexpectedly his projections show a continuation of the past trends in job families and job content but the pace of change is more moderate.

To anyone with only a casual acquaintance with the manpower literature, these occupational trends probably have a familiar ring. If this is so, it reflects how modest are the differences created by new bottles. The core of the difficulty is the old wine. Congress has mandated the state directors of vocational education to draw up master plans. But the existence of this informational gap goes far toward reducing the mandate to an empty gesture. As I see it, the state directors should make it clear to the appropriate Congressional Committees that their will is being frustrated and therefore Congress should mandate, and support with adequate appropriations, the Bureau of Labor Statistics or the Bureau of Census, or both jointly, to initiate a comprehensive revision of the official statistics of occupations so that the statistics reflect actual transactions in the job market and have analytical significance.

Thus far we have attempted to summarize the broad changes between prewar and postwar bench marks in the character of all jobs in those particular years. Thus we have been concerned with the net resultant of all sorts of job changes but dominated, as we noted earlier, by the changing proportions of the jobs that continue from one bench mark to the next one. While it may be claimed that technological changes have been responsible for forging most of the job changes, a more direct impact of changing technology becomes more visible on newly created and eliminated jobs. While our information on this aspect of change is even more limited, some indications nevertheless are available.

The first, by Professor James R. Bright, is directed to the relationship of one particular type of technological change, namely, automation, and skill requirements. In his study automation is used in its basic meaning given to it by its originator, D. S. Harder, who restricted the term to highly automatic and integrated machinery systems.[8]

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[8]James R. Bright, "The Relation of Increasing Automation to Skill Requirements" in The Employment Impact of Technological Change (National Commission on Technology, Automation, and Economic Progress), 1966, II, 207-221.

It is Bright's purpose in this study to "examine precisely what machinery evolution toward automation does to job content." Once this is established the kind of retraining and education that is required can be considered more intelligently. Professor Bright sums up his conclusions in the following way:

> During the several years that I spent in field research on managerial problems in so-called automated plants and in exploring automation with industrialists, government personnel, social scientists, and other researchers, I was startled to find that the upgrading effect had not occurred to anywhere near the extent that is often assumed. On the contrary, there was more evidence that automation had reduced the skill requirements of the operating work force, and occasionally of the entire factory force, including the maintenance organization.
>
> I found that frequent instances in which management's stated belief that automation had required a higher caliber of work force skill was refuted when the facts were explored. The training time for some key jobs was reduced after automation to a fraction of the former figure. Here, then, was a series of results which directly opposed common automation claims. They certainly challenged the truth, or at least the universal applicability of the assumption that the automated factory requires a more highly skilled work force than the conventional one. This is not to deny that there were examples of skill increases required by automation; but it did seem that their frequency and importance were exaggerated.
>
> A significant conclusion . . . is that automation does not inevitably mean lack of opportunity for the unskilled worker. On the contrary, automated machinery tends to require less operator skill after certain levels of mechanization are achieved. It seems that the average worker will master different jobs more quickly and easily when using highly automatic machinery. Many so-called key jobs, currently requiring long experience and training, will be reduced to easily learned, machine-tending jobs.[9]

These observations lead Bright to formulate his "law of automation evolution":

> Once an economic-technical activity (which may require very high skill) has been analyzed, it is susceptible to mechanization. If the economic-social importance is high, both mental and physical activities in the task will be reduced or improved in performance by mechanizing elements of the work. Gradually all elements are

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[9] Ibid., II, 208.

mechanized and physically integrated, and then the system is "automatic." During the evolution the high skill needed to (a) manually execute the task, and (b) build, install, and debug the automatic system of doing the job, gradually declines. The skill and the amount of labor required to carry on the activity reduces to the level that is readily available in the work force and of no significantly higher cost than for the less mechanized system.[10]

In his concluding remarks he notes that:

> The increase in skill required in our society may be very real and very significant, but because of this technical-economic law it stems only in minor part from the use of automatic machines.[11]

Bright then goes on to list six other major technological developments that created great dislocations and imbalances in work force skills. These trends of man's increasing technical capability are identified as "(1) transportation; (2) mastery of energy; (3) control of the physical environment and life forms; (4) ability to alter and synthesize materials; (5) extension of man's sensory capabilities; (6) mechanization of physical activities (automation); (7) mechanization of intellectual activities (automation); (8) control of human life."[12]

The same volume of the report by the National Commission on Technology, Automation, and Employment is also the source findings of the second study to be summarized.

The co-authors, Morris A. Horowitz and Irwin L. Herrstadt, state:

> Primary interest is the effect of automation or technological change upon the skill requirement of occupations. With reference to any single industry, we are interested in knowing which occupations, if any, have been eliminated, and which, if any, have been newly created. For both eliminated and new occupations, we are interested in work content, and in the education, training, and other personal requirements needed for successful performance. For other occupations, we are concerned with changes in content and worker skill requirements resulting

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[10] Ibid., II, 220.

[11] Ibid., II, 221.

[12] Ibid., II, 228.

from technological change.[13]

As to the methodology at the base of this analysis, it is sufficient for our purpose to mention that the analysis and evaluation rests primarily upon the comparison of job descriptions in a particular industry in the Dictionary of Occupational Titles 1949 and 1964. A careful analysis of changes in jobs was carried out in five industries--three in manufacturing, one in health service, and one in finance. Of the five industries the findings for occupations in the machine shop industry are probably of most interest to this group and, in any case, may be considered as typical of their conclusions for all five industries.

Here again the authors' own summary is used:

> There is evidence to support both an overall increase or decrease in skill requirements in machine shop occupations. Educational and training requirements of continuing titles have risen, despite some polarization. However, the large number of new titles need less education on the average than the continuing ones and include relatively fewer titles that need either a great deal or very little training. These conflicting educational and training developments suggest no net change in skill levels. Changes in occupational content, while numerous and complicated, indicate much the same. On the other hand, the worker functions of new titles contain proportionately more low and medium skilled titles than the continuing titles and indicate a decline in skill levels.
>
> Changes in aptitudinal and temperamental requirements, however, contradict evidence of either no change or a drop in skills. The aptitudinal changes are complex but, on balance, point to some skill increases. The temperamental changes point in the same direction; more continuing titles involve evaluation and more new titles, both evaluation and precision, instead of one or the other alone.[14]

What is the import of these two careful studies for planners of vocational education? Perhaps the most obvious inference is that one should be suspicious of easy generalizations concerning the impact of technological change on the skill, educational and training requirements of jobs. Effects of technological change typically ramify into many facets of the total job effort and typically these tend to be more or less offsetting rather than reinforcing in terms of demanding

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[13]Morris A. Horowitz and Irwin L. Herrstadt, "Changes in the Skill Requirements of Occupations in Selected Industries" in The Employment Impact of Technological Change (National Commission on Technology, Automation, and Economic Progress), 1966, II, 227.

[14]Ibid., II, 266.

ever higher skills and effort from the worker. To assume the latter, creates the danger of insisting on excessive educational and skill specification, a potential source of disillusionment and resentment on the part of the worker.

Another inference, in my judgment, is that more such studies covering a broader range of industries and occupations are needed and that there should be a continuing program of such studies since technological change itself is continuous. This research program probably should be centered in, or at least coordinated, by the Federal government since its findings should have wide geographic validity. This should minimize wasteful duplication.

Technology in the '70's

With the use of a broad brush the discussion has attempted to highlight what is known of the effect of past and current technological change on the character of jobs. The irrelevancy of much of the official occupational statistics and the restricted coverage of firmly based empirical studies have been stressed. In other words, the path to the recent past is rather dimly lit. If this is so, is it reasonable to expect a well-lighted road to the future--even to the near-term future, which is the period you are asked to plan for?

Forecasts that have any claim to be taken seriously are extremely difficult to prepare. While there may be cases in which simple extrapolation of past trends is serviceable, this is likely to be so only where the conditioning factors are relatively stable. But stability is hardly the word that has characterized technology in the postwar decades. Thus, where the nub of the problem is the effect of changing technology on the content and level of jobs as well as their number, mechanical projections cannot be considered seriously. To give emphasis to this point, we shall refer to the planning effort as the art of looking ahead.

The art consists basically in anticipating not only the pace of technological innovation but also its character. It is the latter that is related to the content and level of jobs, which in turn affects vocational education and training. The pace of innovation would give some clues as to how soon new jobs would be created and how soon and which of the old jobs would become obsolete. Can anything helpful be said on either point?

With respect to the pace of innovations, it is necessary to consider what some of the determinants are. The discussion that follows concentrates on the one determinant, which in my view, is the most important of all.

It has been established that in the twentieth century technological innovations have their origin in the expansion of scientific knowledge. Thus, the pace of innovations in the middle and long term, if not in the short term, is determined by the pace of developments in pure science, a term that embraces basic research. (In the short-term this relation is much looser owing to the lag in exploiting the

applied potentialities of recent scientific findings).

The critical question then is what is likely to happen to the pace of scientific discovery in the decade of the '70's? I have argued elsewhere that its pace, compared with the first two decades, is likely to be significantly reduced. The argument rests on the following observations and assumptions:

1. The major source of new scientific knowledge has been universities, similar nonprofit associations, and the Federal government.

2. The universities and cognate organizations have based their scientific effort in large part on financial support from the Federal government.

3. Beginning in the latter part of the 60's and continuing to the present, there has been a gradual reduction in the real value of Federal appropriations in support of science at the universities: this serves to reduce the volume of scientific explorations and the training of new scientists.

4. The reduction in financial support originates in the necessity to restrict governmental expenditures in an inflationary economic climate and in the indiscriminate hostility of university students and their immature faculty members to scientific inquiry owing to some seriously misguided past applications of technology based on scientific inquiry.

In my judgment, the constraints on Federal expenditures owing to inflationary pressures will persist in varying degrees into the foreseeable future. Perhaps more importantly, there will be a growing demand upon public authorities to scrutinize carefully many innovations for secondary effects on the quality of environment and health. This necessary regulatory function is bound to increase the costs of innovation and by this means exercise a retarding effect. These delays, moreover, will be aggravated by the time that must elapse, even in the most efficient of bureaucracies, to test and obtain clearance for an ever-expanding array of technological innovations.

Also important in this context is the concurrent demand upon government to counteract the harmful effects of past innovations. This must lead to a shift of resources to applied research, and this probably will occur by depriving basic research of some of its needed support.

If my argument is valid, the momentum of technological change of the first two postwar decades will not be maintained in the decade of the '70's. To the extent there is a slowing in the rate of innovations, your planning assignment becomes a bit less difficult, at least after the first five-year plan. This possibility, however, in no way eliminates the knotty problem of how to anticipate what technological

innovations will be introduced over the planning period and how these affect the content, level and location of jobs.

It follows from this line of reasoning that the bulk of the technological innovations in the very first five-year plan essentially are not dependent on extending the scientific frontier. Rather they are more likely to be based on the corpus of scientific knowledge now in being. There is a high probability, therefore, that most of the expected innovations are already under development. In this event, the planner, in principle, has the possibility (1) of eliciting from enterprise and other decision makers, the potential innovations which are under development and have a high probability of being put to commercial use in the next five years; (2) of translating these new innovations into the number and content and level of jobs; (3) of determining the impact on competing product and processes, also in terms of the number and content and level of jobs; and (4) of evaluating the effect on the geographic distribution of employment opportunities.

How serious is the qualification that the planner can perform these fact-finding tasks "in principle"? The answer, unfortunately, is that these tasks are extremely difficult to carry out in the present state of the art and in the present climate of distrust. Information on forthcoming innovations is rightly regarded as privileged by enterprise, since many of these innovations may well determine its near-term future competitive strength. A premature release of such information might undercut the contribution of these innovations to the competitive position of particular enterprises.

Certainly there is no easy way to get over this high hurdle. Yet a serious effort needs to be launched. Perhaps a way can be devised to extract the occupational implications of forthcoming innovations without identifying the innovation itself. The data-collecting agency probably needs to be a private nonprofit organization that enjoys wide industry support and has demonstrated its capacity to maintain the confidentiality of privileged information.

If this approach is attempted, inquiries should be directed to the headquarters of enterprise. Frequently the operating divisions have little advance knowledge of potential innovations. The latter fact suggests that this assignment be centralized in one agency with the findings disseminated to educational planners at the regional, state, and local levels.

How much hard information on these matters enterprise can supply will depend largely on how elaborate is its effort at company planning in general and manpower planning in particular. Information even on such a relatively simple question of whether a company has or does not have a formal company plan is not easy to come by. However, there are some fragmentary data. One such fragment is a survey of industry's demand for engineers and technicians that is nearing completion. This is a joint effort of the Engineering Manpower Commission and the National Industrial Conference Board. Employers were queried on how many engineers and technicians they planned to hire in 1970 and what the projected demands are for 1975. With respect to the latter, we

asked whether the 1975 projection was arrived at by formal manpower plan and, if it was, whether the manpower plan is an integral part of an overall company planning effort. Preliminary tabulations show the following:

1. Two hundred thirty-nine manufacturing enterprises responded.

2. Of this number, 173 companies employed technicians in January 1970.

3. Of the latter, 157 companies provided a 1975 projection.

4. Fifty-six of the 157 companies that provided a 1975 projection, stated the 1975 projection was taken from the company's manpower plan, and 51, (i.e., about 90%) replied that the manpower plan is part of an overall company plan.

Thus only 36 percent of those supplying a 1975 projection engage in manpower planning at the company level. If we assume that those who employ technicians but failed to report a 1975 projection do not engage in manpower planning, the percentage with a planning effort is reduced to 32. While this sample of responses is admittedly small and probably biased, these survey results, as well as other information available to us, suggest that manpower planning at the company level, other than for management personnel is not widely prevalent. However, there is some evidence that this practice is being adopted by a growing number of companies. Until manpower planning becomes widely accepted as a helpful managment tool, employers are seriously constrained in providing guidance to educational planners on anticipated technological changes in the near-term future.

The present state of the art in translating a particular innovation already decided upon into manpower requirements is also discouraging. Here too, the evidence rests only on some case studies. These were analyzed by Doeringer, Piore and Scoville in a report prepared for the Manpower Administration. The gist of their findings is that all too often, little is thought out in advance of the specific impact on job content and qualifications of those who will be operating new equipment. Typically this is "played by ear," so to speak, after the installation has been completed.

Even if additional evidence should support these findings, they should not be used as a reason for ignoring employers in your own planning effort. Clearly employers can provide helpful inputs, and their exposure to the informational requirements for planning may serve to advance the date when enterprise will realize that it is to its own advantage, as well as to the community at large, to develop more of the required information at the enterprise level.

For whatever it may be worth--and for reasons already mentioned it may not be worth much--some other preliminary results from the 1970 industry survey may be of interest. One question asked the employer

Table 4: Number of Manufacturing Companies Reporting
Projected 1975 Employment of Technicians by Curriculum & Degree of Need

	Estimated Needs in 1975						Total (%)	
	Substantially More	(%)	About Same	(%)	Substantially Less	(%)		
Chemical & Related	10	(17.9%)	45	(80.3%)	1	(1.8%)	56	(100.0%)
Civil Engineering & Related	2	(7.4%)	25	(92.6%)	0		27	(100.0%)
Drafting, Design & Related	30	(40.0%)	44	(58.7%)	1	(1.3%)	75	(100.0%)
Electrical, Electronics & Related	32	(47.0%)	36	(52.9%)	0		68	(99.9%)
Industrial & Related	8	(20.0%)	31	(77.5%)	1	(2.5%)	40	(100.0%)
Computer, Mathematical & Related	15	(42.9%)	20	(57.1%)	0		35	(100.0%)
Mechanical & Related	21	(26.6%)	58	(73.4%)	0		79	(100.0%)
Physical Sciences	2	(6.7%)	28	(93.3%)	0		30	(100.0%)
Other Curricula	4	(16.0%)	21	(84.0%)	0		25	(100.0%)
Total	124	(28.5%)	308	(70.8%)	3	(0.7%)	435	(100.0%)

No. of Respondents. 134

to indicate in which technician curriculum specialities demand would be substantially larger, about the same, or substantially less in 1975 compared with 1970. One hundred and thirty-four (134) manufacturing companies responded to this question although 173 reported employing technicians in January 1970 (Table 4). It needs to be emphasized that Table 4 records merely the number of respondents giving specified answer. The count of companies is unweighted; that is, an employer of a large number of technicians has no more weight in the total than an employer of a small number of technicians. It is clear from this particular sample that virtually none of the companies expect to employ substantially fewer technicians in any curriculum in 1975 compared with 1970. The typical answer for all curriculum groups is that employment will be about the same in both years. Nevertheless, better than 40 percent of the respondents indicated that they will engage, in substantially larger numbers, those with technician training in drafting design and related curriculums, in electrical, electronics and related curriculums, and in computer, mathematical and related curriculums.

Finally, there is the question that relates to the current year. Each employer is asked to state those technician specialities in which there is currently (first quarter-1970) an imbalance of supply and demand and, further, to indicate whether training needs to be expanded or curtailed to reach a balance. The following list was culled from the responses of 35 manufacturing employers (Table 5).

Unless otherwise indicated each indication of imbalance reflects the experience in early 1970 of a single manufacturing company. Although the slowdown in general business was already evident in the first quarter of 1970, there were only two indications of a surplus of technicians, in data processing and industrial technicians. Shortages were experienced, on the other hand, in wide diversity of technician programs.

Aside from any possible value that may attach to these survey findings, they are presented also to illustrate some of the possibilities for surveys at the regional and local levels in order to capture some information required for your planning effort. It is, of course, another way of drawing employers into the planning process.

Longer-Term Future as Background

Although you have a mandate to prepare a five-year plan, you are also instructed to do this annually by omitting the first year of the first five-year plan and adding the sixth year and so on. At the end of five years, for example, you will have dealt with a time horizon extending ten years from your starting year. Viewed in this manner, the time horizon becomes such that you no longer can assume that most technological innovations will be based on the then existing fund of scientific knowledge. It is now necessary to give some thought, at least as necessary background, to what the scientists are thinking and working on. What do they regard as the likely additions to scientific knowledge in the next decade. This, if it can be established, might provide some clues as to the character of new technology. This area

Table 5

Curriculum	Imbalance Requiring Expansion	Imbalance Requiring Curtailment
I		
Computer Science	X	
Data Processing		X
II		
Drafting (2)	X	
Drafting Design	X	
Drafting & Design	X	
Mechanical Drafting	X	
Structural Drafting	X	
Mechanical Designers	X	
Mechanical Design Technology	X	
Design & Related Activities (2)	X	
Design - Engineers for corrugated industries	X	
III		
Mechanical	X	
Mechanical Technology (2)	X	
Mechanical Technicians (3)	X	
Mechanical Engineering	X	
IV		
Chemical (2)	X	
Chemical Engineering	X	
Chemical Laboratory Technicians	X	
V		
Electrical (2)	X	
Electronic Repair & Maintenance	X	
Electronic Technician (2)	X	
Electronic Test Technician	X	
Electrical (Power) Engineering	X	
E.T. & M.T. at A.S. & B.S. level	X	
VI		
Industrial		X
Manufacturing Methods	X	
VII		
Quality Control Technicians	X	
VIII		
Ceramic Technicians	X	
IX		
Metallurgical	X	
X		
Solid-State Theory	X	

of inquiry has become one of the major concerns of those organizations that believe that mankind can plan the future it wants to have. The generic term for these organizations is Institute for the Future.

The Futurists have been experimenting with and exploring an approach they refer to as the Delphi technique. Essentially, the technique consists in asking a panel of experts--in this case, scientists--to participate in several systematic rounds of questions and answers until a broad consensus of views is reached. Should this technique be shown to establish accurate findings, educational planners, I should think, would want to be thoroughly familiar with the findings of what the scientists are thinking about in the various fields of science.

DATA FOR VOCATIONAL EDUCATION PLANNING

by

Sar A. Levitan*

Vocational educators at the state and local levels need labor market information in order to adapt vocational curricula to existing and future conditions. Most of these data are already available and vocational educators must learn to utilize this information effectively. To do this, they have to know the types of data which are collected, where these can be found, and how they can be used.

Types of Available Data

The complaints which vocational educators voice about manpower data shortages relate more to the quality of the information rather than to the quantity. The vocational educator's problem is not the availability of data, but choosing among the vast array of statistical information those materials especially directed to his needs. Too often, labor-market analysts have complicated our lives by their massive and uncritical collection of data; and they have given little thought for the needs of vocational educators or the uses to which this information can be applied. Labor market analysts have ignored Henry Clay's admonition that "statistics are no substitute for judgment."

Any classification of available labor market data is arbitrary. But for the present occasion three characteristics are most relevant: (1) the geographic area to which they pertain; (2) the time period they cover; and (3) the economic variable with which they deal.

Economic data are generated for national, regional, state, and local areas. For decisions dealing with any one of these areas, information about component subdivisions or inclusive systems is of less importance than information about the area itself. For instance, state planners must be more concerned with state data than with disaggregated local information or aggregated national data. There can be very large errors involved in applying a higher or lower order of data to decisions at any other level. This is especially true when national data are used as the basis for state or local decisions, as often happens because of the greater availability and reliability of national statistics. Though area analysts have long known that state and local economic conditions vary drastically from national patterns, they have not spelled out their warnings clearly enough. As an example, regional economists agree that estimates of future employment based on the current industry mix of an area and projected according to national growth rates of each industry are likely to be poor predictors.[1] Advance predictions based on national trends about changes in employment of individual states during the past decade would have missed the mark in

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a number of states. As another example, studies of employment changes in urban areas have found that regional growth patterns have a more significant impact than those for the Nation, but that the shift of industries to the suburbs makes projections based on data for states, regions, or even the metropolitan area as a whole of little use in predicting central city trends.

Obviously, then, vocational educators at the state or local levels should focus on labor force measures or projections applicable to areas of their immediate concern. Although such data may be more suspect methodologically, they may be better than overall national projections in predicting future conditions faced by vocational students in a given area. Where state or local data are not available, national measures and projections will improve decisions over pure guesswork, but their validity remains highly suspect. It is true nonetheless that as a general rule, projections become less dependable the smaller the area to which they apply and the further ahead they try to look into the future.

Longer range projections are dependable only as a general background for decision-making. Fortunately, for planning purposes it is usually enough to know the probable directions of long-run change especially where these will have a large magnitude. The "lead-time" in planning has sometimes been exaggerated with the assertion that at least sixteen years are needed to train a professional worker. In actuality, the "input" provided by the school system to produce the professional varies little during the first fourteen or fifteen years. Reading and spelling apply equally to the fledgling physicist and economist; both can be served doses of Hamlet with equal benefits. The major task of vocational planners is to prepare students for immediately available jobs; as long as these are not in declining occupations, it matters little to the person who has a job whether the future growth in employment will be faster or slower than national rates. Of course, students should not be prepared for occupations with bleak prospects, but the needs of the economy and the individual in the near future should be of most concern, since the horizon which we can foresee and prepare for with any accuracy is not too distant.

The most detailed data needed by the vocational educator are one- to five-year projections. While these are preferably derived from careful analysis of a variety of economic factors, they can also be estimated from a simple extrapolation of recent trends mixed with a good dose of insights into local conditions. The past is prelude, and it is a fair bet that recent developments will continue over the next three to five years.

A number of different variables may also be of interest in vocational planning. While current demographic and employment figures are the basis for occupational planning and projection, education and manpower training data yield estimates of the future supply of workers in various occupations. Unemployment, job vacancy, and "hard-to-fill" listings of the state employment services provide important short-run estimates of excess supply or probable shortages.

These various types of data are all useful, but not indispensable. Where there are fairly constant relationships, it is sometimes possible to move from one variable to another. For instance industry employment figures can be transformed into occupational estimates because there are fairly regular industry-occupation patterns. This transformation is important because while data are more easily measured and projected for industry employment, occupational prospects are a more important variable to vocational educators. At one time, the Labor Department also initiated statistics on occupational groupings which would be extremely useful in administering "skill cluster" vocational training. Unfortunately these promising efforts were a victim of "economy," and vocational educators must rely on the job content descriptions of the Dictionary of Occupational Titles to find data on skill groups.

There is no single set of data which can provide all the answers to the questions vocational educators may have. Even if the data are synthesized, uncertainties must remain. For instance, we have no real way of knowing how supply will match up with demand. Both are flexible--with workers transferring their skills to shortage areas where wages are high, and with employers bending their standards when faced with long-term vacancies. During slack times, highly educated and skilled persons may compete for lower-order jobs, while employers can demand more qualified workers than they did in the past.

Data Sources

A large part of the data gathered by the Bureau of Labor Statistics, the Manpower Administration, and the Bureau of the Census is of some use in vocational-education planning. However, the most important and readily available data are found in the following sources:

(1) Probably the most widely used source is the Occupational Outlook Handbook, which provides detailed information on more than 700 occupations covering most sales and professional jobs and two-thirds of those in clerical and service employment. For each of these occupations, the nature of the work, the places of employment, and the earnings and working conditions are presented, along with information of special interest to vocational educators on the requisite training and the employment outlook. There are no numerical projections of supply and demand, but occupations are classified descriptively according to anticipated employment trends through 1980. The prospects are ranked by one of five categories: growth or decline; slow growth; average growth; above average growth; and rapid growth.

Because of the breadth of the categories, these projections have proved to be fairly accurate. For instance, the projections from the 1949 Handbook for 108 occupations were checked using 1960 Census figures. In 99 cases, the actual trend in change of employment was correctly predicted, though in 42 of the 99 cases the forecasts were somewhat off the mark. A forecast may have anticipated average growth in a given occupation (15 to 25 percent), but the actual growth may have been rapid (above 40 percent) or slow (0 to 15 percent). In nine of the 108 occupational forecasts, the projections indicated a rise in employment where there

was actually a decline, or the reverse.[2] Critics have questioned, however, whether the record of the first Occupational Outlook Handbook is as satisfactory as it appears on the surface; they claim that its broad projections--like the generalizations of a fortune teller--reduce the probability of error to almost nil.

Whatever the validity of its projections, the information in the Handbook has limitations which should be recognized along with its usefulness. Though the Handbook gives some general indications of the probable balance of workers in each occupation (i.e., whether shortages or excess supplies will exist), these are usually crude estimates. In cases of professional training, such as medicine, where enrollments in institutions of higher learning can be projected with some degree of accuracy, predictions are probably accurate. But in most cases, the supply of workers in any occupation is even more difficult to estimate than the demand. One might well wonder what happened to the severe shortage of engineers which seemed so critical when Sputnik traveled alone.

A much greater limitation is that the Handbook's information applies to national conditions. At the state and local level, the realized growth of different occupations will be in all probability markedly different from the national rates. For instance, the supply of qualified teachers is apparently approaching equilibrium with demand for the nation as a whole, while rural areas and central cities may still have unfilled needs. Employment of teachers in these areas is likely to expand at a faster rate than elsewhere. Similarly, textile employment may continue to grow at a rapid rate in some southern communities though overall it may be stagnant; restrictions of important quotas may raise the domestic demand for textile workers.

Only a minority of the persons who are trained by vocational educators will be in a position to travel from one end of the country to another in search of employment opportunities. Despite increasing labor mobility, the feasible job markets for most trainees of vocational education are not extensive: the jobs for which they need and expect training are those in the immediate labor market. Because of these facts, the Occupational Outlook Handbook is not a precise how-to-do-it guide; but rather should be viewed as an aid to state and local policy-makers in providing a general framework for their decisions.

(2) In some cases, state employment services make their own occupational investigations and projections, packaging them in much the same form as the Handbook. These state efforts vary widely in scope and coverage. The most comprehensive is California's Occupational Guide, which follows the Federal model closely and covers nearly 400 occupations. Most state employment agencies are concerned with a much smaller number of occupations, often concentrating on prospects in the health and technical and professional fields.

The Handbook approach, adjusted to state and local conditions, is useful in providing information to vocational counselors and other vocational personnel; when properly prepared it is not technical, making interpretation easy. Putting together a work of this sort is not an

overwhelming task, and more states could prepare such handbooks without much work. Wages and salaries are reported for all states and many areas on an industry basis, while the earnings of professionals can usually be obtained through statewide organizations or licensing agencies. Surveys can supplement this information. Too little attention is given to this type of labor market data, and certainly there are wide differentials between states and localities in their relative pay scales. Employment levels and trends can be estimated from the annual County Business Patterns surveys of the Department of Commerce, and these data can be supplemented from other sources. These state and local Handbooks could become a discursive summary of significant labor market information. In only a few states, however, are they presently prepared with the necessary scope or reliability.

(3) Area Skill Surveys are a source of up to five-year occupational demand projections. Hundreds of such projections have been prepared, though their popularity is waning. These local projections usually pertain to counties or metropolitan areas and focus on occupations requiring a year or more of preparation in subprofessional, technical, skilled, and semi-skilled trades. These surveys involve samplings of interviews with personnel managers to determine future demand in various occupations, and usually also information on the adequacy of private and public training facilities for selected occupations. Because of their high cost and apparently scant utilization, the area skill projections are being abandoned in favor of projections based on national data; but for the next several years the predictions of past reports and of those currently in progress will provide some useful information.

These surveys vary markedly in quality and reliability. The survey technique itself has shortcomings because employers have only a worm's-eye view and often overestimate expansion, confusing optimism with demand for their products. Also, questionnaires are often delegated to lower level management personnel unfamiliar with company plans and policies. Nonetheless, competently prepared local surveys provide insights into local conditions which are missing from other sources of projections, while supplying relatively accurate projections of needs in selected occupations for the next two or three years.

(4) In order to improve the quality of state and local projections, the Bureau of Labor Statistics published a guide to help prepare these estimates through a new technique.[3] In simplest form, this method applies a national industry-occupational matrix to local estimates and projections of employment by industry. The matrix is calculated to account for the changing occupational composition of employment in each industry, which it is assumed will be the same locally as nationally. The accuracy of these occupational employment projections in turn depends on the accuracy of industry employment projections. Such estimates are prepared by state employment services from a variety of data; and though they are more reliable than occupational projections derived through sampling, they are also prone to errors which will be reflected in occupational estimates. Whether this method will provide more accurate state and area data is not yet known, but because of its low cost compared with area skill surveys, it is being widely adopted.

(5) Useful labor market information is also generated under the manpower programs. The Manpower Development and Training Act provides that labor shortages must be demonstrated before training courses can be offered for any occupation. Thousands of surveys have been completed to measure such shortages, and these cover a wide range of occupations and labor markets. Such studies are of course not comprehensive, and often seek to prove no more than that enough unfilled jobs exist to absorb planned enrollments. In many cases, however, they detail and project shortages on a wider scale. Vocational educators who are making small adjustments to their course offerings can borrow from these studies and from MDTA experience. Vocational educators are normally familiar with the surveys because they play a major role in MDTA institutional training.

(6) A new type of data which may be of some use to vocational educators is job vacancy statistics. The information now available on a monthly basis from a sample of employers covers only the manufacturing sector, which accounts for around a quarter of total employment. State breakdowns are provided along with local data for 25 selected metropolitan areas, and the vacancies in several crude occupational categories are estimated. In the future, however, coverage will be expanded and refined.

Job vacancy statistics are useful in identifying present imbalances between manpower demand and supply and particularly in isolating occupations where shortages occur. While job vacancies cannot be projected, they can add a new perspective to estimates of employment growth. Since these data are new, however, the exact uses must be carefully worked out as their relationship with employment, unemployment, labor turnover and other economic data become better known. Where possible, they should be used along with state employment service data on hard-to-fill positions, which provide another indication of structural imbalances and shortage areas.

(7) The Vocational Education Act of 1968 directed the Department of Labor and the state employment services to make "available to the state board and local education agencies occupational information regarding reasonable prospects of employment in the community and elsewhere, and towards . . . determining the occupations for which persons are to be trained." A single report is planned which will eventually combine job vacancy statistics with employment service figures on hard-to-fill openings, one- and five-year estimates of the labor supply by occupation. The report will also contain an analytical discussion of employment trends and the assumptions underlying projections. If this is realized, it will summarize most of the information needed by states and the larger metropolitan areas.

Up to now, however, only a few states have exerted more than nominal efforts to provide such information, and the Department of Labor has not pressured them into more activity. Armed with the Congressional mandate, vocational educators should press for the preparation and widespread distribution of this document by the employment agencies, and should make sure that it serves their needs in a

comprehensive way. They should demand information such as estimates of replacement needs within occupations, more information on career occupational changes and the training which is required, better data on occupational wages at the state and local level, and more careful investigations of the training which is needed for different occupations. In other words, vocational educators should insist that these reports become more than nominal efforts, and that they provide the basic source of the needed information, as was the legislative intent.

The Uses of Data

Vocational educators have many uses for labor data; the purposes for which data are used should dictate the source from which they are drawn. Despite the proliferation of data sources and the increasing sophistication of data collection and analysis, the Occupational Outlook Handbook and whatever state equivalents may exist remain the most useful sources in providing guidance and counsel to vocational education students. Other types of data are useful for special purposes. In planning modifications and extensions of facilities, longer-range projections of broad occupational trends are of major concern, since the facilities can usually be adapted to a range of uses. For decisions among alternative courses of instruction or instructors with different skills, more exact though shorter-range projections are needed, and skill shortage data may be useful if studies have been done covering the occupations of concern. For providing placement services, an integral part of the vocational teacher's chores, job vacancy and unemployment statistics are important.

Perhaps the most important use of both long- and short-range projections is to estimate future vocational education enrollments both locally and nationally. Demographic estimates are the most important source of data for this purpose. They tell us that over the 1970s, the number of young people entering the labor force will grow at a declining rate, while the 25- to 34-year-old category will expand most rapidly. Vocational education must be adjusted with a leveling off of offerings for high school students, and perhaps an increase in remedial offerings for adults who are changing occupations. The reduced supply of students entering the labor force should increase competition for their services, a welcome change from the experience of the 1960s when employers were flooded with a supply of new and unexperienced entrants. More specific demographic projections for state and local areas should be used as a basis for adjusting the scale and content of vocational education.

For any of these purposes, it is axiomatic that better data will lead to better decisions. But the use of faulty statistics or projections may not be an improvement over rule-of-thumb decision-making procedures, and too much data can confuse rather than clarify issues.

Too often, projections are applied without adequate regard for their shortcomings, and this is due in part to the fact that there have been too few checks of the accuracy of these projections. Even the most careful estimates are subject to error. For instance, the

Department of Labor's projections for the 1960s, issued at the beginning of the decade, were almost invariably right in predicting the directions of major changes, but they missed the mark on many "details" vital to the vocational educator. The population, which was estimated to expand by 28 million, rose only 25 million. While the Department of Labor estimated correctly the size of the labor force by 1970, the projections underestimated the number of young persons under 25 and overestimated the number of workers 45 and over. The fact that the Department of Labor projections were on target as far as totals are concerned may be comforting to the technicians, but is of little help to the vocational educator who deals almost exclusively with a younger age group. The extremely rapid increase in women's labor force participation was also not foreseen. Government and service industries increased employment much faster than predicted, while agriculture and mining declined much more rapidly. Occupationally, the growth of professional and technical employment was 50 percent though the predicted rate was only slightly more than 40 percent; the growth rate for unskilled workers at the other end of the spectrum was also underestimated.[4] There is, of course, no standard of judging whether this is a good or bad record. Certainly the war affected developments, and disruptions of this sort could not have been predicted. But it is tautological that such margins of error could be critical if the predictions were applied too literally. At the state and local level these margins become even wider because the economic system is not enclosed; and for the more specific occupational classifications needed to determine course offerings, projections of this sort are considerably less dependable. For instance, a single plant closing or relocation can drastically affect the economy of a county or a city, and can certainly change the demand for a specific type of skill. And a Congressional decision to postpone space exploration, for example, may simultaneously affect demand for specialized occupations in many areas.

The point is that forecasts of any sort do not provide exact answers, and they must be used with care. Likewise, detailed data are less useful to the degree that their reliability suffers. The vocational educator should be concerned primarily with the predicted directions of change and their general rate instead of with exact magnitudes. They should also restrict their attention to the data needed in areas where decisions are possible.

Despite the rhetoric, most of the improvements that need to be made in vocational education are fairly clear-cut: no elaborate statistics are needed to indicate that too much emphasis is still being placed on agricultural training, or that the demand for home economics is determined by other forces than sophisticated occupational projection, or that courses teaching clerical skills and emphasizing repair of office machines and home appliances will be effective almost anywhere. Where careful and intricate decisions are being made, labor market data should be available and should be used; but where the problem is the implementation of clear-cut prescriptions, they have little importance.

Vocational educators should thus be realistic in using and demanding data and above all should not be conned by labor market analysts about the potential uses they can make of occupational information. Despite attempts at more rational decision-making, the process of change is an extremely slow one. Vocational education planners at the state and local levels have very little flexibility in the short run; staffs are tenured and courses are established by tradition. Changes are not foreclosed since new offerings can be provided out of additional funds, new faculty can be hired and facilities built, and existing staffs can be retrained over time. But these improvements can be only marginal. Across-the-board planning and reform are unlikely, and there is no reason to require elaborate information on all possible occupational offerings.

While vocational educators should make use of available data when needed, they should not fall prey to the numbers game which can waste so much time and so many resources. And the prescription of Alfred Whitehead, "Seek simplicity, but mistrust it," has already been rephrased by Leonard Lecht of the National Planning Association--who, after preparing exhaustive studies of occupational projection, advised vocational educators, "Seek manpower projections, but use them with caution."[5]

Footnotes

1. Harvey Perloff, et al, Regions, Resources and Economic Growth, (Lincoln, Nebraska: University of Nebraska Press, 1967), p. 74.

2. Harold Goldstein, "An Evaluation of Experience in Long-Term Projections of Employment by Occupation," presented before the 21st Interstate Conference on Labor Statistics, San Francisco, Calif., June 22, 1963, (mimeographed).

3. U.S. Department of Labor, Bureau of Labor Statistics, Manpower Needs, Volume 1: Developing Area Manpower Projections, Bulletin No. 1606 (Washington, D.C.: U.S. Government Printing Office, 1969).

4. Sol Swerdloff, "How Good Were Manpower Projections For the 1960's?" Monthly Labor Review, November 1969, pp. 17-22.

5. Leonard Lecht, "Manpower Needs National Goals, and Research Priorities in Vocational Technical Education," in U.S. Congress, House Committee on Education and Labor, Needs of Elementary and Secondary Education for the Seventies (Washington, D.C., Government Printing Office, 1970), p.527.

PLANNING FOR CREATIVE FLEXIBILITY IN VOCATIONAL EDUCATION

by

John W. Letson*

I appreciate this opportunity to be in Little Rock and the opportunity to talk to people who are really interested in vocational education. I assure you, however, that my presence here does not indicate that all the problems are solved in Atlanta. We have a few that are still on the drawing boards and, hopefully, some that are in the process of being solved. At least we have a large number that we are working to solve, as I am sure is true of every school system in the nation. Certainly there is no doubt that there are things that I could be doing if I were in Atlanta rather than in Little Rock today, but that does not change the fact that it is a pleasure to be here.

I wish to start by expressing appreciation for your interest in participating in this conference. The inservice activities made possible through the 1968 Vocational Education Act have contributed to the development of an improved image for vocational education that has been desperately needed for a long time. Your presence here indicates an interest in continuing this improvement and is appreciated.

I speak not only as superintendent of schools in Atlanta, but I also bring greetings from the National Advisory Council on Vocational Education. The Council has undertaken a program dedicated to advancing the cause of vocational education with the conviction that the whole of education will thereby be improved. In both capacities I consider it a privilege to have this opportunity to talk about some of the things that may be possible in vocational education in the years ahead.

In my judgment, no period in history has established a more urgent need for vocational education to do the job it was originally established to do. One of the things which should be a part of the background in discussing this need is to remind ourselves that the United States is the only nation in the world that established a goal to educate all the children of all the people. This commitment constitutes a unique part of our heritage that education has been traditionally recognized as the path to opportunity and individual and national accomplishment. As we look at the record, however, it is obvious that the goal of educating all the children of all the people has never really been achieved. We have never educated all the children of all the people and are not doing so now. Measures of our failure to achieve this goal are reflected in the statistics of school dropouts, the number of functionally illiterate individuals in our various communities, and the number of individuals who are not trained to handle the complexities of the world in which they live. In the past, our failure

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to accomplish the goal of an adequate education for all was not as serious as it has been in recent years. The technological society that vocational education helped to create is becoming more complex each day and leaving fewer opportunities for the uneducated and unskilled.

The question that addresses itself to all of us is, what caused the failure to do the job we set out to do? Why is it, for example, that over eighty percent of our students never achieve a college degree? We have a higher percentage of our students graduating from college today than ever before, but still approximately eighty percent do not continue through college to graduation. In spite of this fact, however, the typical high school curriculum is still heavily oriented toward a college preparatory program. Why is it that vocational education has generally been assigned a position of low prestige in the minds of many students and their parents? Have we unintentionally contributed to its bad image? Do we have teachers or counselors in our schools, for example, who would say to an outstanding student who has chosen the vocational route, "Oh, you don't want to do that. You don't want to go in that direction. You are able to go to college"? The first report of the National Advisory Council said that vocational education in the minds of too many people was a program for other people's children. Do we lower the prestige of vocational education by unintentionally indicating that we think this to be the case? Obviously, I am not expecting answers to these questions here, but I do hope they call attention to the fact that the image of vocational education is directly related to our attitudes. Part of the poor image of vocational education has been caused by the fact that in too many instances vocational classes have been assigned to outmoded shops in the basement. Great progress has been made in overcoming the "outmoded shop" problem, but much remains to be done.

If the registration in a high school establishes the need for additional English classes, they are usually scheduled. It is very seldom that we hear the comment, "Sorry, we can't establish another English class because we don't have the funds with which to do it." On the other hand, where there is a recognized need for additional vocational courses the frequent answer is, "Sorry, there is no more money available for vocational courses!" For some strange reason it is too often assumed that vocational education is that portion of education that is financed by special federal and state funds. If there is a need over and above available federal and state funds, then nothing can be done except appeal to Congress or the State Legislature or both. Why is it, if the responsibility for establishing the curriculum rests with the local school system, that vocational education does not receive the same consideration the academic program receives in the allocation of local resources? We sometimes sell ourselves short in supporting the separation of general and vocational education in a manner that serves neither very well. Because we are faced with the challenge to make education more meaningful for all, vocational education has an opportunity to finally come into its own.

I drove through central Alabama a few weeks ago and, of course, noted a number of schools along the way. Almost without exception,

a small separate structure was located by the side of the main school building. Because I grew up in Alabama, I knew that the separate structure was to house vocational programs. As a rule, facilities for vocational agriculture and home economics were located separate and apart from facilities for academic courses. When I was a member of the staff of the State Department of Education in Alabama, I got into an argument about this undesirable practice. I still take the position that it is a disservice to insist that vocational education is separate and apart from and different from the whole of education. Of course, I am not unaware that education has many broad purposes, but basically the whole of education contributes to employability whether the course be English, social studies, machine shop, welding or auto mechanics. As I view it, an important educational goal is to take vocational education out of its strait jacket. Change its formalistic structure and see that it moves into the main stream and becomes an integral part of the whole of education in order that vocational programs can contribute their full potential to the growth and development of young people in our schools.

Education as a whole has missed a bet in not utilizing vocational education as a means of teaching academic skills. I have seen some students who were not responding to the academic approach learn to read well because of an interest in an automobile or some other project related to a vocational interest. If we have discovered anything in education it is that learning takes place best where there is effective motivation. A few years ago Coach Bobby Dodd of Georgia Tech sent a quarterback into the game with specific instructions not to throw the ball if within a certain distance of the goal line. The quarterback either forgot his instructions or deliberately disobeyed and attempted a pass at the wrong time. As you can imagine it was intercepted. The quarterback, who according to the record couldn't run that fast, overtook the man who intercepted the pass and prevented him from making a touchdown. Somebody asked Coach Dodd the next day, "How in the world was it possible for a quarterback who couldn't run that fast to do it anyway and prevent the touchdown?" Coach Dodd said, "Well, it's really very simple. The man who intercepted the pass was merely running for a touchdown, but the quarterback was running for his life." Motivation does make a difference!

The topic I was assigned emphasized the word "creativity." Creative flexibility--the establishment of creative flexibility in a vocational program. I tried to think of a way to dramatize that word "creative" and thought of another story that might be of interest. A few years ago a group of Boy Scouts from Bessemer, Alabama, attended the Jamboree at Valley Forge. As I am sure you know, it is a practice for scouts who go to the Jamboree to carry something with them to swap. Members of the Bessemer Troop racked their brains to think of something unique that they might take for swapping purposes. They finally hit on the idea of taking a sack of plain old Alabama cocklebburs, and they outswapped every troop at the Jamboree by convincing those "ignorant Yankees" that they were porcupine eggs. That is what I call creativity! I doubt that I can achieve a similar high standard in discussing creativity in planning for vocational education, but a

few illustrations of creative approaches might be in order.

The original Smith-Hughes Act in 1918 established vocational education in accordance with a highly structured pattern. The program was largely limited to trades, home economics, and agriculture with the organization specifically delienated. There was little opportunity to vary from the rigid specifications. Some states still have not recognized that the 1968 Vocational Amendments eliminated the rigid categories and opened the way for local and state creativity in the development of programs designed to best meet the needs of high school pupils and adults. Some vocational teachers and others, because of vested interests, do not wish to change the rigid prescriptions of the past, but we can no longer blame the rigidity of the program on the federal law. The 1968 Amendments and subsequent Acts present a clear-cut challenge to all who are a part of public education--the only limitations are related to the lack of vision, insight, and creativity of those directly concerned. The new Acts authorized appropriations that have not yet been realized, which will continue to be a limiting factor until changed. It is obvious that additional funds will be required to achieve the full potential of vocational education. I do not intend to waste a lot of time talking about money, however, except to say that vocational education should receive its proper share of available resources regardless of the source. State and federal appropriations should not be permitted to determine the adequacy of vocational programs. It should be as easy and as appropriate to establish another vocational course as it is to establish another English course if there is an equal need for both.

You might be interested in a few things we are attempting to do in Atlanta. I recognize the time limitations and will attempt to move rapidly as I discuss a few of them.

The high school program in Atlanta is organized on a four-quarter plan. All twenty-six Atlanta high schools operate around the calendar, and many of them are open from seven o'clock in the morning until ten o'clock at night. Why is it still necessary that public schools be tied to a calendar that is basically the same as the one established years ago to accommodate an agricultural economy that no longer exists? It is no longer necessary that schools be dismissed during the summer months to permit young people to be available for farm work. Basically the school calendar remains unchanged because of custom. Although it is evident that changes do not come easily, we have accomplished a basic change in the school calendar in Atlanta. A high school pupil may attend school for four quarters of each year if he chooses. He may attend the extra quarter to enrich his program and graduate with additional courses, vocational and/or academic as he chooses. He may choose to graduate early. He may choose to attend a fourth-quarter summer program and take out one of the subsequent three quarters. For some strange reason most high schools require pupils who wish to work to apply for the too few job opportunities during the same three summer months. Atlanta's program is based on the belief that it is important to permit pupils to attend school during the summer and work one of the subsequent three quarters if he wishes to do so.

Probably the most significant thing about the development of a four-quarter plan for Atlanta was the stimulus that it provided for a needed revision of the curriculum. High school curriculum studies have been common through the years, but for the most part they wind up gathering dust on the shelves while the high school program goes merrily along with little change. Atlanta's four-quarter plan provides a handle to bring about some needed changes which might not have been possible in any other way. We discovered, for example, that few high school courses need to be studied in a required sequence. While the four-quarter plan was in the planning stage, one student commented, "What difference will it make? I have studied American History for eight years and never got beyond the First World War." During the preliminary planning we also discovered that we were attempting to teach a Shakespearian play to pupils reading on a fourth grade level. I will bet my bottom dollar that some of you are attempting to do the same thing in your schools now. Everybody knows that a Shakespearian play is a part of tenth grade English; and regardless of reading level, all tenth graders must complete the tenth grade English curriculum. Instead of the typical English curriculum of approximately twelve quarters, Atlanta's program is composed of approximately sixty quarters. A student may choose or may be assigned on the basis of pupil, parent, counselor conferences those courses which best fit his needs. Those available may vary from advanced study of Shakespearian plays to simple remedial reading or paragraph writing as compared with creative writing. We now offer courses which make it possible for counselors to place students in those classes believed to be best fitted to their needs and goals. The four-quarter plan provides many advantages for vocational education. One, for example, is the stimulation given to break away from the traditional three-hour block of time. Hopefully, that rigid requirement is past history. It is certainly not correct to assume that all vocational courses will require the same amount of time to complete. We now have an opportunity to be creative in devising flexible programs tailored to fit the individual needs of pupils. Vocational education pioneered in some of the early developments in individualized instruction and should certainly not lose this advantage.

Many of the things formerly learned in the process of growing to maturity are no longer a part of the experience of young people growing up today. I heard Dr. George Counts say not long ago that one of the things the modern generation is suffering from is the lack of discipline of the milk cow. Somebody asked him, "What are you talking about? What do you mean?" He said, "Well, if a young person has the responsibility of milking a cow, he doesn't say to his mother or father some morning, 'Well, I think I will wait until Saturday to take care of "Old Bessie" because it's too rainy or too cold or too something.' If you have the responsibility of milking "Old Bessie" you milk "Old Bessie" that morning or that evening come what may!" It is certainly true that many of our young people do not experience this kind of discipline as they grow up. It is essential that a substitute be found, and vocational education is best equipped to provide it and encourage its use. Atlanta is considering a plan whereby at least one quarter of work experience will be a requiremnt of all high school students before graduation. If such a plan is adopted it is likely

that an insufficient number of regular productive jobs will be available. The preliminary plan includes an emphasis on social service assignments such as hospital and teacher aides. Such assignments would make the high school program more meaningful and more relevant for many pupils.

Another program that we are trying in Atlanta has some real implications for vocational education. We call it the exploratory quarter. It is an innovation that has become possible because the schools are organized on a quarter basis. It permits a pupil to plan and carry out an individual study program for a full quarter. Great flexibility is permitted and planned activities may vary widely as long as they have educational value and meaning. Some Atlanta students have spent a quarter working with performing groups at the Arts Center; others have carried out a planned program at the Communicable Disease Center. The exploratory quarter may include any worthwhile activities designed to achieve worthy educational purpose for the pupil involved. Those who are sensitive to credits and requirements which specify so many minutes in class may raise an eyebrow at this approach. Roadblocks will be in the way from time to time, but creativity requires the ability to remove them or go around them. Vocational education has demonstrated that learning can effectively take place in ways other than the traditional classroom approach. Learning by doing has long demonstrated its effectiveness. The time is certainly here to utilize the creative flexibility that can now be a part of the vocational program.

Learning about the world of work was also a normal part of growing up in years gone by. In former years, a walk down the street would take a young person by the blacksmith shop, the automobile garage, the bakery, and the ice house. Work in these establishments was understood and visible, whereas today most work is carried on behind brick walls and closed doors. Young people today do not automatically learn about the world of work. I recently asked a group of high school students in Atlanta, "What does your father do?" Several indicated that their fathers worked at Lockheed, but could not describe exactly what they did. Many young people, particularly those in urban areas, have a limited understanding of the world of work. A move designed to correct this deficiency is in progress in Atlanta. Groups of ninth graders are spending a full quarter studying about and exploring the world of work. The program is not the usual academic study of occupations. Maximum emphasis is placed on active participation in and observation of work activities.

Counseling and guidance is another topic that should be mentioned in passing. As it has developed in recent years, guidance has been chiefly concerned with the academic program and vocational guidance has been generally neglected. To correct this problem guidance has been authorized as a part of vocational education, but the solution may not lie in this direction. It will be a mistake to let the guidance program develop in two directions. Both academic and vocational guidance should be a part of a single approach motivated entirely by the needs of the pupils served. It will be too bad if high school guidance departments are staffed with regular counselors

on one side of the hall and vocational counselors on the other. We need to encourage those developments which will bring vocational and academic programs together rather than the opposite. To divide guidance and counseling into the two areas--vocational and academic--would be merely compounding the problem.

Another Atlanta program that we believe incorporates flexibility and creativity into a vocational effort is in progress at Henry Grady High School. It is a business directed and operated by students. A manufacturing plant located across the street from the high school was purchased and equipped for the production of kindergarten toys and equipment. Students serve as accountants, foremen, production workers, designers, and in other capacities as needed for the full operation of the plant. Workers are paid for the approximate three hours per day spent in the plant. Income is produced because the products are sold to the school system. Our hope is that we can ultimately establish a self-supporting manufacturing plant that will make it possible for us to teach not only production skills but also academic skills in a more effective way. We believe that getting students involved in a production program will serve as a means of motivating them in other areas. At least it will make high school more meaningful for some students who are not now progressing at all. The production unit is just starting, and I can't give a full report of results, but we have high hopes that it will prove at least a partial answer for some "turned off" pupils. The State Vocational Department is helping to support the production effort through financial and other assistance because Department personnel believe that it is a creative approach to vocational education. To say the least, the students involved will learn some things that they would not have learned had they continued in the traditional academic program.

The number of Atlanta pupils enrolled in work-study programs has greatly increased in recent years. Last year pupils enrolled in cooperative programs in the business area alone earned something over $600,000. Although the number of students enrolled in work-study programs has increased, there are many more students who are working part-time who receive no guidance or other service from vocational education. Is it not appropriate to expect vocational education to assume some responsibility for all pupils who work part-time?

The responsibility of the school for the large number of pupils who drop out each year is another question in need of review. Dr. Grant Venn took the positive position that the school should never lose contact with a student until he had successfully made the next step. Every student leaving an American high school should either go to a job, further job training, or to higher education. How successful are we in accepting this responsibility? I am afraid that it is too often true that we wash our hands and say, "Thank the Lord, he is gone. Now we don't have to worry about him any more." Certainly, the potential dropout is not the only student that vocational education has a responsibility for. The whole of education, including vocational education, however, must begin to find some answers for the "turned off" students. It is doubtful that these answers will be found unless we continue to search for more flexible and creative

approaches. We need not expect these creative programs to be designed elsewhere and handed down to local school systems. The design of effective educational programs for the students we teach is a responsibility that rests with local school systems and local schools. We can no longer blame the Federal Government, or the state, for vocational education's lack of flexibility. Anyone who now says, "I would like to organize and operate a more creative program, but they won't let me" is not reflecting an understanding of the new vocational acts and the national purposes which hopefully can be achieved through their full implementation.

Years ago when I was a high school student, I was in the poultry business. I had a thousand laying hens and operated a six hundred-egg incubator. Following each hatch there would be approximately fifty eggs left over. My brother and I would put the remaining eggs in two baskets, go down in the pasture and pace off the required distance, draw two circles, and have the most active egg battle you ever heard of. I was introduced to a PTA in Atlanta by their president, who grew up in north Alabama near the town where I lived as a boy. In introducing me, he told the group about my egg battles. In acknowledging the introduction, I commented that I had never thought about it before, but those egg battles were probably the best preparation that a school superintendent could have had. Public education has no easy assignments these days, but in spite of the difficulties we have no alternative but to move ahead and get the job done. The needed improvements are not likely to be achieved if we merely follow the same old pattern. We need to sell some cockleburs and possibly put a few under the saddleblankets. At least we need to get about our business and devise vocational education programs that are creative and productive in providing better education for all the young people who come under our charge. If we are successful we will have better communities, better states, and a better Nation. What we are really talking about is the quality of living and the quality of life throughout the country because, in the final analysis, it is determined by the quality of work performed. The frustrations of modern life are generated in large part by people who can't do things properly. The washing machine is broken and it will be next Friday before it can be repaired; the transmission on the automobile is still knocking even though it has been in for repairs on two occasions; stop at a restaurant on the highway and plain bacon and eggs are ruined in the process of preparing them. So there is an obvious relationship between vocational education and the quality of living generally. We can help build a better Nation if we dedicate ourselves to the task of making sure that every young person who comes under our charge is helped to perform in a manner that contributes to his self-respect and contributes to the society in which he lives.

MANPOWER FORECASTING

by

Frank H. Troutman*

Introduction

It is only in recent years that the importance of people has been recognized in economic planning and development. In the past, planners concerned with "industrial development" have tended to place most of their emphasis on the utilization of other types of resources. Development of human resources was thought of as taking place in the normal chain of events accompanying industrial development. We now know that this does not necessarily occur without carefully designed education and training programs. People are our most important resource--i.e., people who are industrious, who have the ability to initiate change, and who can adapt to changing conditions. The ability to initiate change and to adapt to new situations is determined largely by the education and training of the individual. Therefore, in order for an area to retain and develop its needed work force, it is essential that some agency engage in large-scale vocational and technical training activities. This requires not only expansion of facilities and programs for needed skill training, but remedial education as well. There also must be a heavy commitment of effort to realistic planning.

Due to rapid changes in technology, present manpower requirements of industry are an uncertain guide to future needs. To plan education and training programs to meet tomorrow's manpower needs, planners must have projections of tomorrow's manpower requirements. Such projections should also prove useful in the vocational guidance of young people and the structurally unemployed. To the extent that education, training, and vocational guidance accurately reflect manpower requirements, imbalances between manpower needs and labor supply can be reduced; the productivity, and thus the earning power of workers, enhanced; and structural unemployment, minimized.

We used as a basis for our projections of employment in Arkansas, Tomorrow's Manpower Needs, a Bureau of Labor Statistics, U.S. Department of Labor publication. Rather than read to you from the BLS study, however, I will simply state for those of you who are not familiar with the publication, that it was designed to aid in the preparation of state and area projections of manpower requirements by local people. It is presented in four volumes:

I. Developing Area Manpower Projections

II. National Trends and Outlook: Industry Employment and Occupational Structure

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III. National Trends and Outlook: Occupational Employment

IV. The National Industry-Occupational Matrix and Other Manpower Data

Included are detailed instructions on how to use the study as well as an example of how one state, New York, actually did use it.

I will limit my discussion to how it was used here in Arkansas--a much less developed state than New York--the problems we encountered and our solutions. This will, in my opinion, have greater application for area planners and for representatives from sparsely populated states in the Midwest, as you will encounter many of the same problems in data deficiencies that we did.

Employment Projections by Industry

Industry employment statistics used were in two somewhat different forms, each of which was related to a different series of employment data.

First, quarterly employment data by industry was obtained from the Arkansas Employment Security Division (ESD) and was used for projecting employment. These data represent the number of jobs in the economy and show only wage and salary workers. (In Arkansas, all employers not in an exempted industry, must provide workmen's compensation coverage for their workers; and therefore, Arkansas' ESD estimates may be better than in some states without this requirement.) Excluded from these industry data, but represented as a separate category of workers, are the self-employed, unpaid family workers and domestics in households. Also, the data on government employment covers all civilian employment in government, regardless of service function. The ESD data are available in greater industry detail and for more past years than any other annual employment series and are, therefore, the best available statistics on which to base projections.

Second, census of population employment statistics were used in order to obtain an occupational matrix. These industry data cover all workers including wage and salary employees, self-employed, unpaid family workers and domestics. In addition, the data for government covers only those workers in public administration, i.e., the workers engaged in activities that are uniquely governmental in nature. Government employment in functions other than public administration is classified in the appropriate industrial classification. For example, government education workers are included in educational services, government hospital workers are included in health services, and government construction workers are included in the construction industry.

The dual presentation of what is essentially the same information is required by the fact that the only available industry-occupational matrix is based on census statistics. At the same time, the ESD estimates are the best available continuous industry data, and are the series labor analysts are most familiar with.

Bureau of Labor Statistics Concept of Industry Employment

We obtained complete quarterly ESD data from 1950 through 1967 for approximately 55 industries, including the work force, total manufacturing (durables and nondurables), total services and other major nonmanufacturing industrial categories.

The first step in our methodology was to make descriptive computer runs from this quarterly data. Linear trends were then plotted for all series to provide reference points in identifying breaks in the series. From these initial runs, points were selected from which to begin the various projections.

The second step consisted of projecting the quarterly data from the selected beginning points by initially fitting the four trend types:

(a) linear, $y_c = a + bx$

(b) log linear, $\log y_c = \log a + \log b(x)$

(c) Gompertz growth curve, $y_c = ka^{b^x}$

(d) Pearl-Reed growth curve, $y_c = k/\left[1 + e^{(a + bx)}\right]$

Of the four, the Gompertz is probably the most valuable because the curve shows upper and lower asymptotes which indicate when a population is reaching the peak of an increase or the bottom of a decline. All populations (by populations, we do not mean just people) will eventually level off; they don't disappear completely or increase into infinity. Therefore, there is a curve which is either increasing or decreasing at an increasing rate, which moves into a curve that is changing at a decreasing rate, and then the curve tends to level off.

The Pearl-Reed growth curve was the least useful of the four trends; if I were doing these projections over, I would not run it. We did not use this trend for any of our projections.

From the results of the three trends used, the projection providing the "best fit" for each industry was selected. In many instances the results of the three trends were very close, so the three projections were averaged. Each industry was projected independently including total employment and total work force. The totals and major industry groups were adjusted first and served as parameters for adjusting the sum of all industries.

The results of this operation were then compared to the national projections given in Tomorrow's Manpower Needs. Modifications were made industry by industry in view of the national trends, as well as past experiences in Arkansas and other developing states in the South of industries such as textile and garment manufacturing, which are declining nationally.

Also, in undeveloped areas such as Arkansas, there will be certain

new industries which will not have a historical series as a basis for projections. Such industries will have to be studied closely and their trends will need to be extrapolated back, using the national trends as a guide, so that growth factors can be applied. In Arkansas we paid particular attention to transportation equipment manufacturing. We were experiencing fairly rapid growth in boat building and repairs with little or no expected growth in the other three- or four-digit SIC 37 sectors. In addition there was predicted growth in river transportation under the broad industrial category of Transportation, Communication and Public Utilities due to the development of the Arkansas River as a navigable stream. There was virtually no employment in these industries in Arkansas in 1960.

Another example in Arkansas was the mining industry. Crude petroleum has been declining and will continue to decline in the future, but there is some growth in natural gas and there should be growth in coal mining. Each was projected independently to give a truer picture of the situation.

Because of discrepancies such as these, we were not able to project employment by just the broad industry groups. This will be true for any small area projection. Forecasts of employment must be broken down into many sectors so as to give as true a picture as possible as to what future employment will be.

I must mention again that the broad industrial classifications served as parameters; and even though the minor sectors were projected independently and changed individually, we had guides to bring them into line.

These data were then adjusted downward to fit independently projected population and work force data for Arkansas, and became the first approximations for a forecast.

A careful review and further comparison with national trends were made at this point by the IREC staff members, and by the staff of the Research and Statistics Section of the State ESD. The end results were projections which conformed to the BLS concept of industry employment.

Bureau of the Census Concept of Industry Employment

The next step was to convert these BLS employment projections to the Bureau of the Census concept. There were two methods involved. In Method A we used the percent distribution of government workers and self-employed and unpaid family workers by industry (Table 129, 1960 Census of Population, Arkansas). The result was a redistribution of 1960 ESD employment which conformed to the Census. In 1975, we assumed that Arkansas' distribution would bear the same relationship to the 1975 national distribution as the State's 1960 distribution did to the 1960 national distribution. In other words, to obtain 1975 Arkansas employment, we determined the ratio between the 1960 Arkansas and national distributions and applied this ratio to the 1975 U.S. employment distribution. When we were satisfied with the 1975 employment distribution

for Arkansas, we simply interpolated on a straight line trend to obtain 1965 and 1970 and extrapolated to get 1980. These percent distributions were then applied to projected total employment for each year and adjusted. As guides we used actual 1965 and 1968 ESD employment estimates.

Method B involved using the differences between ESD and Census employment by industry to project to 1975. We assumed that the differences in Arkansas would change at the same rate as the U.S. differences. Stating it another way, the percent change from 1960 to 1975 in the differences in the nation were applied to the 1960 differences in Arkansas and the result was the 1975 difference between ESD and Census employment in Arkansas. Again, adjustments were made, the in-between years were interpolated, 1980 was extrapolated, and the differences were applied to the ESD projections. Thus we had another set of industry employment projections by Census definitions.

The two methods were closely examined. There were only minor differences in most instances, so it was decided to average Methods A and B to obtain the employment projections by industry for the Census concept.

However, there was much reviewing and many changes to be done with the assistance of the staff of the Research and Statistics Section, Arkansas ESD. In all, five attempts were made before the final projections were prepared. Each industry was examined thoroughly and some subjective judgments were made. Again the totals served as parameters, and the minor sectors were adjusted to them.

The final forecasts were made incorporating adjustments developed from the reviews, but remaining within the confines of projected labor force data. These final data are considered a best estimate of the employment by industry that can be expected in Arkansas in 1980.

The employment projections for Arkansas are based primarily on historical data and assumptions similar to those used for the national projections. Thus relative comparability with national date is achieved.

The general assumptions providing the parameters for the industry projections were:

(1) That general economic progress in both Arkansas and the Nation will continue as in the recent past.

(2) That the State will continue to exert strong efforts toward expanding and diversifying its economy, with continued emphasis on manufacturing and new emphasis on the leisure industry.

(3) That the State will continue to become more like the Nation in its industrial mix and structure.

(4) There will be a continuation of scientific and technological advances.

(5) That no major natural catastrophe, social upheaval, or war of significant intensity and duration will upset the State's long-term development.

Employment Projections by Occupation

Significant changes have occurred and can be expected to continue in the occupational structure of Arkansas' labor force. Certainly the most drastic change since 1950 has been the decline of farmer and farm-worker employment. Because farmers and farm workers made up nearly 35 percent of total employment in Arkansas in 1950, the rapid decline in these occupations caused a decline in total employment that was not reversed until 1958; in fact, total employment in Arkansas did not regain its 1950 level until 1964. In addition there were substantial losses in employment of nonfarm laborers; however, all other occupations experienced rapid growth.

These dramatic changes have resulted in an occupational employment structure for Arkansas that is more similar to the Nation's. The State is moving toward a national pattern in the managerial, clerical, craftsmen, service and farm categories; but there still exist notable differences from the national distribution for the professional and technical, sales, operative and labor occupations.

Developing an Occupational Matrix

Although many factors influence the occupational structure of the work force, the two most important ones for any area are: (1) the different rates of employment growth among industries, e.g., as an area changes from a predominantly natural resource-based economy to a more diversified economy, and (2) the changing occupational patterns within separate industries, as a more diverse, complex, and sophisticated industrial structure is built.

Therefore, it was necessary to project changes in occupations by two- and three-digit SIC industry codes, because Arkansas is undergoing rapid structural change.

The base-year matrix was developed from basic data taken from Table 125, 1960 Census of Population, Arkansas. A breakdown of occupations by industries was given in this table and we planned to project the occupational breakdown for each one.

After several false starts of trying to sum individual industries to an overall employment by occupation, we reversed the procedure. We took the overall employment by occupations and examined it for errors--we found several:

(1) We found an extraordinary number of truck drivers for Arkansas. By querying the Census Bureau, we found there was no place on the Census form for listing farm tractor drivers, harvesting machine operators, etc. By examining the agricultural industry, we were able to reduce truck drivers in Arkansas by some seven thousand and to reallocate them to farm machinery operatives.

(2) Through examination of occupations by educational level, we found too many (as compared to the Nation) professional people with less than a high school education; this was most apparent in engineers and was due to the fact that many people, such as janitors, classified themselves as engineers.

There were a number of other areas where adjustments were made, but these two are sufficient to illustrate the problem.

In addition, as I mentioned before, Arkansas is a relatively undeveloped state, so we now have numerous occupations which were not present in the state in 1960. Therefore, we had to take a subjective look at these and estimate, according to recent trends, how many people might have been employed in these occupations so that we could apply growth factors.

As the data for two- and three-digit industry breakdown were extremely skimpy, we first determined and adjusted broad occupational categories by industry and the total detailed occupational employment for the entire economy, we distributed detailed employment by occupation by industry using the national distribution. Thus we developed a detailed occupational matrix by two- and three-digit industry groups for the State.

Projecting the Occupational Matrix

The preparation of Arkansas' occupational projections was accomplished through use of the national industry-occupational matrices published in Tomorrow's Manpower Needs; the method used was BLS "Area Projection Method B."

There were five basic steps used in the preparation of employment projections by occupations:

(1) Obtaining ESD estimates of employment by industry, and making employment projections.

(2) Converting the ESD estimates to Census definitions.

(3) Developing a 1960 occupational matrix using Census definitions.

(4) Applying the National BLS changes by occupation by industry to obtain state projections by occupation.

(5) Reviewing and changing the basic projections.

The first three steps have already been discussed.

After the development of the base-year matrix, a target-year (1975) matrix was then computed by applying the trends (1960-1975) projected for industry-occupational structures at the national level to the corresponding industries in the state base-period (1960) matrix.

The first attempt included the projection of 186 occupations for 13 major industries: agriculture; durable goods manufacturing; non-durable goods manufacturing; mining; construction; transportation; communication; public utilities; wholesale trade; retail trade; finance, insurance and real estate; services; and public administration. Our methodology was to apply the national percent change between 1960 and 1975 to the 1960 percent distribution of Arkansas' employment by occupation. This gave us a 1975 unadjusted percent distribution for Arkansas, which we then reallocated to equal 100 percent. The in-between years were interpolated and 1980 was extrapolated; then the three years were also adjusted to equal 100 percent.

These distributions of occupations were then applied to the employment projections by industry and summed for total employment by occupation. In developing the occupational projections, we again had parameters in the major occupational classifications within which we made our adjustments. Careful study and revisions was made in connection with each industry to be sure of the most reasonable results.

In a second attempt, we used the same process as before, but this time we projected the 186 occupations for some 50 industries. The main purpose of these projections was to fill in occupational detail within the first set of industry-occupational projections. The detailed projections were summed to industry totals by occupations and were compared to the totals obtained in the first attempt. The results were surprisingly close.

In many instances we surveyed to obtain an estimate from various employers as to their expected employment; this was particularly necessary in the professional and technical fields, e.g., air traffic controllers and school teachers. We also contacted railroads to determine the expected employment changes in conductors, engineers and firemen. Another example was sailors, deckhands, officers, pilots, and engineers on ships. According to the national trends, these occupations are declining, but in Arkansas they are expected to show considerable growth.

The first attempt resulted in projections by industry by occupation for 1975 which we labeled Method I. However, it was decided to obtain another set of projections as a comparison. Method II projections were obtained by assuming that the ratio of Arkansas to the United States in 1960 would remain constant in 1975. Stating it another way, the ratio between Arkansas and the nation in 1960 was applied to the 1975 United States employment distribution by occupation. The result was a 1975 Arkansas occupational distribution which was applied to our estimates of total employment and adjusted to our parameters--the broad occupational categories.

Our final 1975 projections of employment by occupations were basically an average of the two methods with subjective changes made in individual categories, such as those mentioned previously. The "other" and "n.e.c." occupations were generally residual categories.

As in all the previously mentioned projections, the distributions for 1965 and 1970 were interpolated and 1980 was extrapolated. The distributions were adjusted to equal 100 percent and applied to the total employment projected for each year.

Replacement of Workers

The need to replace experienced workers who die, retire or leave the labor force for other reasons is an even more important determinant of worker requirements in some occupations than are expansion needs. Therefore, some estimate of these replacement needs had to be made. The method we used is considered quite conservative; it was simply to assume a normal working life of 40 years for all presently employed persons. Thus a 2.5 percent average annual replacement rate was used. This assumption is considered valid for men, but few females actually work this many years. In addition to retirements and deaths, females withdraw from the work force as a result of marriage, childbearing, presence of young children in the home, etc. Therefore, somewhat higher female worker replacement needs should cause the total estimated replacement needs to be conservative.

There are other methods of obtaining replacement needs, but as these are discussed in the BLS study, I will not dwell on them here.

I realize that many of you may feel that the results we obtained appear crude and inaccurate. However, constant checking and reviewing by knowledgeable people in the manpower field, making surveys to determine what has actually happened in the area, and comparing with the national patterns mitigate the inaccuracies. Furthermore, the resources available in vocational-technical training are so meager in relationship to the needs for such training, that we really do not need completely accurate numbers by occupation; rather, we need to know what occupations are or will become critical in the economy, what occupations offer the best future to students, and which offer the poorest future. And, finally, we do not accept these projections as the final answer, but constantly review them, use other methods such as the skill survey and Mr. Medvin's job vacancies technique, which you will hear more about later, and any other available data to initiate change in our training programs.

Summary and Conclusions

In summary, let me again mention the basic steps involved in projecting employment by industry and occupation:

(1) Projecting employment by industry using ESD data

(2) Converting the ESD employment projections to Census definitions

(3) Developing a base-year occupational matrix for the State

(4) Applying the National BLS changes from Tomorrow's Manpower Needs by occupation by industry to the base-year matrix to obtain state projections

(5) Reviewing, changing, and adjusting the basic projections

However, industry and occupation employment projections are not a matter of five easy steps. It would be virtually impossible to do the projections one time and expect them to be accurate estimates of future employment. There is some trial and error and a lot of review and change.

The final projections are not precise to the extent that employment of individual workers can be determined, but they do show consistency between the determination of past measures and future forecasts. And, we have recommended that revisions of both the industry and occupational employment projections be prepared shortly after data from the 1970 Census of Population becomes available so that related planning efforts may be as realistic and accurate as possible.

A VIABLE JOB FORECASTING APPROACH: THE UNFILLED OPENINGS - MATRIX TECHNIQUE

by

Norman Medvin*

(The following article reflects the judgments of the author and is not necessarily the views of the U.S. Department of Labor.)

One of the major problems in the manpower field has been the challenge posed by the Vocational Education Act of 1963 which charged the Department of Labor with providing forecast data on occupational opportunities to the vocational education system. After approximately 20 years of intense activity, more than half of it preceding the legislation, the accomplishment in this difficult field has still fallen short of requirements. While many manpower economists in the country have devoted their energies and talents to this task, they find themselves conceding that the final answer is still far down the road. Is there any onus attached to them? Obviously not when one examines comparable efforts to forecast the future in business, the stock market, social and political trends, population growth and a host of other phenomena. In all of these, success is muted. Can we expect anything more in the manpower field? Perhaps if we face up to the elusiveness of this goal, we might be more apt to limit our ambitions and be in a better position to achieve a working solution.

The earliest efforts to derive a viable technique in the Department of Labor, where the main thrust is concentrated, are known to the writer as far back as 1951 when the Bureau of Labor Statistics began to develop its matrix approach. Only relatively recently--some 18 years later--did the Bureau of Labor Statistics feel ready to release its product for use by states to make statewide projections. Basically, the technique works best in a national application but has been adopted to apply to a state, and least satisfactorily to a local area.

Beginning around 1954, the Employment Service developed its area skill survey approach. This was a highly sophisticated system because it attempted to make occupational projections, taking into consideration not only what the demand for workers would be but also to determine the elements of supply, a major ingredient in vocational education planning.

In 1967, the Employment Service came up with a simplified technique to occupational forecasting called the ES unfilled openings-BLS outlook handbook approach, more popularly known as the openings-matrix approach.

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The conception received its impetus from the fact that the Department of Labor had not yet provided the vocational education authorities with usable forecast data. Specifically, (1) the BLS matrix was still several years away from practical application and even when ready, would be so flawed with respect to lack of supply data that it raised substantive questions of applicability; (2) the area skill survey technique was flawed because it was very expensive, took too long to conduct, and was of dubious value because it based its forecast on employer judgments which were notably unreliable; and (3) leading universities and other nonprofit institutions under contract to the Department of Labor or otherwise were laboring mightily and had little to show for their efforts.

The attraction of the unfilled openings-matrix approach was that it utilized currently available data in the Employment Service, was easy to understand and inexpensive to conduct, and could be updated frequently at virtually no cost, regardless of the size of city or state. Its major weakness was that it did not provide a specific figure on a projected occupational need; instead it provided a specific current need supported by a future need in vocabulary terms. It also called for job market information such as wages, other conditions of work, and local job requirements with each occupational forecast. For example, a typical entry would be that occupation "X" in a city had been experiencing a shortage of 30-50 workers over a period of 3 years, that the shortage had a "high" or "low" intensity (the shortage was a high, or a low, proportion of the needs for that occupation in the area), and that the 10 year national projection for that occupation was:

Rapid - over 25 percent increase
Moderate - 15 to 25 percent increase
Slow - 5 to 15 percent increase
No change
Decline - 5 percent or more decrease

The comments might indicate that the shortage was due to low wages attached to the occupation, no ladder of promotion, etc.

Immediately after its introduction, Labor Department officials ordered tests of the newest technique in a number of cities. The theory of the openings-matrix approach is described in the Employment Service Review, January-February 1967. The report on test results in several cities is detailed in a vocational and technical education conference report at Ohio State University, June 12-13, 1969. Both of these articles have been reprinted under one cover by the Department of Labor's Manpower Administration identified by the title "Forecasting Occupation Job Requirements: I - A Short-Cut Approach to Long-Range Forecasting; and II - Report on Test Results in Several Cities."

Current Usage

In May 1970 the Manpower Administration sent to all State Employment Security Agencies an instruction "to establish a systematic basis for transmitting manpower and occupational projections information to

the vocational education system in accordance with the Vocational Education Amendments of 1968.[1]

The basic manpower projection techniques, after a winnowing out of less acceptable methods, were described in this instruction and the states have been given the option of selecting one or more methods. According to information available as of September 15, 1970, admittedly incomplete, the selection choices were as follows:

Selection of:		
Matrix Method	Unfilled Openings-Matrix Method	Other
California	Alabama	Washington
Iowa	Alaska	Montana
Louisiana	Delaware	
Maine	D.C.	
Maryland	Idaho	
Michigan	Kansas	
Nevada	New York	
New Hampshire	Oklahoma	
Utah	South Dakota	
	Texas	
	Virginia	
	West Virginia	
	Wisconsin	

Thus it will be seen that the matrix method is in use in at least 9 states and the unfilled openings-matrix in at least 13 states.[2]

Simplification vs. Sophistication

A dominant consideration in the effort to produce a usable forecasting system--and rightly so--is the goal of producing a professionally adequate technique which meets the requirements of the vocational education system and other planning authorities. But it is also legitimate to ask, given the vagaries and uncertainties of peering into the future, whether the production of precise figures on job opportunities 5 to 10 years hence does not import a spurious accuracy either unjustified by facts or even by needs of the users. It may be that given a choice between highly sophisticated and less sophisticated systems, the limitations of each may be so overwhelming that the simpler method may recommend itself until better methods can be devised.

[1]Reports and Analysis Letter No. 685.

[2]To the author's knowledge, at least 5 other states--Arkansas, Connecticut, Illinois, Minnesota, and Missouri--have used the openings-matrix technique although he has no information on their current practice.

The U.S. Department of Labor funded the Wisconsin State Employment Service in 1967 to make a critical review of five alternative methods of forecasting labor supply and demand in an urban labor market area. The name of the effort was "Project Vision," an acronym for Vocational Information System Involving Occupational Needs. Its assessment was in terms of the Congressional mandate that "persons of all ages in all communities of the State . . . will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and ability to benefit from such training."[3] After three years of exhaustive experimentation in the city of Milwaukee, Project Vision came to the conclusion that no one of the five projection techniques can fully satisfy the conditions as stated.[4] It is well to keep in mind that the techniques tested represented the leading contenders in the field of occupational forecasting. Although the Project Vision people said it would appear that the occupational information needs of the vocational education system probably can best be served by a simplified and modified area skill survey technique,[5] it is interesting to note that less than a handful of state employment security agencies has selected the approach either because of expense, inaccuracy, or other factors resulting in general disenchantment.

Next Steps in Providing a Viable Occupational Information System

Since even a casual reading of the Project Vision report reveals that no recognizable system today can provide a ready-made package for the vocational educational system, the inevitable question then is "What next?" The purpose of what follows will be to offer some constructive guides on how the problem might be resolved satisfactorily.

The great danger in the evaluation of an approach is that the purists will be so intent on achieving the "perfect" system that they will waste endless years before they put any available system into practical use. We consider that such a wasteland was the period 1967-1970 when it was held that we were on the verge of a "breakthrough" which would provide the technique for the needed answers. It was apparent to this author in 1967, examining the concepts behind those budding developments, that the confidence was misplaced. This earlier-day judgment, it turns out, was fully supported three years later by the conclusions of Project Vision by a number of other professional manpower economists, and perhaps pragmatically by the vocational education authorities themselves.

There is no implication here that experimentation should not have gone forward. The mistake simply was that while waiting for these anticipated developments to occur, little or no effort was made to use already available and reasonably adequate techniques that could have

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[3]Vocational Education Act of 1963, Part A, Section 1.

[4]Project Vision, Wisconsin State Employment Service, June 1970, p. 5.

[5]Ibid., p. 6.

provided the vocational education system with the information it so sorely needed. It was not until mid-1969 that draft instructions were provided to the employment security system on the openings-matrix technique, some 2 1/2 years after its publication. And even today, many states are awaiting completed developments on the matrix method which, in the author's opinion, will fall short of the promise held for it.

It appears that an immediate approach to satisfying vocational education needs is a combination of the BLS matrix and the unfilled openings-matrix techniques. At the Ohio State University Conference on Vocational Education in Columbus on May 12-13, 1969, the State Director of Vocational Education for Minnesota indicated that he was using a combination of the two approaches which in turn were provided him by the Minnesota State Department of Employment Security.[6]

The industry-occupation matrix provided employment levels in Minnesota for some 50 professional and 90 other occupations based on census occupational classifications. The employment levels were the actual census count in 1960 plus extrapolations for 1968 and 1975. When new bench marks such as the 1970 Census counts are available, these periods will probably be adjusted accordingly.[7]

The obvious value of such figures is that they provide a clean level of actual and anticipated employment over a long period of time. All one needs to do is to subtract two terminal points to achieve growth or decline and a rate of change. The matrix method also provides a figure on average annual openings which combines growth and replacement openings. But unfortunately, any vocational expert quickly perceives certain inherent dangers. A growth in employment of 1,000 metal heaters, for example, would not call for 1,000 trainees in the vocational education or other training systems; perhaps as many as half might be promoted into the occupation within the plant, an unspecified number of job-ready might come into the area or leave it, and there are the inevitable deaths and retirements. Then again, an increase of 1,000 electronic technicians or cosmetologists might all be supplied by local private technical institutes. In short, the BLS matrix deals with employment levels; supply information on manpower is lacking. There are, of course, other difficulties such as the limitation of the census data in terms of occupational classification, the long intercensal periods in which major changes can be expected to occur, and the problem of applying the matrix method to smaller cities. On balance, however, the matrix supplies local employment bench mark data and these are basic to any vocational education planning.

The openings-matrix approach is the second component in this array

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[6]Letter of June 2, 1969, from G. J. Vavoulis, Commissioner, Minnesota Department of Employment Security to Manpower Administrator, U.S. Department of Labor.

[7]The Bureau of Labor Statistics has just developed a comprehensive set of projections for the economy of 1980 with a base employment year of 1968.

of vocational information. This is a system whereby information is provided on all occupations in a community for which employers place orders with the local public employment service office. It is not the number of such openings which the employment service garners but the relationship, for each occupation, between those jobs which are hard to fill as a percent of all such jobs in the employment service. To this shortage study is added the national BLS matrix projection for each of these occupations and where available, a state projection is a welcome addition. We suggest both, in fact, because a state's projection can be unduly influenced by a single plant's demis whereas a national projection would more truly reflect the non-local range of opportunity. The matrix method produces a state as well as a national projection.

The hard-to-fill figure also embodies a concept of supply so sorely lacking in some other techniques. The unfilled one-month-or-more figure reflects, in one concept, the total of several job market phenomena. It represents shortage after taking in-migration and out-migration into consideration. It represents shortage after consideration is given to promotions into the job and those leaving the job. It is a direct measure of failure to meet demand after exposure to available supply--i.e., the unemployed and those presumably qualified in the occupation. In short, the hard-to-fill figure represents the net inability of the community to find workers, the residual after all the various manpower actions have occurred in the market place.

New Source of Unfilled Openings Data

There are several developing sources of information for shortage occupations on a regularized and current basis.

Until recently, the best such source was a quarterly reporting program on unfilled openings, by 3-digit Dictionary of Occupational Titles (DOT), for 77 Standard Metropolitan Statistical Areas (SMSA). These cities account for some 50-55 percent of the total United States work force.

A second source, still in the developmental stage, is the Department of Labor's job vacancy program. Under this program, data collected for any city is very complete in occupational detail because they represent the universe of jobs in the area. The unfilled openings data are less complete in occupational detail because they reflect only those jobs coming into the employment service. The limitation of the vacancy data, however, is that the collection program is operable on a detailed occupational basis for only 18 areas and it will be many years before such information is available on a widespread and current basis. Nevertheless, these data are highly useful and should be used as a substitute for unfilled openings where available.

Perhaps the greatest promise for obtaining information on hard-to-fill jobs is the current employment service program of installing job banks in local employment offices around the country. These banks are computerized listings on a daily basis of all unfilled openings in the employment service with, among other things, the number of days these

jobs have gone unfilled. Job banks are already operating in 52 metropolitan areas and the plans call for a total of 111 areas to be operating by June 30, 1971. In the following year it is planned to cover all areas in the United States on a statewide basis and that would ensure quick and ready access to all ES occupational information for any area or combination of areas.

The openings-matrix approach, including the vocabulary long-range forecast, can be easily programmed into the computer and produced with machine-like ease. In fact Wisconsin, which uses the unfilled openings-matrix technique on a statewide basis to service the vocational education system, has already programmed this information on the computer and produces it in camera-ready form for reproduction and widespread distribution.

Experimentation and Demonstration Needed

We believe that satisfactory methods of forecasting occupational needs are already sufficiently advanced to take care of vocational education requirements. Additional research should continue and of course it will.

There is a great immediate need in our judgment, namely an experimental project which will provide answers on how the vocational education authorities and the employment service can work together at the local level. For example, means must be established on how the two groups can open a cooperative and continuing dialogue. A special effort should be made to experiment with methods of overcoming mutual distrust where it exists. Employment service staff must have a package of available forecast data, placement opportunities for part-time jobs, and an aggressive program of manpower services for vocational school students. School authorities should be apprised of the kind of services which a competent employment service can provide. Various state employment service agencies should be canvassed for histories of success in working with the vocational school systems and these ideas should be collated and exported to other states.

After this experimental project is completed, the findings should be applied to one or more local areas on a demonstration basis. An evaluation design should be installed in advance so that measures of success and failure can be obtained at the completion of the demonstration. It would be hard to conceive of experimentation and demonstration dollars better spent than in a project of this nature.

FOCUSING ATTENTION UPON VOCATIONAL EDUCATION PROGRAMS AND THEIR RELATIONSHIP TO MANPOWER, EMPLOYMENT, AND POVERTY IN URBAN CENTERS

by

Joseph H. Stephenson*

A Position on Vocational Education

THIS WE BELIEVE:

. . . WE BELIEVE that vocational education is based on the need of every individual for economic security.

. . . WE BELIEVE that all people, of all ages, in all locations, should have the opportunity to prepare for, enter into, and advance in all occupations of gainful employment.

... WE BELIEVE properly funded vocational education programs on the local high school, adult, and junior college levels can meet, today, and tomorrow, the needs of pre-employment, under-employment, re-employment and unemployment.

. . . WE BELIEVE that local school district control of vocational education programs is mandatory in order to avoid the tremendous political pressure inherent in federal and state agency control.

. . . WE BELIEVE that vocational education must be properly articulated with the elementary and junior high schools on the one hand and the four-year colleges on the other.

. . . WE BELIEVE that the objectives of vocational education programs determine the needs for instructional staff, facilities, equipment, and materials.

. . . WE BELIEVE that cooperative and meaningful instructional relationships between the school and community groups and agencies are the basis for effective vocational education.

. . . WE BELIEVE that vocational education must meet quality standards of occupational preparation and job placement and yet should be flexible enough to meet changing needs without being structured by arbitrary requirements of scheduling and programming.

. . . WE BELIEVE that adequate student personnel services, involving

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trained counselors with adequate current occupational knowledge and experience, is an important part of vocational education.

. . . WE BELIEVE that research and evaluation are an integral part of the design for the improvement of vocational education.

This in essence is the philosophy of Vocational Education of the five large Urban Centers of California.

Introduction

Mr. Chairman, Ladies and Gentlemen, it gives me a great deal of pleasure to be with you during this, the tenth and final institute of the series, and to share with you some of the highlights of the thinking of a very dedicated group of educators from the far West.

In order to clarify semantics during this presentation we will agree that the following titles are used synonymously:

Vocational Education and Occupational Training
Junior College and Community College
Human Resources Development and State Employment Service

We will also agree that wherever adult education is used it refers to that part of education which has to do with short-unit skills programs preparing persons for entry into the labor market or for upgrading workers.

For the past many years the Urban Centers of California have, to the best of their knowledge, been serving the vocational needs of each of their respective communities. The programs have grown somewhat like Topsy, with each segment of the schools attempting to meet the challenges involved in developing a total educational program.

No one has had the time, or taken the time, to stop and evaluate what has been happening.

Realizing the need for a much closer inventory and evaluation of programs offered, and the urgent need to do something about the obvious unmet needs for training of disadvantaged youth and adults, the California State Department of Education and the University of California at Los Angeles collaborated in the development of the California Major Urban Centers Project. The purpose of this project was to focus attention upon vocational education and its relationship to manpower, employment, and poverty in the five large cities of California: Long Beach, Los Angeles, Oakland, San Diego, and San Francisco.

I had the honor to be selected to direct the first phase of the total study.

Through the courtesy of the State Department and U.C.L.A., I was able to obtain fifty copies of the report to distribute at this conference so that I will not bore you with reams of charts and statistics which are included in the Urban Centers Report, except to illustrate a

point or an interesting fact, but will spend the next little while in discussing some of the techniques used, some of the highlights, some of the problems encountered, and in making recommendations. I will also mention a few of the exemplary programs I visited both in California and other parts of the country during the course of the project.

The Purpose

One of the greatest problems in vocational education as in many other fields is that of communications. We therefore decided that if the project was to succeed, as many persons as possible on all levels of state and local educational government must not only be kept informed of our progress, but must be part of the action. This resulted in a rather impressive structure of committees:

First, a State Committee made up of Bureau Chiefs and other selected top officials to solicit their support

Second, an ad hoc committee made up of superintendents of schools and the directors of Vocational Education from each of the Urban Centers for administrative backing

Third, an action committee composed of school officials, appointed by the superintendents and directed to act for them in decision-making. This, the California Urban Centers Vocational Education Committee, was the working committee which was responsible for establishing the philosophy and a tentative outline for the development of a basic master plan for vocational education.

The unique feature of this group was that they were selected by the superintendents for their authority to act rather than for their knowledge of vocational education. Consequently eight of the sixteen members of the committee were not vocationally oriented. At first, this appeared to be a distinct disadvantage, but it turned out to be a very fine relationship.

This has convinced us that if we expect to succeed in developing an all-round program of vocational education, we must work more closely with the rest of the disciplines within the schools.

State-Level Procedure

The Urban Centers Vocational Education Committee, hereafter called the Committee, was charged with the responsibility of developing guidelines for the development of a sequential, organized program of vocational education based on a master plan for vocational education in the five large urban areas, and tailored to the needs of each of the local areas. Of particular concern was the planning for programs not now being offered in the large cities, which are necessary to provide a better relationship among unemployment, employment demand and the supply of trained persons, with special emphasis on the problems of disadvantaged youth and adults.

The Committee developed a list of eighteen common concerns related to occupational education including:

1. The need to bolster the image of vocational education
2. The inadequacy of fiscal support
3. The fuzzy employment picture
4. The insufficiency and inadequacy of vocational guidance
5. The lack of articulation with the total program of education
6. The need for vocational education to become more greatly concerned with placement and follow up of students leaving the school program (whether through completion or dropout)
7. The need to take a more realistic approach to curriculum and program development
8. The need to emphasize the training of disadvantaged youth and adults
9. The need to define the disadvantaged more clearly
10. The need to tie education, business, and industry--including labor--and the community closer together
11. The need to consider more aggressive and persistent promotion of vocational education
12. The need to develop vocational education programs around the needs of the individual
13. The need to involve the total community, including prospective trainees, in the planning of vocational education programs
14. The need to involve area planning to include areas on the perimeter of the urban centers
15. The need to develop a blueprint for the future in vocational education
16. The need to constantly stress communications
17. The need to develop a realistic teacher recruitment and development program and avoid the tendency to substitute degrees for experience
18. The need for the master plan to include all phases of vocational education on the elementary, secondary, community colleges, and adult levels

The Committee also discovered that (1) there was no single source

where an inventory of vocational education offerings in any of the cities involved was available; (2) there was no way of measuring the nature and extent of vocational education--its success and positive factors as well as its shortcomings; (3) there was no way of determining the overall vocational education needs of youth and adults in the urban areas, especially those disadvantaged persons, be they black, brown, or white, who without adequate occupational preparation have little or no possibility of success.

Tentative Outline for the Development of a Master Plan for Vocational Education

In order to coordinate the thinking of the Committee, it was necessary to develop a list of the elements of a master plan for vocational education. The following tentative set of ten guidelines was approved by the Committee as a nucleus for a master plan around which each local area would develop its own plan:

First: A statement of philosophy of the school district--point of view--objectives which I used as the opening for this presentation

Second: A description and analysis of student needs, interests, and abilities, as well as numbers and distribution of all students including the disadvantaged, dropouts, potentially unemployable, etc.

Third: Description and analysis of community needs, opportunities, and interests including a projection for the future

Fourth: Description of the educational and guidance programs presently serving the community, including private as well as public

Fifth: Identification of educational programs and guidance services which are needed but which are not presently provided, including needs projected for the future created by growth, technological change, etc.

Sixth: Identification of additional data needed including:
- Research
- Curriculum development needs
- Development of guidance services for placement and follow-up
- Teacher recruitment and education

Seventh: Organizational changes needed

Eighth: Plans for community involvement and for public information services

Ninth: Determination of probable costs and plans for financing (including federal, state, and local sources of revenue)

Tenth: Plans for continuing program evaluation and provision for change as needs are identified

Local Procedure

Realizing that no single plan would work for all urban centers, each center also organized a three-committee structure for local planning involving: (1) leaders of the various divisions and disciplines within the district, as well as lay persons from the community; (2) vocational supervisors and administrators, and (3) a representative task force to gather and evaluate statistics. This task force was made up of supervisory school personnel released from other duties to devote full time to this important task.

Each city appointed one person, who is also a member of the five urban centers committee, to act as chairman and the contact person for the local district. He also acted as leader for the local task force.

As a basis for research by the local task force, the gathering of the following data was suggested. (These data are divided into five categories. Category III, The Current Status of Vocational Education, becomes rather long and involved, but I'll try to be as explicit as possible).

Category I: Profile of Each Center

A. The population in each
B. Ethnic distribution in each
C. Labor statistics in each
D. Profile of education in each
E. Student population
F. Number of persons reaching employable age annually
G. Distribution of potential workers by age, sex, and ethnic count

Category II: Technology and Manpower Needs

A. Areas of high employment
B. Areas of over supply of persons seeking employment
C. Employment needs
D. Shortage occupations

Category III: The Current Status of Vocational Education

A. The Programs Offered
   1. Diversity of vocational offerings
   2. Distribution in terms of pre-employment and upgrading in high school, junior college, adult and special programs
   3. Distribution of vocational centers in relation to areas of unmet needs
   4. Percentage of employment represented by the vocational programs for each region

5. Establishment of the need for present programs and their continuation
6. The status of apprenticeship
7. Length of training versus entry job needs
8. Admission requirements--are they realistic or discriminatory
9. Local effort in terms of supervision and coordination, secretarial, library, maintenance, parking, counseling, cooperative training, placement and follow up of graduates and dropouts
10. Attitude of other disciplines toward expanded vocational education

B. The Students Served
1. Distribution of vocational students in the eight occupation categories: office occupation, technical, trade, etc.
2. Percentage of vocational students in relation to the total student population
3. Total student hours of vocational enrollment by categories
4. Offerings for women exclusive of office, distribution, and health
5. Offerings for the disadvantaged
6. Dropouts
7. Graduates

C. The Facilities and Personnel
1. Utilization of present facilities
2. Cooperative use of facilities
3. Use of off-campus facilities
4. Number and types of schools in each city
5. Number of "competing" private schools
6. Inservice training for teachers
7. Selection of teachers and recognition of occupational training on salary schedules
8. Acceptance of vocational instructors by academic members of the faculty
9. Problems of recruiting instructors on the high school level
10. Adequacy of present staff--i.e., instructors, aides, advisors, counselors, coordinators and/or supervisors
11. Cost of public school training versus private schcol in MDTA and NAB-type programs
12. Financial accounting of vocational education
13. Vocational education student accounting and reporting

Category IV: Vocational Education and the Community

A. Attitude of community groups toward occupational

education, labor, management, minority groups, state employment service, etc.

B. Effect of recent school offerings on the War on Poverty
C. Community participation through advisory committees
D. Length of time required between recognition of a training need and the start of a program
E. Indications that the school district is accepting responsibility for educating persons not eligible for MDTA or other federally-aided programs

Category V. Vocational Education Trends and the Future

A. Trends in labor needs
B. Number of new types of offerings added in past five years
C. New areas of training needed to adequately take care of emerging occupations
D. Anticipated new fields to take care of indicated needs
E. Additional enrollment to be generated based on indicated needs
F. Additional facilities needed
G. Transportation
H. Programs offered in other urban centers that should be considered
I. Programs which should be phased out due to their obsolescence

One of the items listed in the tentative outline for a Master Plan was: "organizational changes needed".

Recently, state legislation made it mandatory to separate the community colleges from the K through 12 school districts and to establish the junior college under the control of its own board of education within each school district.

The reorganization started on the state level with the establishment of a Board of Governors for California Community Colleges of which there are over 90 in the State. All Vocational Education on the Junior College level was transferred to the Bureau of Community College Vocational Technical Education. All other vocational education remained with the State Department of Education, Division of Vocational Education, which has undergone considerable reorganization.

California has recently abandoned the project method of reimbursement and has developed a new method of distributing funds under Part B of the Vocational Education Act. They have worked out a system of entitlement based on a rather complicated formula which you will find on Page 67 of the California Plan available with other material I brought.

Each of the urban centers has also made drastic reorganizational changes. In each center the community college has been separated from secondary education and now functions as a separate entity, in some cases under its own board, but in all cases as a separate function from K through 12. It has been left up to the local district to determine what happens to adult vocational education. This has resulted in some rather interesting developments:

-- LOS ANGELES has tied all adult and secondary education together and organized the vocational education program under the direction of a director of occupational education. Vocational education on the junior college level is under the direction of a coordinator of occupational education.

-- LONG BEACH has a separate community college but has divided the adult vocational programs on the basis of where the classes are offered, either at the community college or high school campuses. All vocational programs are under the director of occupational preparation who, in effect, receives his salary from two sources, high school and community college.

-- SAN DIEGO has made adult education a part of the community colleges. A director of vocational education is administratively responsible for all post high vocational education and is also cooperatively responsible for the high school program.

-- OAKLAND has combined adult with secondary education under the title of Oakland Public Schools with a coordinator of vocational education responsible. Peralta Junior College District in Oakland functions separately from K through 12 and adult. So far each college is responsible for its own vocational program.

-- SAN FRANCISCO, last but far from least, has combined adult education with the community college district, but so far runs vocational education as a separate entity under the direction of an assistant superintendent of adult and occupational education. The secondary vocational program is under a director of occupational preparation.

I would like to make two comments. First, this restructuring is in its infancy and will be subject to many changes. Second, the use of the term "occupational" in the administrative titles is an attempt to raise the image of vocational education.

The committees in their research activities uncovered some rather interesting and disturbing facts, for instance:

The total population of San Francisco has only increased 2 percent since 1960, but the Chinese population has jumped from 36,000 to 62,000. The total non-white population has increased 36 percent up to 201,000 or approximately 28 percent of San Francisco's total population. In addition, the percentage of persons with Spanish surnames has increased 29 percent. For the first time the Chinese

are becoming a serious civic problem in San Francisco.

The racial characteristics of Oakland are also undergoing a drastic change. In the six years prior to 1966, 36,000 whites moved out of the central city and 33,500 non-whites moved in. This movement has even accelerated since then.

Unemployment

The percentage of unemployed untrained youth in the five centers is deplorable! The latest figures available showed: Long Beach, 30 percent; Oakland, 41 percent; Los Angeles, 30 percent; San Francisco, 35 percent, and San Diego, 15.5 percent.

School Enrollment

Statistics showed that the program of vocational education in the five urban centers is much less than it should be compared with employment figures for the same areas. The five urban centers employ 31 percent of the California labor force, while only 16 percent of those enrolled in vocational education in the state are enrolled in courses in the five urban centers.

Also statistics show that less than 18 percent of the school youth of California are involved in vocational education. This figure is much too low. Because of its practical nature in a job-oriented society, especially in the urban centers, this figure should reflect an involvement of closer to 60 or 70 percent of the total secondary and community college student population.

Statis[illegible]ealed the enormous investment involved in school plan[illegible] continuing need for mo[illegible] and better facilities, and better use o[illegible]acilities to serve the growing population.

While I have been using the five California Urban Centers as illustrations or examples, I am sure that each of you, in your mind's eye, have been relating the procedures and problems to your own situation.

The rest of the presentation will focus on some of the apparent trends in vocational education, some of the innovative programs, and some observations and recommendations made by the Committee. Because of its importance and because I have just mentioned facilities, I am going to reverse the order and make some recommendations first.

Strong consideration should be given to innovative ways of coping with this never-ending cry for more facilities. A greater use of off-campus locations in industry and business establishments is to be encouraged. Not only will this relieve the districts of much capital expense, but it is in these establishments that realistic industry-business oriented training on modern equipment can take place. Closer coordination between all levels of vocational education should take place in all of the districts for the joint use of facilities. A

contractural agreement between schools and districts, for the mutual use of facilities, could be prepared outlining a detailed schedule of usage. Future facilities developed by the districts should avoid the connotation of preparing trainees in narrow, dead-end curriculums, but instead should be designed as area vocational centers which would serve several comprehensive high schools as well as serve as an adult occupational center, either concurrently with the high school program or in the evening. The facilities should be designed around multi-service shops and labs to serve not only high school but also adult and junior college recipients on a six-days-a-week, twelve-months-a-year schedule. As an integral part of any facilities program, the transportation of students to and from the site is an obligation that should be undertaken. Transportation is high on the list of items that will improve the educational opportunities of those considered to be disadvantaged.

Follow-up of Vocational Education Students

Placing students on the job after completion of training and the follow up of students, be they completion or dropout, is most important and yet it is one of the weakest phases of the total vocational educational program. Some of the problems encountered when attempting to establish meaningful statistics for students who have terminated, include the fact that there is a definite need for a better way of determining what happens to dropouts once they leave school. The attrition rate between initial enrollment and graduation from vocational programs needs to be studied.

The job placement program must be seen as a continuous process. Many students, particularly in the inner city, will need post school assistance if they are to adjust successfully to the world of work.

I was privileged to attend the Cleveland Conference on Vocational Education held in July 1968, at which time placement and follow up was considered by some fifty leaders of vocational education in the great cities of the United States. Their findings and recommendations were so important that I included them in detail in the Urban Centers Report.

Vocational Education, Future Trends for the Urban Centers

When vocational education is considered in relation to (1) the changing economy, (2) the urban problems of unemployment and underemployment brought about by lack of skills, (3) the increasing need for special preparation for entrance into the labor market, (4) the war on poverty, and (5) the numbers of youth who are graduating from school or who are returning from the armed services in anticipation of entrance into the labor market, the urban centers must realize that vocational education must increase in scope. It must provide more and diverse programs, meet the needs of more of the population, and raise the ability of its recipients to a meaningful level in our mechanized, automated society.

Vocational leaders must look to the future if they expect to be

able to assert leadership in developing new and revitalized programs of vocational education. They must be backed by educational administration, otherwise the structure of public vocational education will be continually weakened by urgings of such organizations as the Department of Labor and the National Alliance of Businessmen who assert that private schools and private industry should be used whenever possible and that the public schools have proved that they have a limited function.

The program of vocational education has, by passage of the Vocational Education Act of 1963, expanded to include more emphasis on the secondary schools. Under the Vocational Education Act of 1968, this trend is continuing with this expanded program being supplemented by adequate career counseling and work experience. Preparation for the secondary program needs to be accomplished in the late elementary and junior high schools in the form of career experiences, field trips, and information. The program offered in the community colleges will become more technical and degree oriented, with more emphasis on the traditional trade program on the secondary and adult levels. The adult division will provide intensive short unit of pre-employment training for immediate job placement and upgrading courses for employed workers.

Trends indicate that the curriculum in the future will include modular scheduling of students to allow for programming in patterns other than the usual two to three hours a day, five days a week. A vocational student would be able to attend an occupational center a full day for one, two, or three days a week. Scheduling would be accomplished on an individual student computer programming basis. The curriculum will include the development of business-industry cooperative programs at the high school level, and "student intern" programs at the junior college level in order to provide a relevant program of occupational preparation. Flexible scheduling, incorporating transportation to the occupational center or the business or industry site from the resident school, will be provide[illegible]ulum and curriculum guides will be developed around the sp[illegible]dder approach utilizing a cluster of occupations and thus providing every student the chance to go as far as he can, and then become skillfully employed at his maximum capability.

These are some of the trends for a revitalized program of occupational education in the Urban Centers and the indications of the direction of the future. In the effort to find new and innovative ideas and programs, let us not forget that we are operating and have operated an enviable program of vocational education, and that we have not met our potential level of accomplishment in our old standby programs.

One of the rewards of the Urban Centers assignment was the privilege of visiting schools and programs, not only in the five California centers but in large urban areas throughout the country. Since this subject is covered in detail in the Urban Centers Report, I will mention only a few of the unique projects.

LONG BEACH: Long Beach is placing heavy emphasis on counseling in the lower grades as a means of assisting students to make a vocational choice. A plan has been devised which is heavily advice-oriented and aimed at students in grades below the high school level. The director of occupational preparation, working closely with business and industry, has organized work experience programs for occupational counselors and advisors. One-third of the total counseling staff is participating in the program each summer.

Long Beach has also developed occupational cluster charts showing the various types of entry jobs which are available upon completion of certain segments of the occupational cluster, and the level of training required for each job. Training is correlated between the high schools and the community college.

LOS ANGELES: Los Angeles is undoubtedly one of the foremost districts in the nation regarding the total field of vocational education and specifically innovative and exemplary programs. An example of this is the high school occupational skills program. This program provides special and intensive training in specific job entry level skills in a wide variety of occupations with the objective of immediate employment at the completion of the course. Classes meet at times which do not conflict with the usual school hours, such as Saturdays from 9:00 a.m. until 3:30 p.m. and weekdays between 4:00 and 7:00 p.m. Programs in more than thirty occupational areas are offered.

Two regional occupational centers, West Valley and Central City, regularly serve the educational needs of large numbers of adult students. In addition, selected 16 and 17-year-old students are referred to the centers for occupational training and an opportunity to complete high school graduation requirements.

The division of adult and vocational education offers an extensive program of basic and vocational education in the target areas. Fourteen of the twenty-eight adult schools, one of the two regional occupational centers, and all four skills centers are located in disadvantaged areas. In addition, the other adult schools and regional occupational centers serve many students who are culturally and economically disadvantaged.

OAKLAND: With the emphasis being placed on occupational preparation, the high schools in Oakland are becoming area vocational centers. According to the director of vocational education, a five hundred percent increase in enrollment for occupational training for the next school year will result from the decision of the board of education to furnish free transportation to and from each of the three schools involved in the regional centers training area.

The ladder skills program on the community college level is designed to train students for job entry and job advancement positions in the medical and legal clerical employment areas. Training could be continuous. A student who reaches the qualifications for a medical or legal clerk-typist and obtains employment can return to the

day program for advanced training.

SAN DIEGO: The use of industry, business, and public service facilities as extra classrooms and labs have been developed to a high degree by the San Diego Community Colleges with more than two thousand students attending classes in such "off-campus" locations. In every instance where this cooperative agreement exists, the board of education officially declares the location to be an extension of the campus.

The use of the junior college shop and lab facilities by high schools, as a vocational area center for high school students who are preparing for immediate employment in a skilled occupation upon graduation, has been working successfully for many years with a static enrollment of three hundred. It is anticipated that this number will double or triple now that transportation from the school of residence to the vocational center is provided by the school district. In the past, students have been required to pay their own transportation from their school of residence to the center. Since this costs the student as much as sixty cents per day, it has prevented many deserving and interested students from taking advantage of the training.

SAN FRANCISCO: Project Feast (Foods, Education, and Service Technology), a good example of the ladder approach, is starting to receive national recognition. San Francisco City College has had one of the most outstanding hotel and restaurant programs on the junior college level. Project Feast moves the food preparation and service down into the high school, with preparation for a job attained after the first semester, at the same time making it possible and desirable for the more capable students to continue through junior college and even through a four-year program.

The programs at John O'Connell Technical Institute are an excellent example of multi-use of facilities and staff. The facilities house daytime vocational high school, adult day school, adult evening school, and apprenticeship students, and serves as an occupational center for several high schools. Vocational students attend their high school of residence for general education subjects and use the shops and labs at O'Connell for vocational training.

MINNESOTA: Minneapolis plans to make all high schools comprehensive either through inclusion of occupational programs "on campus" or in occupational centers serving other high schools.

Another interesting project is the development on the state level of a procedure for evaluating vocational schools, administration, teachers, and programs. The evaluation involves a team of staff, administration, and two persons from industry. The evaluation questionnaire is based on a scale of five and is completed individually by each of the evaluators. It covers everything from administration to placement and follow up. Since evaluation is an integral part of any vocational program, this instrument would appear to be a valuable guide.

DETROIT: A recent innovation in Detroit is a new program sponsored jointly by the United Auto Workers Union and the Detroit Public Schools, which takes advantage of the highly developed skills of retired craftsmen by using them as teacher aides in large shop classes. Each United Auto Worker retiree working with the students is under the supervision of a regular vocational instructor. He is hired for approximately eight hours a week.

WASHINGTON, D.C.: Washington Technical Institute is a federal school organized under a federal act for higher education for the District of Columbia. The federal government appropriated $18,000,000 for its construction. (This was approximately the same amount as all federal vocational reimbursement for the state of California last year.) Several innovations are worthy of consideration:

- No certification for instructors is necessary.
- The counseling staff has a ratio of one to thirty students or approximately the same number of counselors as instructors.
- There is less stress on entrance requirements.
- More stress is placed on individual student objectives.
- The program is lengthened if remedial or pre-college work is necessary.
- The period of training is shortened when the student has reached his occupational objective.
- More stress is placed on occupational advisements.
- There is more involvement with industry and the community in an organized program of cooperative education.

Over 90 percent of the students are black.

PHILADELPHIA: Philadelphia is presently divided into eight semi-autonomous high school districts with several high schools in each district. There are three vocational centers developed and functioning. Their immediate plans are to build five more, one in each of the high school districts. Each of these centers will become the vocational division for a group of high schools as well as an adult vocational school. These centers will be part of the local school district. Each student's schedule will be individually programmed by computer. They will attend their residence school two or three days a week and the vocational center for the balance of the five days. When they are ready to go to work on the cooperative program, they will attend the residence school three days a week, the vocational center one day, and work under a cooperative program one full day per week. This system is being considered in several of the schools since it reduces the problem of transportation considerably. The employer can also depend upon a boy or girl for a full day's work.

An innovative way of providing career exploration for younger students is to develop a career center in connection with each vocational center. Junior high (middle school) students, through the counselor, are scheduled and assigned to an advanced student on a one-to-one basis for a full day. During this day they follow and observe the types of skills and jobs encountered in a given occupation. The student-to-student communication is proving far superior to short class field trips. The young students are rotated through several occupations.

The vocational centers are open daytime, evening, and on Saturdays, twelve months a year.

NEW YORK: In New York, nine high schools are following a correlated program or team-teaching approach, which is designed to take care of the high school student who has not decided upon a college program and has not made an occupational choice. The main features of the program are:

1. Exploration courses in the areas of business, health, and industry in the ninth and tenth years;

2. Specialization in one broad occupational area in grades eleven and twelve;

3. Preparation of those students who "find themselves" and who wish to continue their education beyond high school for a career program during the thirteenth and fourteenth years, in a community college or in an urban center;

4. New curriculum materials in each occupation is written by a team of teacher experts with the aid of consultants and advisory committees from industry. (Projects carried out in one classroom are "correlated" or reinforced in other classrooms or labs);

5. An emphasis is placed on the improvement of basic skills. (The English teacher cooperates with teachers in other subject areas in helping the student improve in his ability to read and write);

6. Teacher time is provided so that English, mathematics, science, and shop or laboratory teachers can meet daily as a team to plan their work cooperatively. (A block-of-time arrangement keeps teachers and students together for selected subjects).

This program is a modification of the Richmond Plan from California.

Summary and Recommendations

The study of vocational education in the five large cities of California and its relationship to manpower, employment, and poverty placed an emphasis upon fact finding as the major thrust of Phase 1

of the total study.

One of the highlights of the study was the opportunity for the vocational education and academic leaders in the large cities to become better acquainted with each other and to discuss common problems. During the year, the group had many opportunities to share their knowledge about these problems and to reach tenable conclusions. Accordingly, the recommendations represent both a consensus and a major step toward concerted action for the future. A recap or partial summary of fifteen of these recommendations includes:

1. A method of determining employment statistics and trends in an area coterminous with school districts should be worked out between each school district and the local office of the department of employment.

2. More accurate employment statistics should be developed for each of the school districts.

3. A greater number of industry-school cooperative programs should be developed in the urban centers to offset the astronomical cost of modern equipment and facilities.

4. Transportation should be provided for occupational students from resident school to area technical school or from resident school to a cooperative industry site.

5. A standard method of accounting for vocational education enrollments and the follow-up of students should be developed.

6. The state and federal accounting forms should be clarified and revised, and state-sponsored clinics or workshops should be offered to all those who will be working with these forms in an effort to provide uniformity between districts with regard to vocational education statistics.

7. A department of inter-districts coordination of vocational education should be organized in each of the cities that have both a unified and a junior college district.

8. Each district should develop procedures whereby a vocational education program (course) could be initiated within a short period of time after receiving a request from an agency or industry.

9. Each district should develop articulation procedures whereby credit can be given to the student for beginning courses taken in either the secondary, junior college, or adult divisions without requiring the student to retake them.

10. Each district should organize a central clearinghouse for ideas, information, and statistics.

11. Selected part-time designated subjects credentialed

instructors should be allowed to teach in the secondary occupational education program.

12. The state department of education and the school districts should entitle the program "Occupational Education" as one means of image improvement.

13. Emphasis should be placed on follow up of all pre-employment enrollees.

14. The use of selected retired craftsmen as teaching assistants should be encouraged.

15. More use of teacher aides of varying ethnic backgrounds should be adopted especially in large classes where a great deal of paper work is involved. This is an excellent opportunity to add black or brown employees to the teaching staff.

Conclusion

The Urban Centers Report, which you will receive, is not a copy of a five-year plan but the basis for developing a short and long term plan of vocational education in each of the urban centers. I have brought with me samples of plans from some of the centers which will be available for you to study if you wish. I have also included a copy of the California Plan for Vocational Education.

My present plans are to stay in this beautiful city for the next few days and I will welcome the opportunity to discuss any phase of this project with you.

One last thought - I've stressed ladder approach, spin-off, cluster scheduling and transportation to help take care of individual differences and individual needs. Perhaps a very old fable by Dr. Reavis might illustrate my concern:

"Once upon a time, the animals decided they must do something heroic to meet the problems of a 'new world'. So they organized a school.

They adopted an activity curriculum consisting of running, climbing, swimming and flying. To make it easier to administer the curriculum, all the animals took all the subjects.

The duck was excellent in swimming, in fact, better than his instructor, but he made only passing grades in flying and was poor in running. Since he was slow in running, he had to stay after school and also drop swimming in order to practice running. This was kept up until his web feet were badly worn and he was only average in swimming. But average was acceptable in school, so nobody worried about that except the duck.

The rabbit started at the top of the class in running, but had a nervous breakdown because of so much make-up work in swimming.

The squirrel was excellent in climbing until he developed frustration in the flying class where his teacher made him start from the ground up instead of from the treetop down. He also developed 'charlie horses' from overexertion and then got 'C' in climbing and 'D' in running.

The eagle was a problem child and was disciplined severely. In the climbing class he beat all the others to the top of the tree, but insisted on using his own way to get there.

At the end of the year, an abnormal eel that could swim exceedingly well and also run, climb, and fly a little had the highest average and was valedictorian.

The prairie dogs stayed out of school and fought the tax levy because the administration would not add digging and burrowing to the curriculum. They apprenticed their child to a badger and later joined the groundhogs and gophers to start a successful private school.

Does this fable have a moral?"

SOURCES AND UTILIZATION OF DEMOGRAPHIC DATA FOR IDENTIFICATION OF TARGET POPULATIONS FOR VOCATIONAL EDUCATION

by

Forrest H. Pollard*

Purpose of Presentation

My objective in making this presentation is twofold; first, to cite various demographic data sources that can be used to identify the target populations of vocational education, and second, to briefly discuss the utilization of the respective data sources in identifying specific target populations.

Delimitation of Presentation

This presentation shall be limited primarily to a discussion of existing secondary data sources, with emphasis on the 1970 Census of Population, and of the use of surveys, where needed, to supplement or take the place of secondary data in preparing annual estimates of target populations.

However, reference shall also be made to the use of demographic projections in long-range vocational educational planning.

The demographic data sources will be discussed as to both subject content and geographic area of availability (for example, state, county, metropolitan and other urban areas, rural areas, townships, and enumeration districts).

In the effort to identify the several target populations, each data source will be discussed in terms of one or more of the following characteristics; color or race, sex, age, educational attainment, labor force status (employment and unemployment), occupation and industry of employment, health and/or physical handicaps, and income level.

This presentation is not intended to be a listing of all available data sources for use in identifying the various target populations, nor are the sources suggested for use in identifying the several groups necessarily the best. However, the author has cited what he assumes to be the best from those data sources of which he has knowledge.

Target Populations

The vocational education target populations are enumerated in

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Public Law 90-576.[1] These target populations are as follows:

1. those persons representing all ages and geographic areas and who desire and need training;

2. those students presently enrolled in high school;

3. those persons who have either been graduated from high school or have dropped out of the program;

4. those persons presently in the labor force and who are in need of training or retraining (adult education);

5. those persons who have academic, socioeconomic, or other types of disadvantages and who need special training; and

6. those persons who have either physical or mental handicaps or both.

Identifying the Target Populations

Those students enrolled in high school. To adequately identify high school students of a particular area for vocational-education purposes, it would seem that one would need to know, in addition to total enrollment, the following characteristics of those students enrolled; age, color or race, sex, and grade attainment.

The 1970 decennial census of population contains enrollment totals by level and type of school and by age-groups. Level of school is defined as nursery school, kindergarten, elementary, high school, or college and type of school refers to ownership (public or private).

High school enrollment is reported as a single number, representing four years or grades 9 - 12. This enrollment total is reported by color (white or nonwhite), but not by age, sex, or grade attainment. The data are available for census tracts, urban places of 10,000 or more population, for counties, and for states. The state totals are further subdivided into state totals for the urban, rural nonfarm and rural farm population sectors.

School enrollment data is reported by age groups for the population ages 3 through 34. The age groups reported are 3 and 4, 5 and 6 years old, 7 to 13, 14 and 15, 16 and 17, 18 and 19, 20 and 21, 22 to 24, and 25 to 34. These data are not cross-classified by level of school, color or race, sex, and grade attainment. The data are available for census tracts, urban places of 10,000 or more population, for counties, and for states. The state totals are shown separately for urban, rural nonfarm, and rural farm population sectors.

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[1]U.S. Congress, Vocational Education Amendments of 1968, Public Law 90-576, 90th Congress, 1968, p. 9.

Another source of secondary data and one that I am certain that you have used is the annual enrollment reports of the state departments of education. In these reports enrollment is usually reported at the county level, by grade and sex and in some instances by color. It is assumed that you could secure from this same source unpublished data at the school district level and for individual schools within the district. A possible weakness of this data source is that enrollment statistics for your state may be gathered for the public school sector only and, therefore, to have a complete count you would have to collect the data from the private school sector.

It would seem that the enrollment data gathered by the state departments of education provide a more suitable base from which to derive this target population than that taken during the decennial census, even after taking into account the previously described possible weakness of the data source.

The fact that the education department enrollment statistics: 1) are classified by grade, sex, and in some instances by color; 2) are available annually as contrasted decennially; and 3) can be secured for the individual school, are the reasons this data is considered superior to the census data.

Furthermore, because the education department data is published annually and includes grades 1 through 12, it provides an excellent base for making annual eight-year projections of this target population.

Those persons who have either been graduated from high school or have dropped out of the program. To determine the number of vocational education students that could be expected from an annual group of high school graduates, it seems that the following information would be required; total number of potential post-secondary vocational education student enrollees, classified by sex, place of residence, curriculum preference, and identity of school preference by geographic area.

This type of date is not collected by the Bureau of the Census, either through its censuses or its surveys.

However, it is my understanding that surveys providing this information as part of a more inclusive data gathering function are being conducted by various educational units, one being the Indiana Vocational Technical College.

An annual survey would be the only method of securing this information unless a state department of education could secure the cooperation of its high schools and thus collect the data as a part of its annual statistical program.

To effectively identify and render an educational service to school dropouts would require information that would provide us with annual data on the total number of dropouts, classified by sex, age, color, place of residence, school grade completed and employment status.

The population census will show for those persons 16 - 21 years

old, the number of high school and non-high school graduates and the employment status of each of these groups. This data will be classified by color and sex, Summaries will be available for the following geographic areas: census tracts, minor civil divisions, places, SMSA's, counties, and states. The state data will be cross-tabulated by urban, rural nonfarm, and rural farm residence. Specifically, the information will be reported as follows:

Not enrolled in school and not high school graduate
Employed or in Armed Forces
Unemployed and not in Armed Forces

Not enrolled - high school graduate
Employed or in Armed Forces
Unemployed and not in Armed Forces

This data source provides an outstanding measure of the number, characteristics, and employment status of dropouts for the more significant geographic areas.

However, there is a major problem connected with the utilization of this information. Since it is published only at ten-year intervals, there is a need to be able to update the data if one is to effectively utilize it for the entirety of the time interval. If dropout statistics, by county, are available annually or could be made available by the state departments of education, it is my opinion that this data could be updated during the intercensal interval.

Those persons who are presently in the labor force and who are in need of training or retraining (adult education). This target population is comprised primarily of those persons in the labor force (16 - 64 years old) who are either unemployed, underemployed, or underutilized. To adequately identify the persons comprising these three labor force categories, a cross-classification of each group by age, sex, color, year of school completed, and occupation is needed.

The Census Bureau does not, nor to my knowledge does any organization, gather this information nationally, by county, for all of the groups (the unemployed, the underemployed, and the underutilized).

It is my opinion that the cost of gathering this data through a random household sample survey to serve this one objective is prohibitive. However, it may be that a state organization within your state is collecting this data. In Arkansas, the Arkansas Employment Security Division through its Smaller Communities Program has collected this data for certain of the State's counties as a part of its county manpower resources report series.

Because the data is not available in the statistical format required for identifying this target population, possibly the opinion of a committee consisting of persons knowledgeable concerning employment, occupation, industry structure, educational attainment, and income levels could be utilized to estimate the vocational education needs of this group in a particular area.

Those persons who have academic, socioeconomic, or other types of disadvantages and need special training. Information reflecting the years of school completed by persons 25 years old and over, cross-classified by sex and color is shown in the 1960 Census. These data are available for census tracts, minor civil divisions, places, SMSA's counties, and states. The state data will be cross-tabulated by urban, rural nonfarm, and rural farm residence. Since this information was also reported in 1960, changes over the ten-year period in educational attainment by grade level and for a specific area can be computed. These data should provide a good measure of those with academic disadvantages.

An excellent socioeconomic measure of the well-being of the population is the income of families and unrelated individuals by income size, class, and color as shown in the census. Income data is available for the same areas as that stated for data reflecting year of school completed.

Those persons who have either physical or mental handicaps or both. The 1970 Census will contain a question on the presence and duration of disability. Questions of this nature have not been included in a census during the 20th Century. The question will refer to the disability and employment status of persons 16 to 64 years old not inmates and not attending school, by sex and color. This disability data will also be available for census tracts, minor civil divisions, places, SMSA's counties, and states. This information will provide a factual basis on which to ascertain the need for vocational education programs for the disabled. The disability data will be reported in the following tabular form:

Not disabled or handicapped
- In labor force
- Not in labor force

Disabled or handicapped
- Employed
- Unemployed
- Not in labor force:
  - Able to work
  - Unable to work:
    - Disabled less than 6 months
    - Disabled more than 6 months

An additional source of vocational training information that could be of considerable value in locating facilities and determining the need for various programs is a question on vocational training included in the census for the first time in 1970. The information will be collected by sex and color and for the geographic areas enumerated in the preceding paragraph. The question is divided into two parts; 1) has this person ever completed a vocational training program and 2) if so, what was his main field of training?

Utilization of Target Population Data

Emphasis on this presentation has been placed on the utilization of

secondary source statistical data in identifying vocational education target populations. Thus the identification approach has been an aggregative or numerical analysis as contrasted to an in-depth analysis of individual behavior, even though there has been an effort to identify the major relevant demographic and socioeconomic characteristics of each of these target groups.

For the majority of the data sources described, the smallest geographic unit for which the data are available is the census tract (an area averaging approximately 4,000 inhabitants).

Therefore, the information resulting from an analysis of this nature should be used in a determination of the need for vocational education facilities and general or broad areas of program need, but obviously the data are not suitable for use in specific curriculum programming.

Conclusion

Little attention has been given during this presentation to possible methods of either updating or supplementing the decennial census data in order to utilize this data source effectively throughout the inter-censal interval. It is my belief that various of these data sources are subject to updating and that if you do not have the required expertise within your organization, that this know-how is available to you within the public sector of your state.

PROGRAM EVALUATION AND BUDGETING

by

Charles O. Hopkins*

Program evaluation appears to be an area in vocational and technical education in which everyone is grasping for a ready-made system for accomplishment. Program evaluation is not that simple. There are many aspects to evaluation; however, if one is to measure something, there must be a yardstick or standard by which to measure it. Many persons are trying to evaluate programs of vocational and technical education without the slightest idea as to what the current programs are accomplishing or what the actual costs are of the programs being offered.

Every program in vocational and technical education should be based primarily on two needs--these are individual needs and manpower needs. The combination of these make up societal needs. Manpower information can be obtained from occupational surveys. Individual needs can be determined by knowing something about the characteristics of the individuals to be served by vocational and technical education.

The theory that an optimum condition must be reached to allocate the scarce resource--money--is something that will take years to accomplish in vocational education, if it can ever be accomplished. The term "cost-benefit" is being written about and tossed around in vocational education today, as if it is something that educators can reach up and pluck out of the air. A review of literature reveals that some leading economists admit that producers of goods are operating at something less than an optimum condition. These economists propose that stockholders are willing to take an amount somewhat above the cost in order to gain their share of the market. Producers must know the market and give the quality of product the consumer wishes to purchase, at the price they are willing to pay.

The same principle can be applied in vocational education. There is a certain quality of product produced by vocational education that business, industry, and government services wish to acquire. It costs a specific amount to produce the product to the specifications required. Not all the trainees can reach the same level of performance at the end of a given time period. If the current conditions relating to an occupational offering can be considered as the current objectives, a cost can then be associated with the accomplishments of that vocational training program. If the objectives are raised or lowered, it should reflect a change in the cost associated with those changes. The

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current level of objectives being achieved by a single program, by a school, by the state, or by all the states reflect the budget to accomplish the objectives. Neither the objectives nor the budget are fixed items. As one changes, the other usually changes with it.

If the objectives of schools warrant change, the administration should evaluate the total vocational program by looking at the achievements and costs of each individual program. The local financial effort to support new programs usually is the obstacle that prevents more vocational courses from being offered. If new occupational courses are needed by business, industry, or government services and the student body shows a need and an interest in new vocational offerings, then the administration is obligated to make the best use of the funds available to meet the need.

The status of every program will change from year to year because there is little control over the inputs; i.e., the student characteristics will change, the economy will change, there may be a change of instructors, etc. This means that evaluation has to be a continuous process. As a school system changes its objectives, in order to place a greater number of students and/or to reach a greater number with special problems, the budget will likely have to be adjusted to reflect this change in objectives. The level of change made is directly affected by dollars that decision makers or society are willing to contribute to this change.

An attempt will be made to explain how to evaluate a program of vocational and technical education, tie this into a total school system of vocational and technical education then into a state system of vocational and technical education.

The carpentry program existing in the school had 30 students enrolled in the training program. The length of the training program was two years. At the end of the second year of training it was found that 80 percent of the students completing the program had a marketable skill. Figure 1 gives an example of how this program compares to the state average.

OCCUPATIONAL AREA - CARPENTRY

	School	State
% Disadvantaged	31	28
% Non-Completers	22	25
% Employed in or Related	25	28
% Employed Other	37	18
% Available - Seeking Employment	0	1
% Continuing Education	12	36
% Armed Forces	25	9
% Not in Labor Force	0	0
% Unknown	1	8

Figure 1: Comparison of a carpentry program of a school to the state averages.

Many conclusions may be drawn from a comparison such as this. Decision makers can use this kind of material to determine strong or weak areas within an occupational program. This gives a description of a typical training area in vocational education. It is necessary for the program to be analyzed to determine the actual existing objectives. These objectives must be acceptable or the situation would be changed to meet the expectations of the teacher or the administration. Whatever the objectives are found to be, a cost is associated with the occupational offerings.

The following is a procedure to show how an annual per-student cost may be associated with an occupational offering:

BUDGET PROCEDURE FOR CARPENTRY COURSE

Expense Areas		Dollars
A.	Salary of Instructor	8 050.00
B.	Ancillary Cost	
1.	Salary of Administration and Counseling	1,232.00
2.	Depreciation of Equipment	269.00
3.	Depreciation of Facilities	933.00
4.	Insurance of Equipment	35.00
5.	Insurance of Facilities	84.00
6.	Operation and Maintenance of Plant	1,240.00
C.	TOTAL ANNUAL COSTS	$11,843.00
D.	TOTAL ANNUAL COST PER STUDENT	394.77

The procedures used to derive these costs are presented in Tables 1 through 8, pages 212-219.

The budget reflects that it costs $394.77 per student annually for an enrollment of 30 students. Figure 1 showed that 25 percent of the graduates were employed in the area for which they were trained or in a related area. Information acquired from the school system indicates that 15 students completed the program. This means that approximately 4 students were employed in the area for which they were trained or in a related field. The annual placement cost of these 4 students in the school was $2,960.75. By considering those students employed in non-related jobs, there was a total of 10 students placed in related and non-related employment. This constitutes an annual placement cost of $1,184.30 to the carpentry program. Many more cost analyses can be made from the data presented, but this should provide a basis for a better understanding of the importance of program evaluation and budgeting.

The secondary student body is composed of 1,462 students. Examination of student characteristic information of the schools shows approximately 40 percent of its student body coming from economically

deprived homes, 20 percent from minority groups, 30 percent are educationally disadvantaged, and 1 percent have some kind of physical handicap.

Auto mechanics, carpentry, commercial arts, cosmetology, drafting, electronics, home economics, industrial cooperative training, cooperative office education, graphic arts, and health service careers make up the 12 vocational programs offered by the school. Approximately 38 percent of the secondary population were enrolled in vocational courses. A comparison of the school's total vocational education program to the state-wide averages is shown in Table 9. The budget procedures and the annual cost related to each of the programs are presented in Tables 1 through 8, pages 212-219.

The aggregation of all the vocational programs in the state composes the state's current vocational achievements. The dollars expended reflect the state's cost in accomplishing the achievements. The same analogy can be made to the national vocational program and budget.

The primary purpose of this paper was to give a practitioner's approach to program evaluation and budgeting, and to introduce some factors that may be considered important to program evaluation and budgeting. The methods used to derive the budget may not exactly fit every situation. Accomplishing effective program evaluation and budgeting necessitates starting at some known point and progressing from there.

TABLE I

SALARIES OF INSTRUCTORS

OCCUPATIONAL AREA	SALARY OF INSTRUCTORS
Agriculture	$10,250.00
Auto Mechanics	9,150.00
Carpentry	8,050.00
Commercial Art	7,950.00
Cosmetology	7,950.00
Drafting	9,250.00
Electronics	9,650.00
Home Economics	8,800.00
Industrial Cooperative Training	9,550.00
Cooperative Office Education	8,500.00
Graphic Arts	9,250.00
Health Service Careers	8,000.00

TABLE II

ANCILLARY COST FOR VOCATIONAL PROGRAMS

PERSONNEL	ANNUAL SALARY (DOLLARS)	PERCENT VOCATIONAL ENROLLMENT	PRORATED SALARY TO VOCATIONAL EDUCATION (DOLLARS)
Administrator	16,000	.38	6,080
Principal	12,000	.38	4,560
Counselor	10,000	.38	3,800
Counselor	10,000	.38	3,800
Business Manager	12,000	.38	4,560
			$22,800

$22,800 - Amount Prorated to Voc. Ed. / 555 - Total Vocational Enrollment = $41.08 Per Vocational Student Enrollment

OCCUPATIONAL AREA	COST STUDENT (DOLLARS)	NUMBER OF STUDENTS ENROLLED	COST/ PROGRAM (DOLLARS)
Agriculture	41.08	60	2,465
Auto Mechanics	41.08	32	1,315
Carpentry	41.08	30	1,232
Commercial Art	41.08	60	2,465
Cosmetology	41.08	40	1,643
Drafting	41.08	60	2,465
Electronics	41.08	50	2,054
Home Economics	41.08	112	4,601
Industrial Coop. Trng.	41.08	40	1,643
Cooperative Office Educ.	41.08	41	1,684
Graphic Arts	41.08	20	822
Health Service Careers	41.08	10	411

TABLE III

ANNUAL DEPRECIATION COST OF EQUIPMENT
(10 Years @ 20 Percent Salvage Value)

OCCUPATIONAL AREA	VALUE OF EQUIPMENT (DOLLARS)	SALVAGE VALUE (DOLLARS)	VALUE MINUS SALVAGE VALUE (DOLLARS)	DEPRECIATION COST (ANNUAL) (DOLLARS)
Agriculture	$ 6,482	1,296	5,186	519
Auto Mechanics	14,037	2,807	11,230	1,123
Carpentry	9,618	1,923	7,695	769
Commercial Art	7,855	1,571	6,284	628
Cosmetology	7,651	1,330	6,321	632
Drafting	8,945	1,789	7,156	716
Electronics	34,000	6,800	27,200	2,720
Home Economics	12,875	2,575	10,300	1,030
ICT	2,480	496	1,984	198
COE	17,678	1,536	16,142	1,614
Graphic Arts	39,475	7,895	31,580	3,158
Health Service Careers	8,260	1,652	6,608	661

$$\text{ANNUAL DEPRECIATION COST} = \frac{\text{Value of Equipment - Salvage Value}}{\text{Life Expectancy of Equipment}}$$

TABLE IV

(30 Years @ No Salvage Value)

OCCUPATIONAL AREA	VALUE OF FACILITIES (DOLLARS)	LIFE EXPECTANCY	ANNUAL DEPRECIATION COST (DOLLARS)
Agriculture	21,320	30	710
Auto Mechanics	73,500	30	2,450
Carpentry	28,000	30	933
Commercial Art	17,654	30	588
Cosmetology	21,350	30	711
Drafting	19,600	30	653
Electronics	16,800	30	560
Home Economics	19,600	30	653
ICT	16,800	30	560
COE	12,600	30	420
Graphic Arts	90,468	30	3,015
Health Service Careers	21,000	30	700

TABLE V

ANNUAL INSURANCE COST OF EQUIPMENT

EQUIPMENT	SALVAGE VALUE	VALUE OF EQUIPMENT + SALVAGE VALUE	OVERALL VALUE	RATE OF INSURANCE	ANNUAL INSURANCE COST
$ 6,482	$1,296	$ 7,778	$3,889	.006	$ 23.33
14,037	2,807	16,844	8,422	.006	50.53
9,618	1,923	11,541	5,770	.006	34.62
7,855	1,571	9,426	4,713	.006	28.28
7,651	1,330	8,981	4,490	.006	26.94
8,945	1,789	10,734	5,367	.006	32.20
34,000	6,800	40,800	20,400	.006	122.40
12,875	2,575	15,450	7,725	.006	46.35
2,480	496	2,976	1,488	.006	8.93
17,678	1,536	19,214	9,607	.006	57.64
39,475	7,895	47,370	23,685	.006	142.11
8,260	1,652	9,912	4,956	.006	29.74

ANNUAL INSURANCE COST = AVERAGE VALUE X .6%

$$\text{AVERAGE VALUE} = \frac{\text{VALUE OF EQUIPMENT + SALVAGE VALUE}}{2}$$

TABLE VI

ANNUAL INSURANCE OF FACILITIES

OCCUPATIONAL AREA	VALUE OF FACILITIES	AVERAGE VALUE OF FACILITIES	INSURANCE RATE	ANNUAL INSURANCE COST
Agriculture	$21,320	$10,660	.006	$63.96
Auto Mechanics	73,500	36,750	.006	22.05
Carpentry	28,000	14,000	.006	84.00
Commercial Art	17,654	8,827	.006	52.96
Cosmetology	21,350	10,675	.006	64.05
Drafting	19,600	9,800	.006	58.80
Electronics	16,800	8,400	.006	50.40
Home Economics	19,600	9,800	.006	58.80
ICT	16,800	8,400	.006	50.40
COE	12,600	6,300	.006	37.80
Graphic Arts	90,468	45,234	.006	271.40
Health Service Career	21,000	10,500	.006	63.00

TABLE VII

ANNUAL OPERATION AND MAINTENANCE OF PLANT

OCCUPATIONAL AREA	SQ. FT. OF FLOOR SPACE	RATE/ SQ. FT.	ANNUAL COST
Agriculture	2,380	.62	$1,476
Auto Mechanics	5,250	.62	3,255
Carpentry	2,000	.62	1,240
Commercial Art	1,261	.62	782
Cosmetology	1,525	.62	946
Drafting	1,400	.62	868
Electronics	1,200	.62	744
Home Economics	1,400	.62	868
ICT	1,200	.62	744
COE	900	.62	558
Graphic Arts	6,462	.62	4,006
Health Service Careers	1,500	.62	930

TABLE VIII

ANNUAL COST PER STUDENT ENROLLED

OCCUPATIONAL AREA	ANNUAL COST	TOTAL STUDENTS	ANNUAL COST PER STUDENT ENROLLED
Agriculture	$15,507	60	$ 258.45
Auto Mechanics	17,336	32	541.75
Carpentry	11,843	30	394.77
Commercial Art	12,494	60	208.23
Cosmetology	11,973	40	299.33
Drafting	14,043	60	234.05
Electronics	15,901	50	318.02
Home Economics	16,122	112	143.95
Industrial Coop Trng.	12,754	40	318.85
Coop Office Education	12,871	41	313.93
Graphic Arts	20,665	20	1,033.25
Health	10,797	10	1,079.70

TABLE IX

PERCENTAGE COMPARISON OF AN INDIVIDUAL SCHOOL'S VOCATIONAL STATUS TO STATE AVERAGES

OCCUPATIONAL AREA	% DISADVANTAGED		% NON-COMPLETERS		% EMPLOYED RELATED		% EMPLOYED OTHER		% SEEKING EMPLOYMENT		% CONTINUING EDUCATION		% ARMED FORCES		% NOT IN LABOR FORCE	
	School	State	School	State	School	State	School	State	School	State	School	State	School	State	School	State
Agriculture	39	71	29	14	0	18	8	4	0	1	75	61	8	7	0	0
Auto Mechanics	35	26	9	21	38	32	7	12	0	1	23	33	7	12	0	0
Carpentry	31	28	22	25	25	28	37	13	0	1	12	36	25	9	0	0
Commercial Art	17	37	7	16	11	12	0	12	5	1	66	52	0	7	16	9
Cosmetology	31	29	2	24	39	40	21	8	13	3	8	22	0	0	17	16
Drafting	27	26	16	20	33	22	33	6	0	0	26	43	0	14	0	1
Electronics	21	31	17	25	42	18	14	3	0	0	28	62	14	11	0	0
Home Economics	16	23	34	31	2	6	8	7	0	0	18	57	0	0	29	16
ICT	26	27	17	25	14	39	9	4	4	0	23	32	23	9	19	10
COE	32	23	11	21	54	27	0	6	0	3	45	44	0	0	0	11
Graphic Arts	32	29	9	26	25	19	6	17	0	1	43	37	12	11	6	6
Health	5	38	*	7	*	25	*	16	*	8	*	25	*	8	*	16

* New Program - No Data Available

NOTE: Percentages may not sum to 100 in all categories. The differences are unknown.

APPENDIX G

Work Group Reports

REPORT OF GROUP 1

PART ONE - SUMMARIES OF DAILY DISCUSSIONS

Work Session No. 1 - Work Sheet No. 2

Statement: The 1968 Vocational Amendments implies that it is important to establish goals and objectives and in order to determine goals and objectives it is necessary to:

(No order of importance)

-- Have information relative to people needs and manpower needs (data).

-- Identify special needs target audiences.

-- Consider the accomplishments of regular ongoing programs of vocational and technical education.

-- Realize that a planning model can be used as a guide by planners at all levels.

-- Find a starting point and proceed from that point.

-- Begin at the local level and work up the hierarchy.

-- Associate goals and objectives with the accountability process.

-- Realize that organized planning is the process to accomplish this task.

-- Determine the priorities set forth by the administration at any level.

Work Session No. 3 - Work Sheet No. 2

Statement: Participants in Group One feel that certain considerations should be given to the effects that technological changes have on planning vocational education:

(No order of importance)

-- Good local advisory committees are a reliable source of information concerning local emerging technological change.

-- A variety of resources (public and private agencies) should be used to identify innovative trends.

-- Manpower data should be gathered at the national, regional, and state levels and translated into meaningful manpower trend indicators.

-- State and national data sources cannot be depended upon as the only source.

-- Need for manpower data that reflects actual jobs not just D.O.T. type of information.

-- Knowledge of technological change is important to vocational planning and therefore that knowledge must be considered for planning purposes.

Work Sessions No. 2, 4, and 5 - Work Sheet No. 1

KINDS AND SOURCES OF DATA REQUIRED FOR VOCATIONAL PROGRAM PLANNING

I. Sources for Data

A. Occupational Outlook Handbook (National)
B. Occupational Outlook Handbook (State)
C. Area Skill Surveys
D. Tomorrows Manpower Needs
E. MDTA Surveys
F. Job Vacancy Statistics
G. Unfilled Job Openings
H. Advisory Councils

II. Kinds of Data

A. Existing and Projected Demand
    1. National Trends
    2. State
    3. Local
B. Existing Supply
    1. Private Schools
        a. Secondary
        b. Post Secondary
        c. Adult
    2. Public Schools
    3. On-Job-Training Programs
    4. Manpower Training Programs (MDTA)
    5. Apprenticeship Programs (JAC)
    6. Governmental
    7. Others
C. People Needing Training for Entry Upgrading or Retraining Purposes
    1. How many people
    2. Age
    3. Sex
    4. Education Level
    5. Training Experience
    6. Job Experience

D. People with Special Training Needs
   1. Disadvantaged
      a. Economic
      b. Social
      c. Educational
   2. Handicapped
      a. Physical
      b. Mental - Emotional

Work Session No. 6 - Work Sheet No. 1

As a result of discussing the topic of manpower forecasting through use of "Tomorrow's Manpower Needs" the following conclusions were reached:

-- Planning by local vocational educators, on the advice of bona fide labor-management committees, is more reliable than planning on the basis of large manpower survey data.

-- The document is useful at the state level.

-- The document has limited use at the local level because of:
   a. lack of adequate staff
   b. lack of qualified staff
   c. lack of financial resources
   d. lack of local reliability

Work Session No. 7 - Work Sheet No. 1

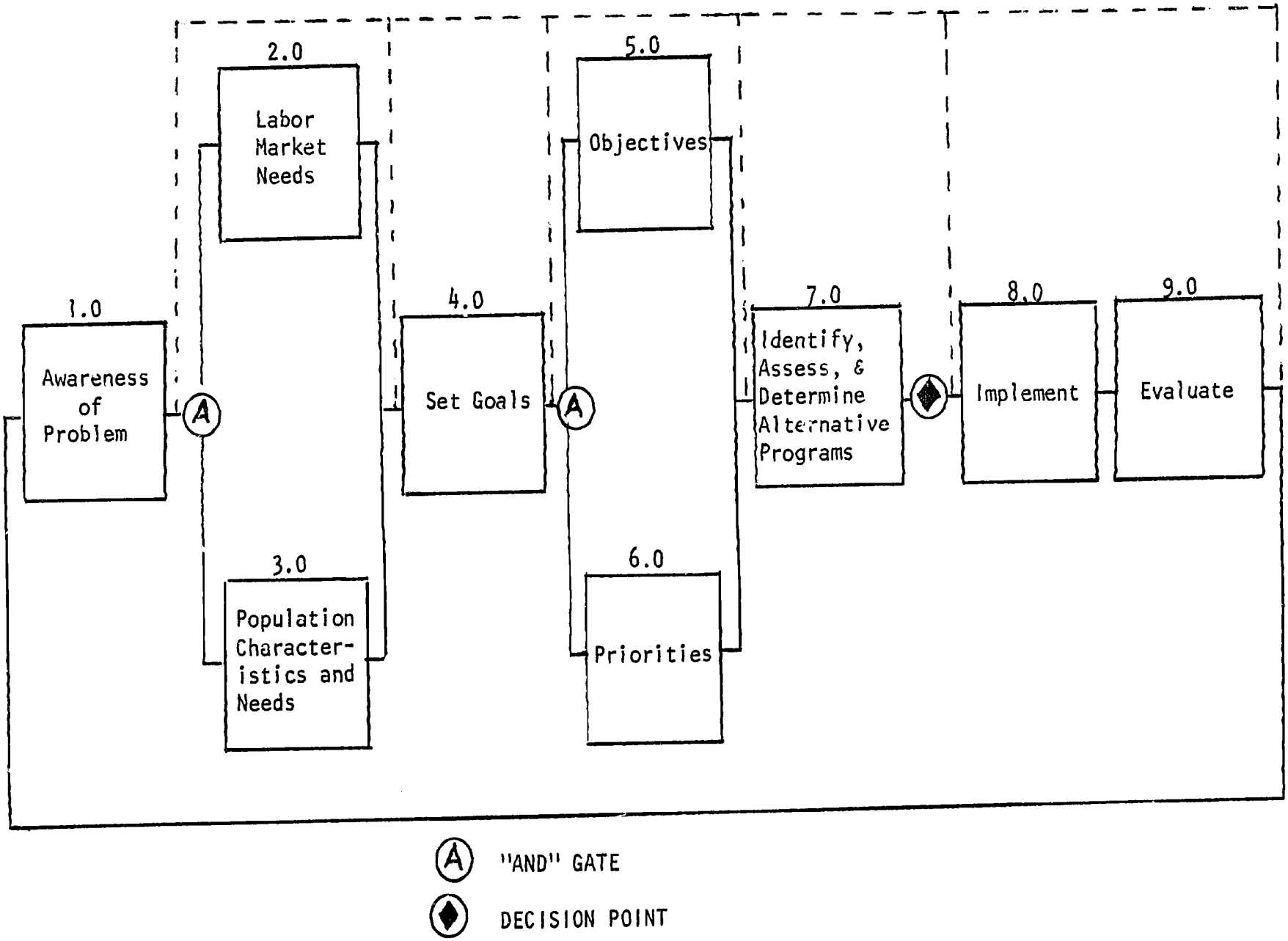
As a result of discussing the topic of manpower forecasting through use of the "Unfilled Jobs Opening Approach" the following conclusions were reached:

-- Vocational educators should take the lead in establishing closer rapport with manpower agencies, without sacrificing the integrity of either group.

-- Forecasting is absolutely essential for planning.

-- From the information presented, the BLS Matrix combined with the unfilled job openings appears to have merit for planning.

PLANNING MODEL



Guidelines and Procedures

Activities	Sources
1.0 AWARENESS OF PROBLEM	
1.1 Recognition of Deficiences	1.11 Local Administration 1.12 Community Groups 1.13 Labor and Management 1.14 Students 1.15 Local, State, and Federal Agencies 1.16 Legislation 1.17 State and Federal Councils
2.0 DETERMINE THE LABOR MARKET NEEDS	
2.1 Survey of Labor Market Needs	2.11 Occupational Outlook Handbook (National) 2.12 Occupational Outlook Handbook (State) 2.13 Area Skill Surveys 2.14 Tomorrow's Manpower Needs 2.15 MDTA Survey 2.16 Job Vacancy Statistics 2.17 Unfilled Job Openings 2.18 Advisory Councils
2.2 Survey Groups	2.21 Advisory Committees 2.22 CAMPS 2.23 Employment Security 2.24 State Advisory Committees 2.25 Private Schools
3.0 DETERMINE POPULATION CHARACTERISTICS AND NEEDS	
3.1 Survey of Total Population	3.11 School Survey 3.12 State Department of Education
3.2 Survey of School Dropouts	3.21 School Surveys 3.22 Census Data 3.23 Migrant Worker Survey
3.3 Follow-up Survey	3.31 Individual Student Accounting 3.32 Teacher Follow-Up 3.33 Student Follow-Up 3.34 Student Interview

Activities	Sources
3.4 Student Inventory Data	3.41 Tests (Interest) 3.42 GATB 3.43 Interest Inventory
3.5 Vocational Course Enrollment Data	3.51 School Records
3.6 Industrial Training	3.61 Industry
3.7 Unemployed	3.71 Employment Security 3.72 Public Assistance 3.73 Community Service Groups
3.8 Underemployed	3.81 Employment Security 3.82 Public Assistance 3.83 Community Service Groups
3.9 Social Data and Economic Status	3.91 U.S. Census Bureau 3.92 Welfare Agencies 3.93 Urban League 3.94 School Records 3.95 Rehabilitation Agency 3.96 State Institutions 3.97 Veterans Administration
4.0 ESTABLISH GOALS	
4.1 Establish Broad Goals	4.11 Results of Data
5.0 DETERMINE OBJECTIVES	
5.1 Set Objectives	5.11 Staff Members 5.12 Board
6.0 PRIORITIES	
6.1 Establish Priorities	6.11 Data Collected 6.12 Existing Laws 6.13 State Board of Education 6.14 State Legislature 6.15 State and Local Advisory Councils 6.16 Business and Industry 6.17 Local Administrators 6.18 Local School Board 6.19 Licensing Agencies 6.20 Staff and Board

Activities	Sources
7.0 IDENTIFY, ASSESS, AND DETERMINE ALTERNATIVE PROGRAMS	
7.1 Identify Staff	7.11 Education Agencies 7.12 School District 7.13 Business/Industry 7.14 Labor 7.15 Other Areas
7.2 Inventory Location and Facilities	7.21 Public Schools 7.22 Private Schools 7.23 Business/Industry 7.24 Others
7.3 Identify Time Usage Available and Needed	7.31 Public Schools 7.32 Private Schools 7.33 Business/Industry 7.34 Others
7.4 Cost Analysis	7.41 Finance Office 7.42 Suppliers 7.43 Employers within the Area 7.44 Consultants
7.5 Income Analysis	7.51 Federal Funds 7.52 State Funds 7.53 Local Funds 7.54 Private Funds (Donations) (Cash Material) 7.55 Foundation Aid
7.6 Identify Constraints and Limitations	7.61 Concerned Organizations 7.62 Legislation (Federal & State) 7.63 State Plan 7.64 Other State Agencies
8.0 IMPLEMENT	
8.1 Inservice Teacher Education	8.11 Local School District 8.12 Teacher-Training Institutions 8.13 Business & Industry 8.14 State Staff
8.2 Scheduling	8.21 Local Staff 8.22 Trainee Availability
8.3 Select Advisory Committees	8.31 Labor & Management Groups 8.32 Licensing Agencies

Activities	Sources
8.4 Recruitment & Selection of Students	8.41 Students 8.42 Counselors 8.43 Administrators 8.44 Instructors 8.45 News Media 8.46 Industry 8.47 Advisory Committees
8.5 Develop Curriculum	8.51 Local Staff 8.52 Craft Committees 8.53 State Staff 8.54 Teacher-Training Institutions 8.55 Private Agencies 8.56 Research Coordinating Units 8.57 ERIC (Education Research Information Center)
8.6 Develop Final Budget	8.61 Instructor 8.62 School Business Manager
8.7 Selection & Assignment of Staff	8.71 Department Heads 8.72 Personnel Department 8.73 Principal 8.74 Advisory Committees 8.75 Colleges & Universities 8.76 State Staff 8.77 Local Board 8.78 Certifying Agency 8.79 Licensing Agencies
8.8 Secure Equipment & Instructional Materials	8.81 Instructor 8.82 Advisory Committees 8.83 State Staff 8.84 Purchasing Department 8.85 Suppliers 8.86 Publishers
8.9 Obtain Facilities	8.91 Lease 8.92 Purchase 8.93 Construct (New or Expansion) 8.94 Existing Facilities 8.95 Business & Industry 8.96 Other Educational Facilities
8.10 Board Approval	8.101 Board

Activities	Sources
8.11 Obtain Approval of Funding Agencies	8.111 State Department 8.112 Local Board 8.113 Federal Agencies 8.114 Foundations 8.115 Industry 8.116 Other Funding Agencies
8.12 Conduct Program	8.121 Instructors 8.122 Student Learners 8.123 Maintenance Staff 8.124 Administrative Staff 8.125 Craft Committees 8.126 Supervisors 8.127 Resource Personnel
9.0 EVALUATION	
9.1 Measure Program Efficiency	9.11 Budget Staff 9.12 Student Performance Test 9.13 Facility Utilization Study 9.14 Resource Utilization Study 9.15 Safety Records
9.2 Measurement of Program Effectiveness	9.21 Completion Date 9.22 Student Follow-up 9.23 Class Records 9.24 Employers 9.25 Students who completed program (Graduates) 9.26 Dropouts 9.27 Administrative & Instructional Staff 9.28 Evaluation Team 9.29 Advisory Committees 9.30 Advisory Council 9.31 Licensing Agencies 9.32 Cost-Effectiveness 9.33 Cost-Benefit

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REPORT OF GROUP II

A MANAGEMENT SYSTEM FOR ANNUAL AND LONG-RANGE PLANNING IN METROPOLITAN AREAS

I. PREMISE

With the advent of the vast technological changes in the past decade which have resulted in achievements such as, landing on the moon, the vocational education process as it now exists is recognized to be approaching obsolescence. Contemporary manpower projections at the national level indicate potential employment needs that cannot be met with programs which are in existence.

In addition, national trends show that the emphasis for skill-centered education is shifting from rural to urban locations in order to reach student resources and job opportunity where greatest concentrations of both exist.

It is further evident that the major human problems resulting from urban sprawl cannot be effectively attacked in a fragmented manner. The development of educational units has taken place in metropolitan areas on a piecemeal basis with division of authority for policy making and evaluation of cause and effect. Public school systems, community colleges, private institutions, universities, and technical institutes all have taken on the obligation of training for vocational education. The institutions are conducting programs on an individual basis with little means for interaction and communication resulting in wasted duplication of effort, facilities and equipment, and ineffective use of limited resources available to education.

More importantly, there is little possibility of a combined effort to focus on problems which cross to educational levels. In the same manner that air pollution is not confined to political boundaries, student motivation, illiteracy, dropout causes and self-image are not confined to elementary, secondary, or post secondary education. These are problems which are the responsibility of the entire educational process and must be considered as the basis for program development. Such an approach is not practical when undertaken in an isolated school district, nor can it relate entirely to state or national needs. A functional geographic area of responsibility and authority must be identified.

II. GOAL OF GROUP II

Based on the forestated premise, the goal of this final institute is to recommend a procedure for development of a management system for implementation of annual and long-range planning in metropolitan areas.

III. RECOMMENDATIONS

The following recommendations are presented as a means for satisfying the goal set forth for Institute X, Little Rock, Arkansas, and should be submitted directly to the U.S. Office of Education.

A. Establishment of SMSA Agency for Education

As a matter of national policy, all states draft necessary legislation to establish a service agency for conducting and coordinating educational planning on a metropolitan wide basis with jurisdiction covering all educational institutions within the geographic boundaries as set forth by the Standard Metropolitan Statistical Areas (SMSA).

The agency will be staffed by professional planners, economists, sociologists and other disciplines relating to problems which should be attacked by the educational process.

The agency staff will be charged with the task of collecting and interpreting a central data bank and will provide a means for interfacing data that is available through private and public organizations. The agency will develop and make recommendations for program development to an advisory committee and provide consultative services to institutions for implementation and evaluation of programs. The agency will further be responsible for coordinating all resources available for education in the metropolitan area, including moneys, facilities, and equipment.

Immediately upon establishment of the metropolitan planning agency, the Program Planning Budgeting System (PPBS) for planning will be initiated by legislative action.

The Office of Education will set a deadline after which all federal funding of facilities and equipment for educational purposes will be terminated. To meet this deadline, the metropolitan area plan must be submitted to Washington. This plan shall include as a minimum information level, the following:

1. Complete evaluation of existing facilities with a listing of studies already completed by other organizations which relate to the educational system of the SMSA.

2. Complete articulation of needs, problems, and objectives of education in the SMSA.

3. An evaluation by a panel of community leaders and educators as to the inadequacies of the present educational program.

4. A student-centered, comprehensive one-year plan for the

educational system, as a unit, with guidelines for establishing programs and continuing evaluation.

5. The Office of Education will provide consulting personnel to the SMSA's for implementing the Program Planning Budget System.

6. An organizational structure which will provide a mechanism for continuous evaluation and feedback by students, community, and educational institutions; readjustment for long-range planning will be initiated.

7. Establish an advisory committee consisting of citizens representing a cross section of the SMSA and including representatives of minority, handicapped, and disadvantaged groups, and one representative from each educational unit (private and public) in the SMSA.

The purpose of this committee will be to recommend policy for directing education programs for the SMSA. The director of the metropolitan planning agency will function as the liaison between the advisory committee and the educational units.

B. Development of Pamphlet

The function of planning is basic to the vocational education management system. We who have been involved in this workshop have gained an insight that must be transmitted to the vocational education leadership at large. A detailed report of the conference would be an inadequate instrument for mass distribution. It is therefore recommended that an attractive, graphic, and concise pamphlet be developed that will serve as an administrative training instrument to be distributed for follow-up seminars in the participating states.

IV. PLANNING AND MANAGEMENT MODEL (Chart 1)

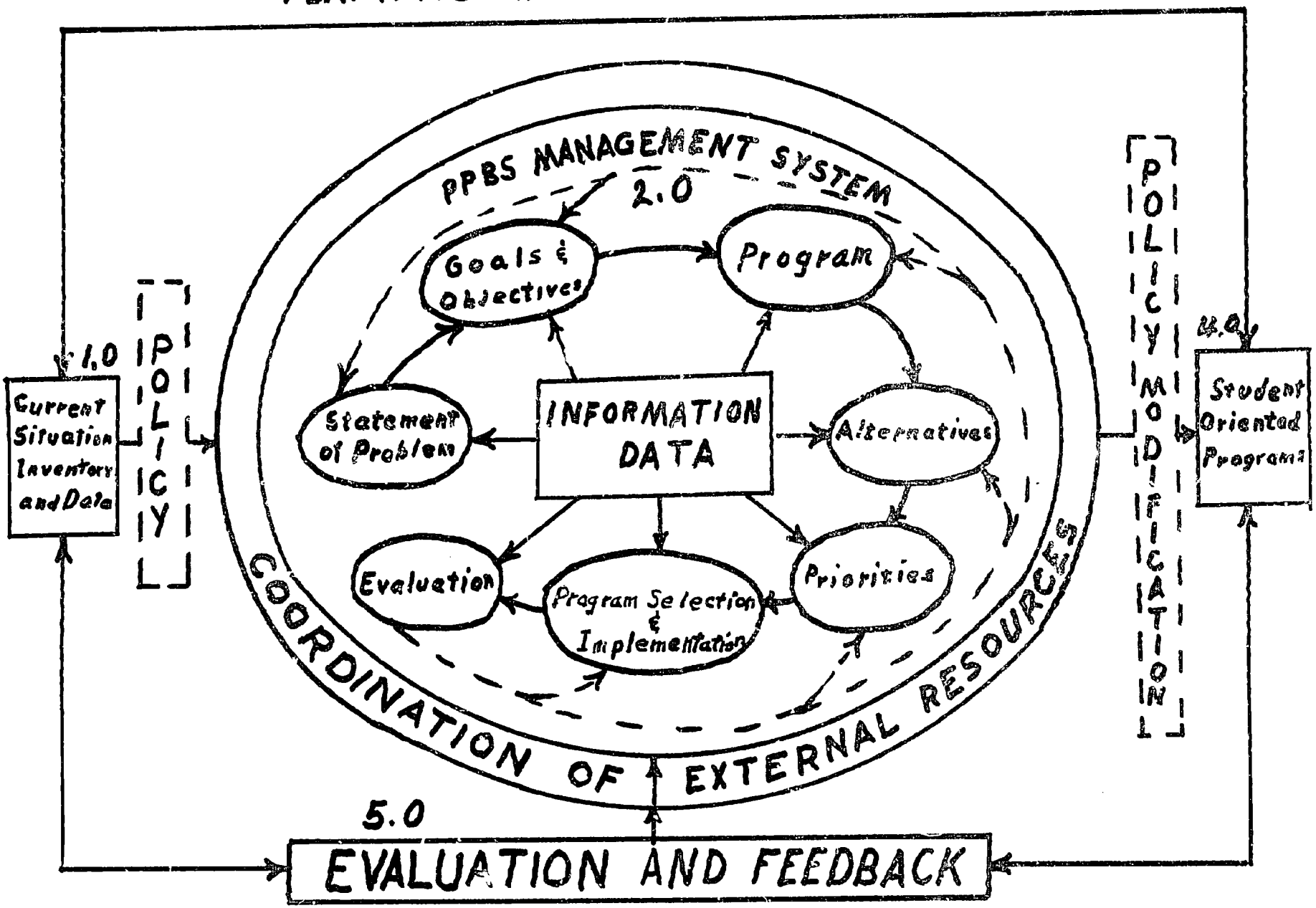
The following model was developed in an attempt to organize a complex relationship between numerous factors that must be taken into consideration by a vocational education leader in planning.

The basic flow of planning will consider a linear flow within the confines of the school system. In addition, the environment will be considered as a part of the information flow system on a non-linear basis.

Advisory committees are considered an integral part of all phases of the planning and management function.

As a means of further defining the basic elements of the planning process, the following outline for each category within the chart is given. These topics are presented for illustration only and do not include all subject matter to be considered in implementing this plan.

PLANNING AND MANAGEMENT MODEL



(Chart 1)

1.0 CURRENT SITUATION INVENTORY AND DATA (Chart 2)

1.1 POPULATION DATA

a. Disadvantaged
b. Handicapped
c. Hard-core unemployed
d. Unemployed youth
e. Underemployed
f. Secondary and post-secondary students
g. Public and private schools
h. Adult-supplementary, preparatory, and retraining
i. Resident and non-resident
j. Consumer education
k. Cradle to grave

1.2 MANPOWER DATA

a. Local economy structure
b. Existing jobs
c. Emerging occupations
d. Fading occupations

1.3 SOURCES OF MANPOWER DATA

a. Advisory committees
b. CAMPS - Cooperative Area Manpower Planning System
c. Local surveys - personal interviews, telephone surveys and written reply
d. Chamber of Commerce
e. Trade associations
f. Follow up of graduates and school leavers by local school district
g. Occupational Outlook Handbook
h. Bureau of Labor Statistics
i. MDTA - Manpower Administration
j. State Employment Service

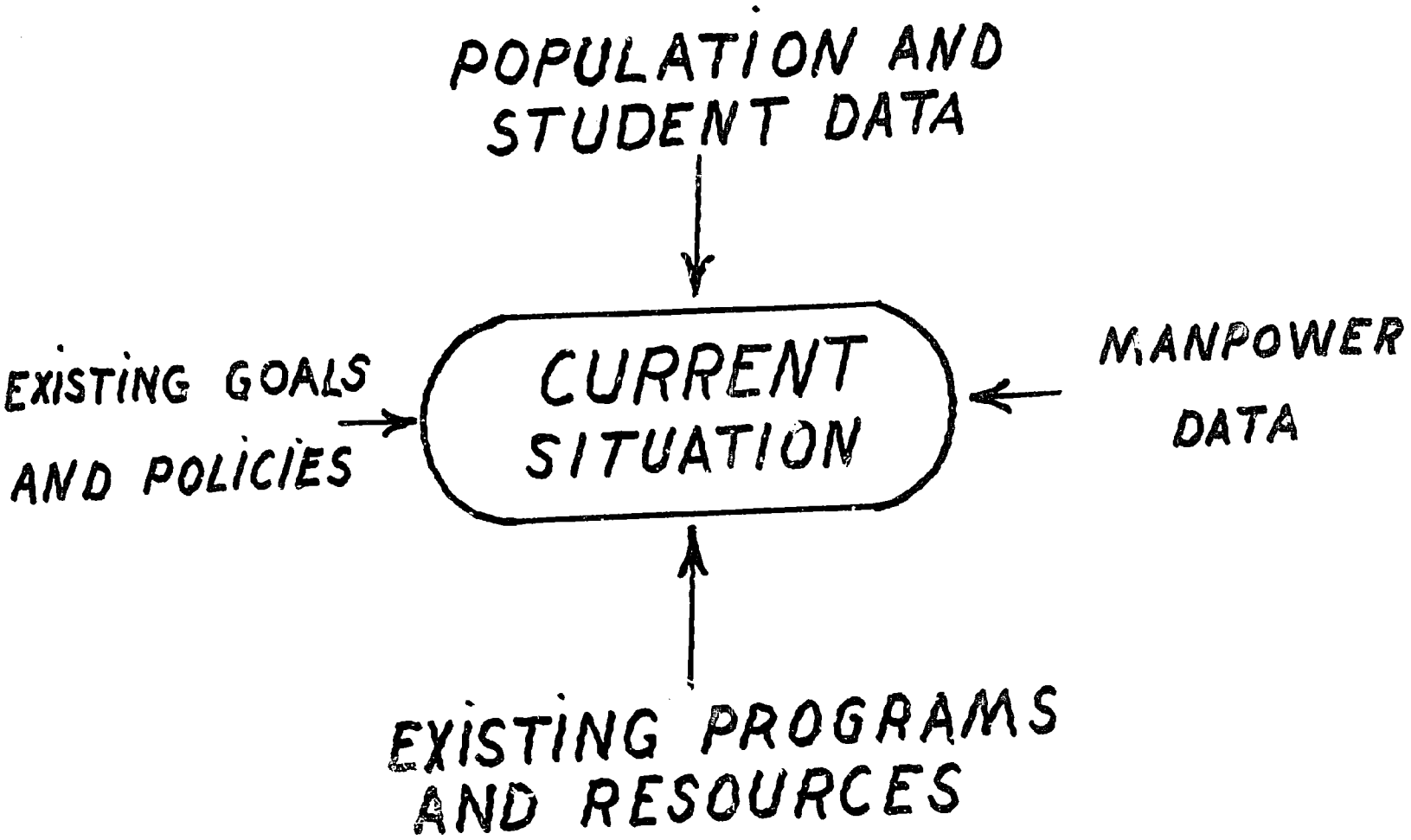
1.4 STUDENT DATA

a. Ability and aptitude
b. Basic education needs
c. Interests
d. Self-image
e. Occupational information
f. Financial needs

1.5 SOURCES OF POTENTIAL STUDENT DATA

1. School enrollment and dropout from schools and colleges

2. Employment Security Office


POPULATION AND STUDENT DATA
EXISTING GOALS AND POLICIES
CURRENT SITUATION
MANPOWER DATA
EXISTING PROGRAMS AND RESOURCES

(Chart 2)

a. Dropouts looking for jobs
b. Unemployed
c. College dropouts
d. W.I.N. Program

3. Veterans Administration Office

4. Employed who need retraining and upgrading

5. Welfare rolls for disadvantaged

6. Vocational rehabilitation

1.6 EXISTING PROGRAMS

An inventory of all programs being conducted by public schools, junior colleges, community colleges, universities, private institutions, and organizations, and all manpower development, Office of Economic Opportunity, and other projects for training in the area.

1.7 EXISTING GOALS AND POLICIES

Each educational unit has undertaken planning on a fragmented basis and goals have been established as a result. These goals and policies for training should be gathered together and analyzed on a comprehensive basis in order to determine how these relate to the overall problems in the urban center.

2.0 PPBS MANAGEMENT SYSTEM (Chart 3)

PPBS is a system aimed at helping management make better decisions on the allocation of resources among alternative ways to attain the objectives. Its essence is the development and presentation of relevant information as to the full implications--the costs and benefits--of the major alternatives courses of actions. PPBS hopes to minimize the amount of piecemeal, fragmented and last minute, program evaluation which tends to occur under present planning and budgeting practices.

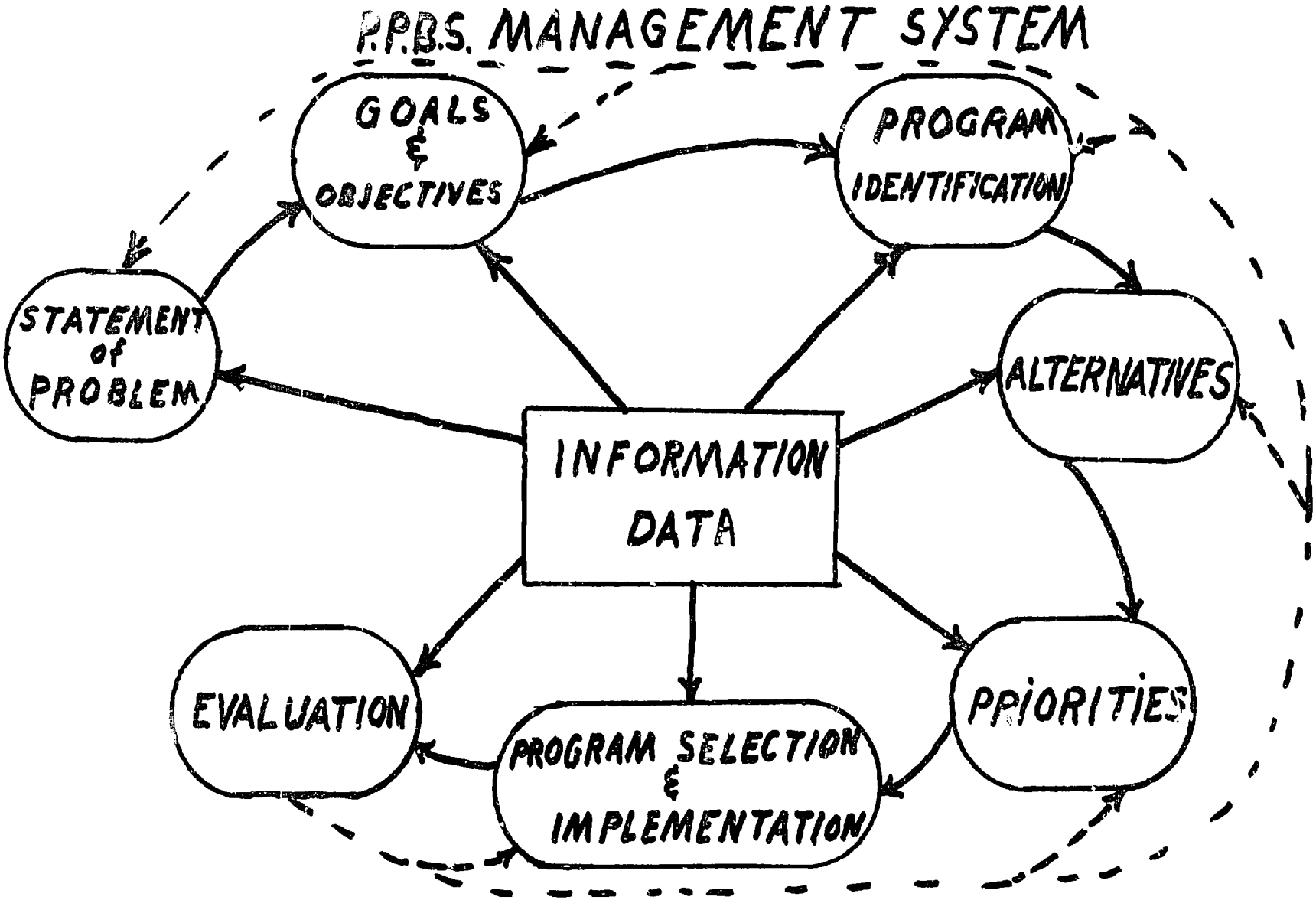
2.1 CURRENT SITUATION AND NEEDS

1. Review current situation and identify needs based on Items 1.0 to 1.7

2.2 STATEMENT OF PROBLEMS

1. Define the problems concisely that affect vocational education

a. What is the real problem?
b. What is the cause of the problem?



UNIT PLAN FOR P.P.B.S.
MANAGEMENT SYSTEM 2.0

(Chart 3)

c. What are the population groups affected?
d. What is the magnitude of the problem?

2.3 GOALS AND OBJECTIVES

1. Goals are statements of long-range accomplishment for broad areas of activity

2. Goals need not be stated in measurable terms

3. Goals should be based on evaluation of existing programs

4. Objectives are statements of measurable outputs or accomplishments to be achieved indicating quantity and time

5. Objectives are derived from long-range goals

6. Objectives should include statements about:

   a. What the program is trying to accomplish
   b. How the planned program accomplishments fit in with what other governmental agencies or private institutions are doing in the same area
   c. Who the program intends to reach--target group
   d. When it will be accomplished

2.4 PROGRAMS

1. Briefly describe the program

2. Program structure

2.5 ALTERNATIVES

1. Identification and description of the key features as well as the bad features of the alternative ways of attempting to meet the objectives

2. Estimates of the total program costs for each alternative, to include future as well as immediate cost

3. Estimate the full effects (both social and economic) of each alternative (relative to each of the criteria identified as being important) to include future as well as immediate implications

4. Identification of the major assumption and uncertainties

2.6 PRIORITIES

1. Identify critical needs and list them in order of priority

2. Set standards and criteria

2.7 PROGRAM SELECTION AND IMPLEMENTATION

1. Choose the appropriate alternatives based in relationship to financial economic and political constraints

2. Criteria for selection of alternatives

   a. Cost analysis
   b. Cost benefit analysis
   c. Cost effectiveness analysis

3. Implementation

2.8 EVALUATION

1. Describe methods and criteria of evaluation

   a. Cost analysis
   b. Cost benefit analysis
   c. Cost effectiveness analysis

2. Evaluation to be continuous process

3.0 COORDINATION OF EXTERNAL RESOURCES (Chart 4)

1. Present legislation - Federal, state and local

2. Coordination with other training institutions both public and private

3. Counsel with local advisory committees

4. Leadership of state vocational staffs

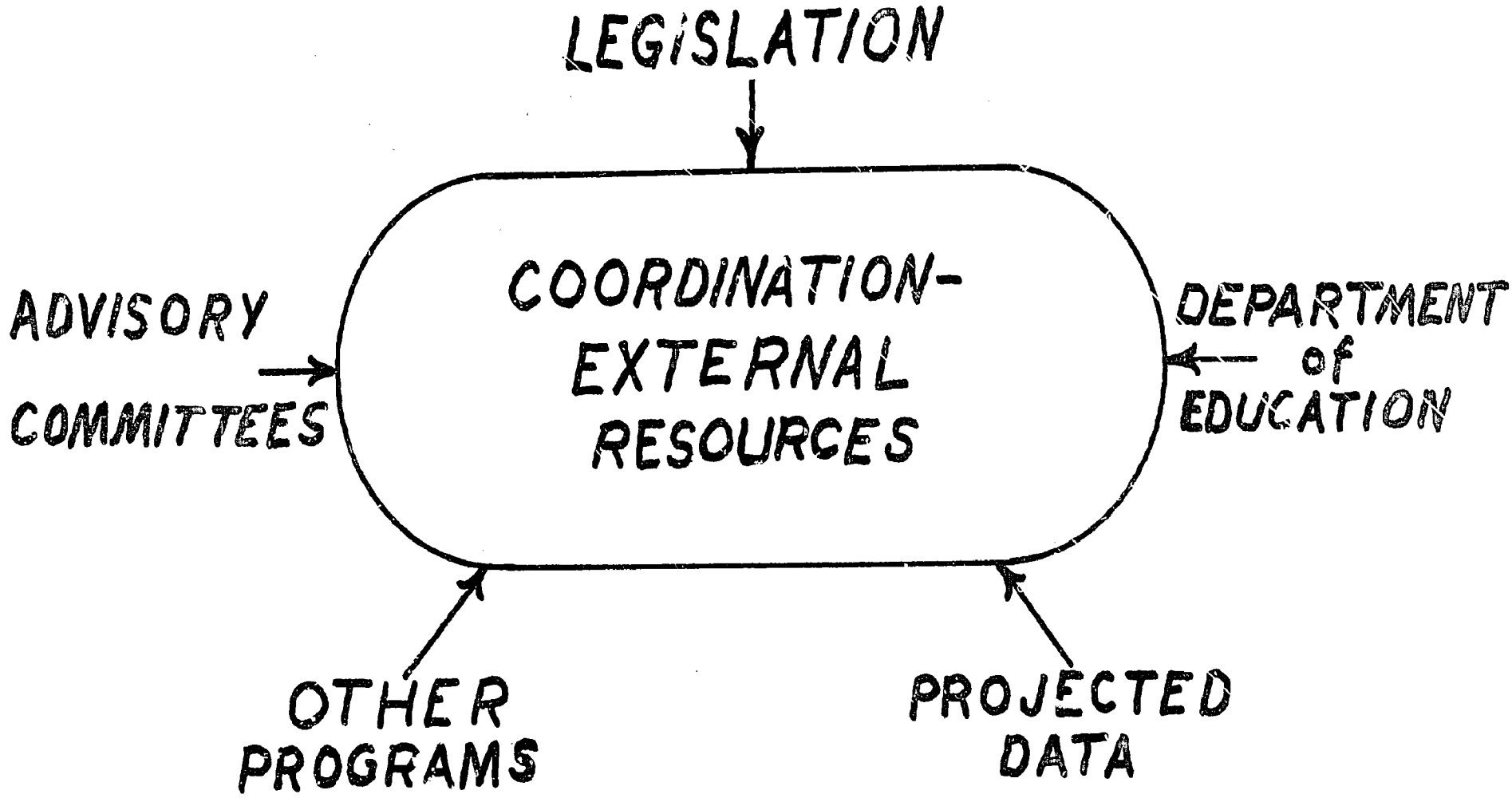
5. Available analysis and forecasting material for local, state, and national level published by governmental and private institutions

4.0 STUDENT-ORIENTED PROGRAMS (Chart 5)

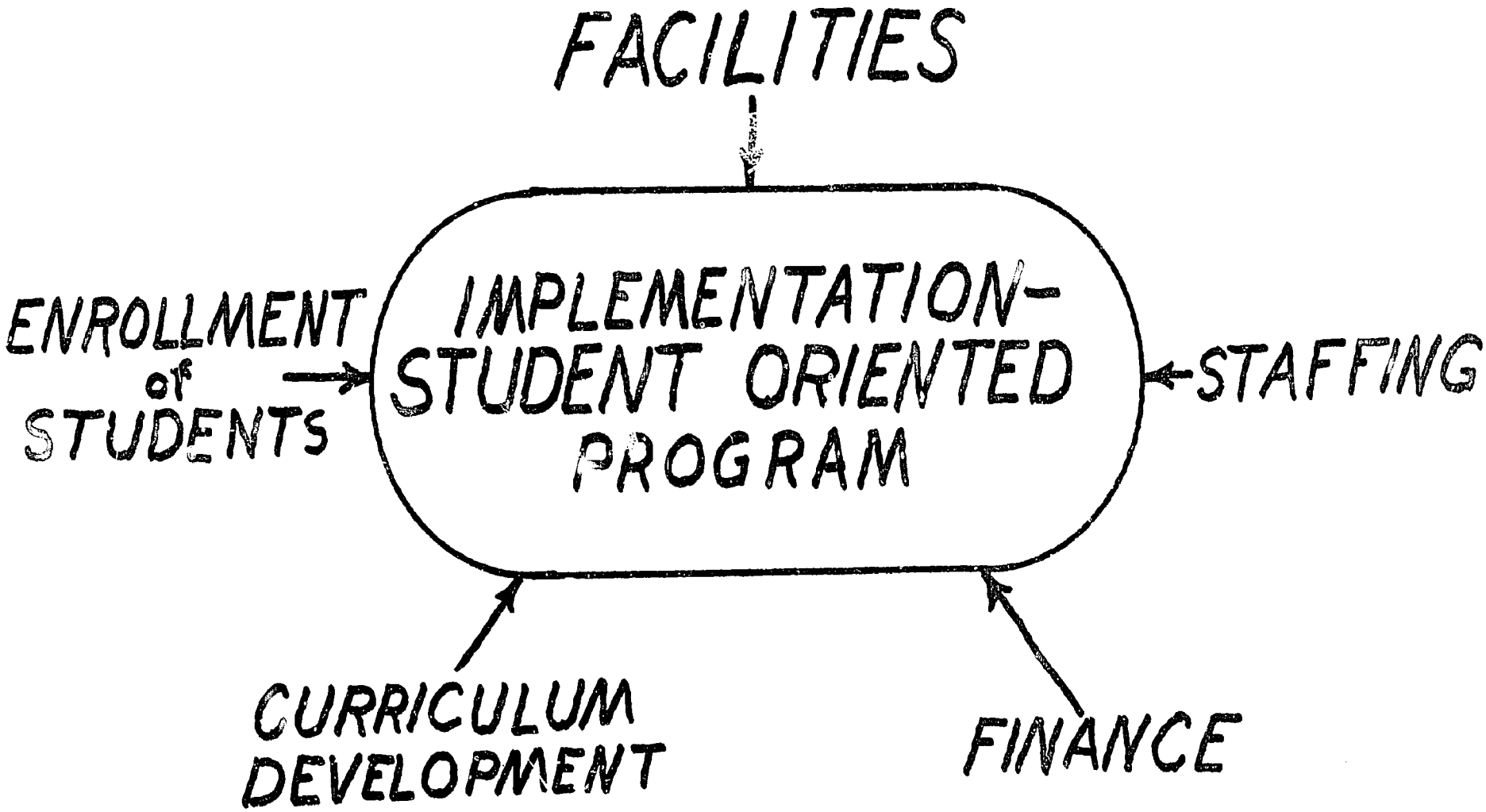
The student-oriented program should be structured to meet or assist in meeting the needs of students as indicated in the list identified as problems of vocational education in metropolitan areas.

4.1 GOAL STATEMENT

Provide vocational education for all students and


LEGISLATION
ADVISORY COMMITTEES
COORDINATION-EXTERNAL RESOURCES
DEPARTMENT of EDUCATION
OTHER PROGRAMS
PROJECTED DATA

(Chart 4)


FACILITIES
ENROLLMENT of STUDENTS
IMPLEMENTATION-STUDENT ORIENTED PROGRAM
STAFFING
CURRICULUM DEVELOPMENT
FINANCE

(Chart 5)

develop a favorable image toward the world of work. Provide all students with opportunities to become familiar with and explore all types of careers to prepare for employment and advanced training in the career field of their choice.

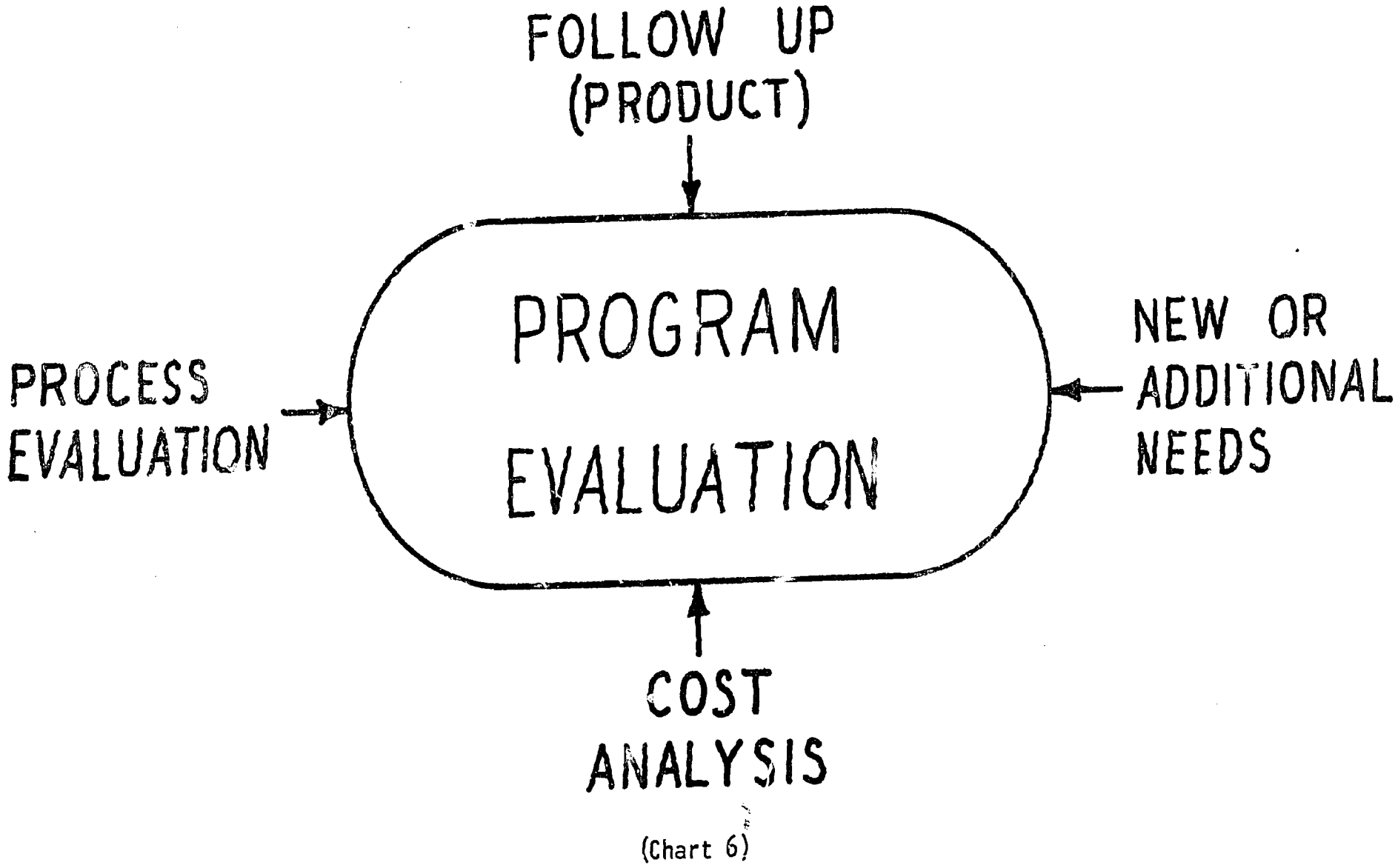
4.2 PROBLEMS IN VOCATIONAL EDUCATION

1. Motivation
2. Image of work
3. Dropouts
4. Illiteracy
5. College dropout
6. Self-image
7. Lack of skill
8. Knowledge of the world of work
9. Relevant education
10. Mid-career needs
11. Discrimination
12. Hunger
13. Handicapped and disadvantaged
14. Image of vocational education

5.0 EVALUATION (Chart 6)

Evaluation is a multi-layered, multi-faceted project involving internal and external factors. Internal factors, such as teaching/learning effectiveness, course length, and administrative procedures are matters within the local domain.

External evaluation is a commonality to all communities. Follow up of graduates through at least a three-year cycle is considered mandatory. This follow-up procedure should include both employer and graduate input to be meaningful. Information developed can be most helpful in updating course content, maintaining state-of-the-art training, and expanding or decreasing student enrollment. Each trade/speciality area of endeavor should, where feasible, be represented by a steering committee composed of appropriate leaders representing business


FOLLOW UP
(PRODUCT)
PROCESS
EVALUATION
PROGRAM
EVALUATION
NEW OR
ADDITIONAL
NEEDS
COST
ANALYSIS

(Chart 6)

and labor, professional and skilled, minority and general citizens who can supply guidance to course content, assist in maintaining relevant curricula and formulating short-term objectives and long-term goals. Community involvement can range from a complete spectrum of community education services to involvement in discussion groups, participation in local radio and television programs and such other involvement that will assist in involving the community and education as integral parts of the whole.

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REPORT OF GROUP III

LEARNER'S CAREER DEVELOPMENT: A MODEL

Introduction

Effective long-range planning mandates a concise perspective of the total planning process. The model herein described in simple form will assist the planner by providing the appropriate overview.

Descriptive Guidelines

Development of the model for learner's career development reveals the impact of two major pressures. One might be classified as institutional and would include all those pressures and concerns of local, state, and national community agencies (e.g. social, industrial, educational). The other pressure encompasses all of the needs of the individual. This is illustrated by a matrix which vertically divides the model in terms of institutional and individual objectives.

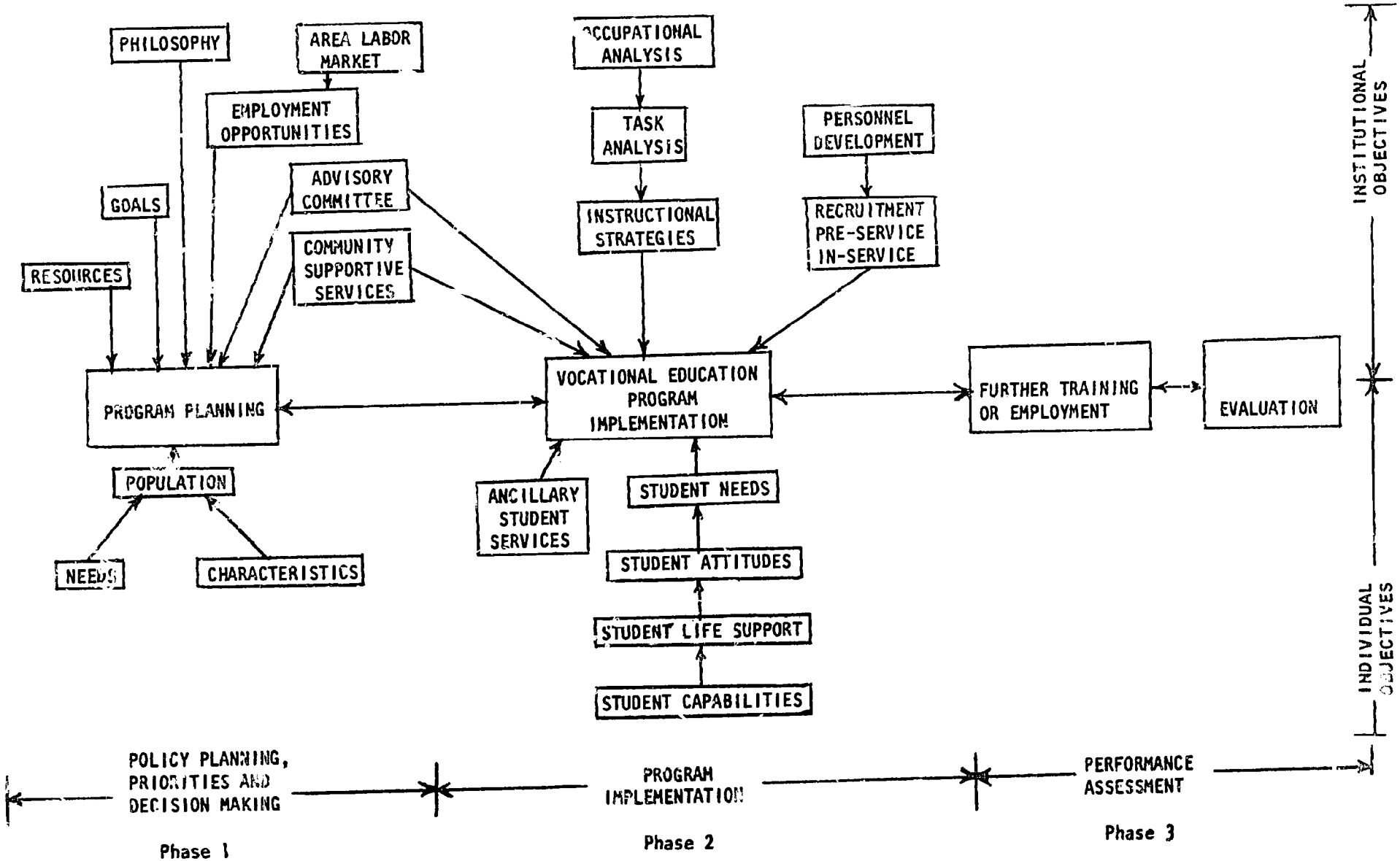
Horizontally the model divides itself into three general categories. The first relates to program planning and provides information, both institutional and individual, which will assist in developing the short and long-range plans. Steps in the institutional dimension will include a review or statement of philosophy, establishment of goals, and an analysis of all resources, both public and private, including area labor market, employment opportunities, community supportive services, and advisory committees.

Once program planning has been completed the implementation phase can begin and will involve the same two dimensions as in program planning--institutional and individual. In this phase the institutional considerations will include: financial, physical, and educational resources; occupational analysis and instructional strategies; personnel development; advisory committees and other supportive services. The individual dimension will include all of the various direct student needs and ancillary student services.

Further training or employment, Phase 3, is the culmination of program planning and program implementation and provides the basis for performance assessment.

Evaluation, a continuous process as seen in the model, is provided in all phases.

LEARNER'S CAREER DEVELOPMENT



I. Examples of Individual Needs - Information and Data Sources Relating to Learner Needs

A. Life Support
   1. Self-maintenance
   2. Health
   3. Nutrition
   4. Income
   5. Transportation
   6. Clothing
   7. Housing
   8. Supervised living
   9. Institutional care
   10. Love
   11. Management
      a. Time
      b. Energy
      c. Money
   12. Self-discipline and personal life management
   13. Consumer economics
   14. Leisure time recreation
   15. Social mobility and upgrading self

B. Ability
   1. Mental
   2. Physical (dexterity)
   3. Emotional
   4. Social
   5. Communication skills
   6. Computation skills
   7. Peripheral vision
   8. Coordination
   9. Spacial
   10. Balance
   11. Habits (self-discipline and personal life management)

C. Interest
   1. Play (avocational and recreational)
   2. Past experience
   3. Part-time work
   4. Occupational goal
   5. Academic achievement profile
   6. Moral and political
   7. Co-curricular activities

D. Capabilities
   1. Employment record
   2. Test results
   3. Past educational achievement
   4. Demonstrations
   5. Motivation
   6. Aspiration

E. Other Data Sources
   1. Juvenile court record
   2. Peer and parental pressures
   3. Social agency records
   4. Past inventories
   5. Grade pattern (academic and citizenship achievement profile)

II. Sample of institutional Needs

Information	
A. Stable portion of the metropolitan labor market (96%)	Trade association, employer, union-industry matrix through E.S.
B. Dynamic portion of the metropolitar labor market (4%) 1. Rapidly changing occupations 2. New and emerging occupations	Employers Chambers of Commerce unions, research groups, (government, business), industrial development commission, public utilities
C. One and five year projection	Combination of resources A and B
D. Identification of geographic area	Local responsibility
E. Job description information	National Manufacturers Association, National Alliance of Businessmen, Foundations (such as Upjohn and Ford), employers, employees, apprenticeship council, 3M Project (VIEW), private schools, management consultant firms, O.E.O.

III. Suggested Success Measurements

A. Percentage of learners who have met employment objectives
B. Percentage of learners employed outside of employment objectives
C. Percentage of graduate learners who are unemployed and seeking employment
D. Percentage of learners who did not complete a career development program
E. Percentage of graduate learners who are continuing education toward a high employment objective
F. The number of times an employee changes employer
G. The number of times an employee changes jobs without further training

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REPORT OF GROUP IV

SHORT AND LONG-RANGE PLANNING FOR OCCUPATIONAL EDUCATION IN METROPOLITAN AREAS

Introduction

The tempo of change is quickening. The relative compression of time and space imposes new demands on man and his society. In this last half of our century there is rapid industrialization and increased emphasis upon materialism. There is an increasing rate of scientific discovery and invention giving rise to a wide spectrum of technological advances. Because of these changes, new demands are imposed on education--demands which have far-reaching implications for vocational education.

There is increasing evidence that education and training should not only provide entry level skills and conceptualizations but also should, in effect, be available to workers to keep abreast of the myriad of changes in their world of work and to develop new skills which enhance their productivity.

General Goal

Education, at the very center of life's activities, must be able to accommodate the changing needs of people by providing appropriate learning experiences both in and out of school which gives personal satisfaction, meet society's needs and expectations, and which provide employers effective and efficient workers. While vocational educators have been naturally concerned with the planning of specific occupational programs, their implementation, evaluation, and all of the related processes, attention now must focus specifically on those elements which will allow the determination among a variety of courses of action that includes, but are not limited to, specific occupational training. Implementation of these courses of action is the mechanism by which educational services are delivered to people. Evaluation determines the progress made by the selected courses of action and should make visible any modifications or redirection that may be needed.

Figure I shows a visual concept of the relationship between planning, implementation, evaluation, and redesign.

Figure II details the significant elements of the planning process. The material that follows contains a description of the purpose of each element as well as data needed and sources for obtaining the data.

The activities of this group dealt with the planning process and not with implementation, evaluation, or redesign.

A. Identify Population Needs

Three categories of population data should be available in order

FIGURE I

Basic Action System of Vocational Education

(Significant Phases)

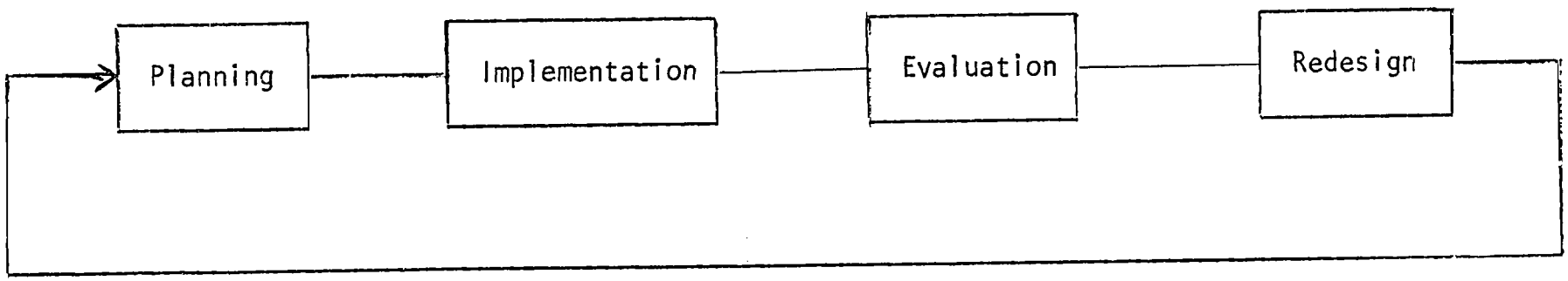
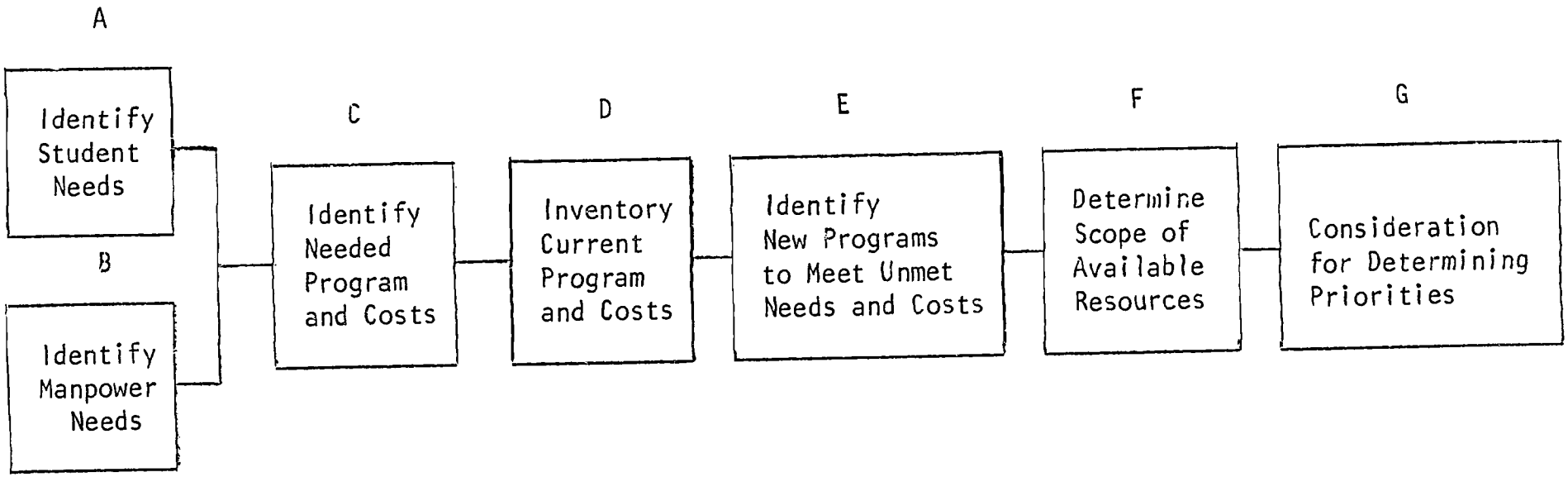


FIGURE II

Significant Elements of the Planning Process



to determine the feasibility of potential programs. (1) The potential student to be trained. Data on the potential student may be classified according to his expectations; i.e., aspirations, interests, and abilities. (2) Public expectations data will yield the social and financial attitudes and, (3) Parental expectations data will reflect their support to the student should he approach world-of-work studies.

Type of Information	Source
1. Student expectations	Results of student survey
2. Student interests	School record folder
3. Student abilities	Teachers Tests and inventory Special interest groups (Community Action Program) (Model Cities)
4. Public expectations	Election results Public opinion polls Public hearing
5. Demographic	CAMPS Plan
a. Age (school, adult)	Almanac
b. Sex	Department of Vital Statistics
c. Mobility	School
d. Urban - rural	Tax office
e. Education level attained	SMSA
f. Socioeconomic	
6. Parental expectations	Results of parent survey

B. Identify Manpower Needs

The primary source for manpower needs, and required under the act to provide, is the state employment service. In its research to provide manpower need forecasts the employment service typically uses known job openings, analyses of composition of unemployment, measures of under-employment and under-utilization. Many other primary sources of data, such as employers, labor unions, trade associations and industrial development groups are surveyed in arriving at the employment services forecasts. It would not be necessary or practical in most cases for the local planner to try to contact all sources if he can obtain these from the local employment office.

Good relationships and first-hand communication, however, is very valuable. Local CAMPS committees should be broad enough to encompass all the crucial local persons representing primary sources of data. Vocational education planners should certainly be participants both to give input and to receive firsthand information about emerging planning coming from all manpower agencies, such as

C.A.P., Model Cities, city and county government, vocational rehabilitation, etc. Advisory committees will probably overlap this body to some extent, but this overlap should be of little consequence when compared to gains to be realized from more thorough communication.

The following listing suggests the principal national documents, followed by state and local data needs and the sources from which to obtain their descriptions:

	Source
1. National Trends Documents	
a. Manpower Training Needs for the 1970's	Bureau of Labor Statistics
b. Tomorrow's Manpower Needs	Bureau of Labor Statistics
c. Occupational Outlook Handbook	U.S. Government Printing Office
d. Decennial Census	Bureau of the Census
2. State Data Needs	
a. Labor force characteristics (occupational distribution and industrial composition)	State Employment Service Annual Manpower Report Annual CAMPS Report
b. Expanding and declining occupations and industries	State Employment Service CAMPS
c. Inventories of job vacancies	State Employment Service
d. Occupational matrix (where available)	State Employment Service
3. Local Data Needs	
a. Inventory of job vacancies	State Employment Service
b. Local economy structure	CAMPS and Employment Service
c. Expanding and declining occupations and industries	CAMPS and Employment Service
d. Occupational matrix (where available)	Employment Service
e. Area skills surveys	Employment Service
f. Specific occupation inventories	Labor Unions Trade Associations Professional Societies Personnel Managers Association

C. Identify Needed Program and Costs

After the vocational training needs of the population and manpower of the defined geographic area have been identified, a plan of specific vocational programs should be prepared. In identifying specific vocational programs, a summary statement of population and manpower needs should be formulated and ranked from greatest need to least need. An example of a "summary needs statement" for manpower would be: 200 adult welders for the area served. The needs outlined in each of the "summary needs statements" should

be met by one of the proposed vocational programs. As each program is planned, the number of instructional hours of training should be stated, including the amount of funds necessary to implement the program. The cost of the program should include direct and indirect costs of instruction. A complete description of programs needed should include the program objectives and summary information, such as:

1. Level of program

2. Cost of program

3. Desired enrollment

4. Desired outcomes in terms of the learner's behavior

D. Inventory and Evaluate Current Programs and Services of Vocational Education (Include Costs)

A complete listing of current programs and services should be prepared consistent with the established format used in Item C. Information must be prepared so that the information can be easily compared to other significant elements of the planning phase. This inventory should reflect the effort of all occupational programs operated by public schools (reimbursed or unreimbursed), parochial schools, proprietary schools, training within schools, training within industry and other governmental agencies.

E. Identify New Programs to Meet Unmet Needs (Include Costs)

Prepare a plan of vocational education programs and services needed to meet all the program needs identified in Item C and not inventoried in Item D. The preparation of information should be consistent with that established for Items C and D.

F. Determine Scope of Available Resources

Financial resources for the support of vocational education programs and services exist in many forms and come from a variety of sources. The following list represents a partial list of information needed and the source:

Information Needed	Source
Local	
Taxes	Tax office
Student fee	Administrative decision
Reallocation	
State Reimbursements and Funding	State educational agency
Federal Funding	
P.L. 90-576	H.E.W. and state educational agency

National Defense Education Act	H.E.W. and state educational agency
Rehabilitation	H.E.W. and/or state educational agency
Manpower development and training	State education agency or state employment service
Apprenticeship	State education agency or state employment service
Economic Development Agency	Department of Commerce
Regional Development Commissions	Department of Commerce
Public service careers	City or county government
Model Cities	Housing and Urban Development
Work incentive program	
National Alliance of Businessmen - JOBS	State employment service
Neighborhood Youth Corps	Department of Labor

Considerations for Determining Priorities -- Vocation Programs and Services

Preface: The school district will provide opportunities for vocational education to interested students within the financial capability of the district; therefore, priorities for vocational programs and services must be established.

General: Compare costs of all programs with all revenues to determine to what extent all programs may be implemented and what priorities are necessary.

Specific Considerations:

1. Federal Regulations and Directives
   Examples: Vocational Education Act of 1963 as amended by Vocational Education Act of 1968 to serve disadvantaged and handicapped students through vocational education

   a. 15 percent of Vocational Education Act (Part B) funds will serve disadvantaged students
   b. 10 percent of Vocational Education Act (Part B) funds will serve handicapped students

2. State Regulations and Directives
   Example: States to establish standards for vocational education programs and services

   a. Quality of vocational instruction
      (1) Organization and content
      (2) Counsel and advise
      (3) Program planning
      (4) Duration and intensity
      (5) Supervised practical experience

3. Distinct Goals, Objectives, Regulations, and Directives
   Example: Board of education priorities for the educational system

   a. Pre-school program to be started
   b. Established baseline funding practice

4. Other Considerations

   a. Industry (job market) influence
   b. Community organizations or special interests groups
   c. Legal aspects
   d. Limitations of available resources
      (1) Facilities
      (2) Costs
   e. Political influences
   f. Social influences
      (1) Public opinion
      (2) Parental expectation
      (3) Ethnic considerations
   g. Cost/Benefit considerations
   h. Consider only programs and services that have bona fide opportunities for employment after successful completion of the program
   i. A career ladder approach available to students who enroll in the program

Guidelines for Methods and Procedures (Outline of Overview)

A. Introduction

B. Goals

C. Objectives

D. Procedure (suggested)

   1. Secure data and information in reference to student needs for occupational education and interests.

   2. Evaluate data and determine types of training needed.

   3. Secure data and information in reference to manpower needs.

   4. Evaluate manpower needs; compare with student needs. Determine which types of training are appropriate.

   5. Secure data and information in reference to vocational education programs existing and available.

   6. Determine what additional programs are needed and what resources are available.

   7. Secure data and information regarding financial needs and desired programs.

8. Evaluate funds available and/or needed, then determine to what extent desired programs can be implemented.

Footnotes - Instructions

A. Steps 1, 3, 5, and 7 can be done simultaneously.

B. Steps 2, 4, 6, and 8 should be done in sequence.

C. Determinations should be reviewed after each step and altered, if necessary.

Addendum

Following is the outline for an entire educational system consisting of four phases--planning, action, evaluation, and redesign. Significant actions are identified by sequence and relationship. Actions have been charted to visually show the sequence and relationship of elements.

PLANNING

Objective 1 To assess pupils interests, abilities, aptitudes, expectations and future needs in order to develop viable learning programs for pupils.

Objective 2 To assess parental and societal expectations which must be considered before developing relevant programs for pupils.

Objective 3 To assess manpower needs and employer expectations which must be considered before developing occupationally relevant programs for pupils.

Objective 4 To assess present and projected manpower training programs in industry and to evaluate the significance of these programs on school-related programs.

Objective 5 To assess the need for special vocational needs for the mentally and emotionally handicapped who are unable to compete with the mainstream of students and to plan for alternative programs for them.

Objective 6 To assess the impact of mobility of workers locally, nationally, and internationally and evaluate the impact of mobility upon the projected training programs for the metropolitan area under consideration.

Objective 7 To assess the present school program and to evaluate its capability for meeting manpower needs of industry.

Objective 8 To determine the local school district's goals and priorities for vocational education.

Objective 9 To determine local, state, and federal funding commitments for vocational education programs.

Objective 10 To determine present vocational program effectiveness based on learning outcomes which are measurable.

Objective 11 To determine teaching and learning strategies needed to meet individual differences.

Objective 12 To prepare evaluation plans commensurate with learning outcome and consistent with program design.

Objective 13 To develop plans for liaison activities with industry, state employment services, state departments of education and other relevant government, social, and educational agencies.

Objective 14 To determine "ideal mix" of in-school and out-of-school education and training programs.

Objective 15 To prepare plans for curriculum organization and content as well as media, staff, facilities and space utilization.

Objective 16 To prepare plans for effective counseling and guidance through the use of in-school and industry counselors.

Objective 17 To prepare procedures for identifying pupils needing specific vocational education programs.

Objective 18 To prepare plans for communicating with parents and public regarding vocational programs.

PLANNING FOR IMPLEMENTATION OF VOCATIONAL EDUCATIONAL PROGRAMS

Objective 19 To provide for effective diagnostic and prescriptive procedures useful in programming pupils in vocational education programs.

Objective 20 To provide for a reasonable balance of learning activities in vocational and academic programs.

Objective 21 To provide for effective interaction among pupils and staff in order to enhance emotional, social and intellectual growth of the pupil.

Objective 22 To provide for continuing vocational guidance and job placement to meet the changing needs of workers and changing needs of industry.

PLANNING NEEDS OF INDUSTRY FOR EVALUATION

Objective 23 To provide for effective evaluation of pupils based on qualitative and quantitative behavioral changes, consistent with individual differences.

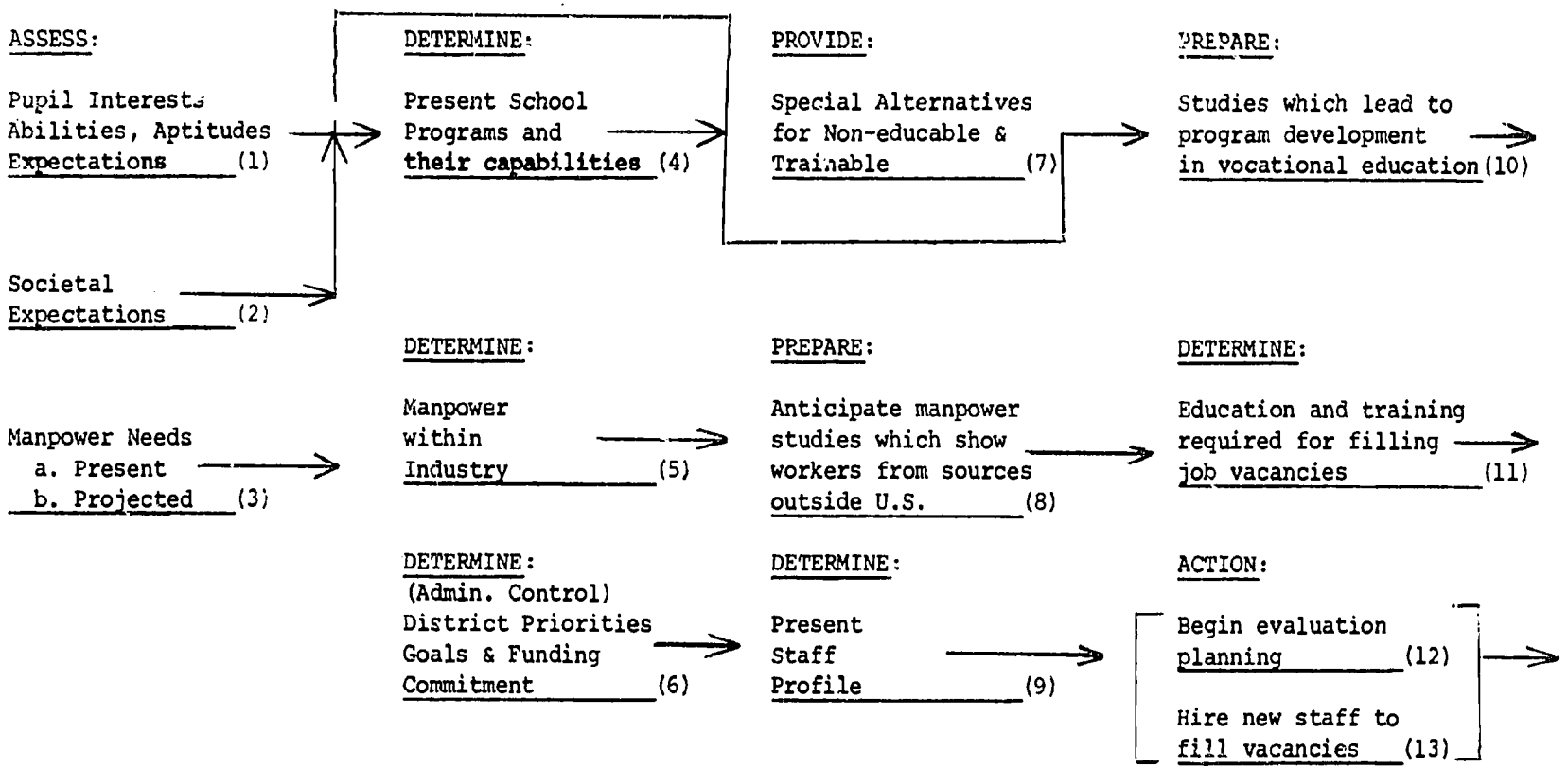
Objective 24 To provide for effective program evaluation based on performance objectives of the schools that are confirmed by effective and efficient work by the pupil on the job.

PLANNING FOR REDESIGN

Objective 25 To provide for program redesign through the use of objective and subjective data and information.

Objective 26 To provide for wide community and state involvement in decision making relating to vocational education.

PLANNING PHASE - ACTION SYSTEM FOR PLANNING OF VOCATIONAL EDUCATION



(A) Staff Responsible			
(B) Budget Allocation			
(C) Time Required			

DETERMINE:

Plans for Vocational Guidance & Counseling (14)

DETERMINE:

Basic Processes for training to be used, i.e. quality and quantity of school and industry training (16)

PREPARE:

Curriculum Org. & Content Plans (19)

MAINTAIN:

Liasion with industry and other agencies (17)

COUNSELING GUIDANCE (22)

IDENTIFY:

Pupils needing program (20)

DETERMINE:

Teaching & Learning Strategies needed to meet individual differences (15)

ESTABLISH:

Liasion with colleges, State Dept. of Education & Local Government Agencies (18)

COMMUNICATE:

Begin Public Relations with parents & public (21)

(A)			
(B)			
(C)			

ACTION PHASE

EVALUATION PHASE

PROVIDE:

Interaction for pupils in program (23)

Counseling Guidance (24)

COMMUNICATE:

With local employment agencies (25)

RECYCLE/REPROGRAM:

Pupils failing to meet vocational education requirements (26)

ASSIST:

Pupils in Job Placement (27)

EVALUATE:

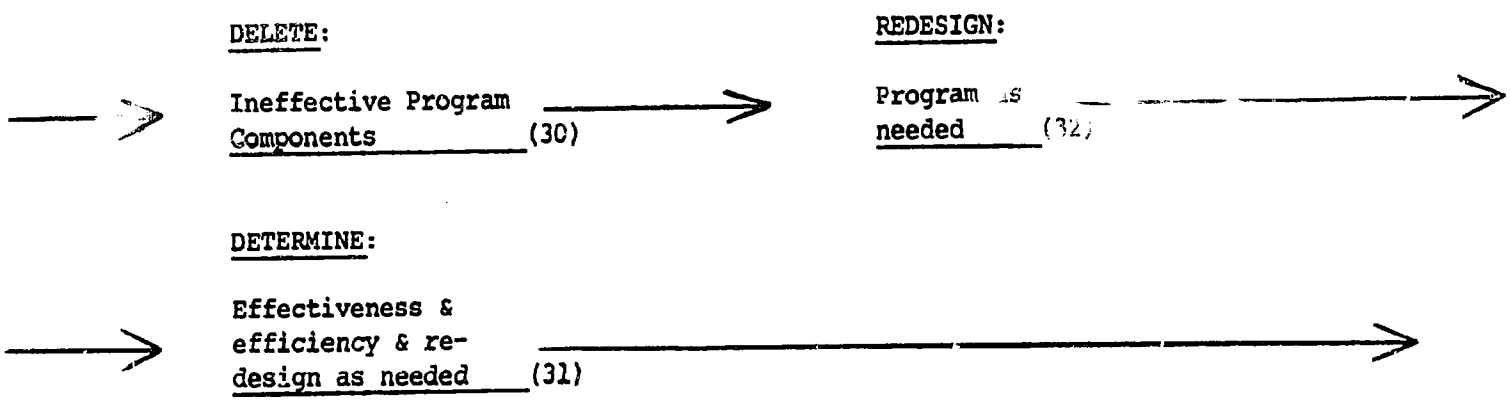
Pupil & Program (28)

ACCOMPLISH:

Develop Test Program Components (29)

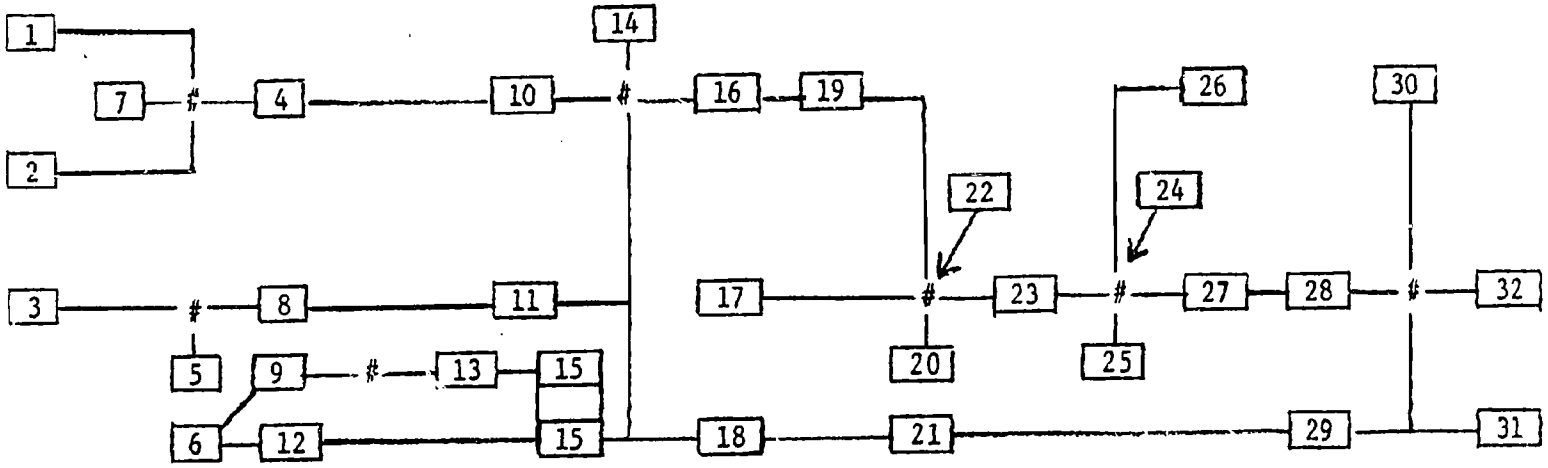
(A)			
(B)			
(C)			

REDESIGN PHASE



(A)		
(B)		
(C)		

ACTION SYSTEM FOR PLANNING OF VOCATIONAL EDUCATION



(A) Staff Assigned and Responsible

(B) Budget Allocation or Resources

(C) Time Line or Schedule

PHASES: Planning Phase - 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22
Action Phase - 23,24,25,26,27
Evaluation Phase 28,29
Redesign Phase - 30,31,32

NOTE: [ ] = Action identified

\# = Decision point

RESEARCH
MEETINGS
PLANNING
CONSULTING
DECISIONS
RESOURCES
FACTS
COMPUTATIONS
WHO IS THIS MAN IN YOUR NECK OF THE WOODS??
FINAL DECISION

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REPORT OF GROUP V

MODEL FOR PROGRAM PLANNING

I. Review Previous Evaluations as Basis for Planning

The 1963 Vocational Education Act provided for making vocational training and retraining accessible to all persons. Therefore, each state and community will be obligated to plan its vocational education program and still be conscious of what is happening in the vocational world to be ready to make adjustments.

The plan for vocational education should include statements of policy, philosophy, goals, and measurable performance objectives which indicate evidence of broad administrative commitment to vocational education. These statements should reflect sensitivity to local population needs and the job-market needs of the area to be served.

Maintaining and expanding a program of public vocational education depends greatly upon the proper utilization of reliable sources of data and the sophisticated analysis of these data and consideration of the other vocational education activities which are available. In many public or private organizations the program goals, the program objectives, and the budget are expressions of ou[illegible] and program; hence their preciseness may be a reflection of past performance, including both successes and failures.

Usually a considerable amount of confusion surrounds an area of activity before it receives definitive attention such as the needs of inner-city disadvantaged. Confusion may result when conditions change from normal or static. Abnormal situations pressing on society may bring problems into sharp focus. Imagination, the ability to perceive problems, and knowledge of problem areas are required before one may begin to solve the problems to meet the needs of inner-city disadvantaged.

Educational funds must be spent strategically with emphasis given to programs that will yield the greatest benefit per dollar spent. Some consideration should be given to training preferences and job choices of students. However, the job approach should yield the biggest payoff in terms of job creation and acceleration of economic development.

Long-range forecasting of manpower skills requires that expectations of skill classifications by industries be determined, as well as total employment in given industries. The forecast of total employment by industry is the basis for forecasts of numbers of employees required in each skill classification by industry. Aggregating similar skills over all industries, long-range forecasts by skills for all industries are obtained.

In order for the Country to retain and develop its needed work force, it is essential that some agency engage in large scale

vocational and technical training activities. This not only requires expansion of activities for needed skill training, but remedial education as well. However, there must be an equally important commitment of effort to trainee recruitment, especially among the disadvantaged, and to job placement services for those completing their training. The problem is that there are too few qualified job seekers. Serious underemployment and underparticipation is wide spread throughout the Country.

There is little evidence, based on the availability of current techniques and known experimentation, that a viable method of long-range forecasting of occupational requirements on a local basis will be operational on a national basis soon. Excluded, of course, is the skill-survey approach which is operational but which has been handicapped by a lack of funding. A new technique is needed to permit the employment service to discharge its function of providing long-range occupational information to the vocational education system that would also serve the employment service itself in carrying out its responsibilities under the Manpower Development and Training Act.

As a result of the study of previous evaluations, a basis is established for reorganizing, redirecting, and renewing the planning process of vocational education.

II. Goals and Policies

The strategy and procedures which are necessary for effective program planning in metropolitan areas involve an examination of goals. Goals are statements of broad direction, purpose or intent which are based on the identified needs of the person, group(s), or institution(s) being served. Vocational education planning must not only identify the goals of the population which it is serving, but also make sure that its programs are implementing the public's goals.

Occupational education goals must be both consistent and in tune with the overall goals of education. It must be a part of the total educational program and not a separate entity unto itself.

Some suggestions for the vocational education planner when considering goals as a part of the planning procedure are:

A. Gather National, state, and local statements of educational goals and philosophy
   1. General and vocational education statements
   2. Public and private organization's statements; e.g., state and local school boards, Chambers of Commerce, labor unions, professional teacher organizations, advisory councils

B. Examine statements of educational goals and philosophy
   1. Identify common elements in various statements in terms of who is to be served and how the service will be rendered.
   2. Look at the priorities that are assigned to target populations, programs, procedures, and allocation of resources.

3. Note any major differences that exist between statements of various groups about B.1. or B.2. above.

C. Compile a summary of statements in terms of B.1. and B.2.
   1. Identify any major differences between group statements relating to B.1. or B.2.
   2. Show any gaps in information which exist; e.g., if statements do not give student needs.

D. Develop plan for acquiring any information about goals which is needed.

E. Secure information needed.

F. Complete C by adding information gathered.

III. Assess Needs

The composition of any community is vital in terms of realistically determining the educational needs of its citizens. To prepare individuals for gainful employment and to enable employed workers to advance themselves on their jobs, it is also essential that the dimensions, characteristics, and prospects for employment afforded by the local employment market be clearly defined.

Pertinent data gleaned from many sources are helpful in determining specific needs for annual and long-range program planning. The following are necessary steps for obtaining the kind of data used in program planning (Further suggestions are mentioned in Item IV):

A. Select Advisory Committee.

B. Analyze population to be served.

C. Analyze current and projected labor market.

D. Analyze present programs.

IV. Priorities

A. Target Groups
   1. Handicapped: Those persons who are mentally retarded, hard of hearing, deaf, speech impaired, visually handicapped, seriously emotionally disturbed, cripple, or other health impaired persons who by reason thereof require special education and related services.
   2. Disadvantaged: Those persons (other than handicapped persons referred to in A.1. above) who have academic, socioeconomic, or other handicaps that prevent them from succeeding in the regular vocational education programs designed for persons without handicaps, and who for that reason require specially designed education programs or related services. The term includes persons whose needs for vocational programs or services result from poverty, neglect, delinquency, cultural or linguistic isolation from the community.
   3. Regular: Those programs which are designed to prepare high school students for advanced or highly skilled post secondary vocational and technical education; and/or for persons who have completed or left high school and who are available for study in preparation for entering the labor market.

4. Adult: Those programs which are designed to provide training or retraining to insure stability or advancement in employment of persons who are about to enter, or who have already entered, the labor market and who are either employed or seeking employment.

B. Criteria for Determining Priorities

1. Manpower Needs and Job Opportunities
   a. Manpower needs and job opportunities, both current and projected, will be based upon the most recent data available from:
      1) The Department of Labor (local, state, and National)
      2) Local surveys
      3) The recommendations of state and local advisory committees
      4) And/or privately contracted surveys which the governing board may deem necessary.
   b. Identified areas of need and shortage will be considered. Particular consideration will be given through the weighing of terms in distribution and priority equations to those agencies whose proposed vocational education programs are best designed to:
      1) Fill the identified manpower needs, and
      2) Fulfill new or emerging occupational needs at the local and state levels.
   c. The State Education Board, Department of Vocational Education, shall use the results of periodic evaluations of vocational programs at the state and local level to:
      1) Reduce the gap between trained manpower and job opportunities, and
      2) Modify programs to meet new and emerging needs and opportunities.
2. Vocational education needs of the people served by a local agency will be determined on the basis of:
   a. Number of persons in the population group being served
   b. Vocational programs conducted by the local education agency which are best designed to
      1) Fulfill current and projected manpower needs in existing occupations at local and state levels
      2) Meet the needs of the new and emerging occupations at local and state levels
   c. Periodic evaluation of programs in terms of program objectives.
3. Due consideration will be given to the relative ability of local agencies, particularly those in economically depressed areas and those with high rates of unemployment, to provide the resources necessary to meet the vocational education needs of the areas served. The economic index of a county or district will be judged by:
   a. The number of Elementary and Secondary Education Act Title I qualified students
   b. The local unemployment rate
   c. The mill levy (tax) assessed for support of local education.

4. Priority will be given to programs, services, and activities in local agencies having excessive vocational costs because of:
   a. The need for supplying special services other than those necessary to meet the special vocational education needs of certain population groups, such as disadvantaged or handicapped persons
   b. Bus transportation for students
   c. Unusual and/or excessive maintenance costs of buildings and facilities, which are not usually part of the cost of education.
5. Other factors may increase benefits of vocational education within a state or area:
   a. The comprehensiveness of the total application
   b. Previous evaluations of programs offered by the local education agency
   c. Evidence of total community involvement and support.

V. Objectives

Objectives are desired accomplishments which can be measured within a given time frame. Achievement of the objective advances the system toward a corresponding goal. Accordingly, objectives that support and contribute to the achievement of the established goals must be developed.

A. In establishing objectives and developing programs, planners should insure that the following elements are identified in each individual objective.
   1. Whose behavior is to be changed?
   2. What type of behavior is desired?
   3. What amount of change is desired?
   4. The time period during which change is desired.
   5. The manner in which change will be observed.

B. The end result of objectives should be:
   1. To discover individual interests and abilities
   2. To explore the many avenues of productive activity that might challenge and enlarge their individual talents.
   3. To learn the wise exercise of freedom of choice, self-direction, self-discipline, and responsibility.

VI. Strategies

To achieve stated objectives, vocational-technical programs must be designed with the following characteristics:

A. Assure that all instruction is relevant to the real life concerns of students so that they develop the basic skills, knowledges, and values that are essential for success in any career they might choose.

In order to engage the interest and desire to learn in all

young people, ways must be found to make learning relevant. To achieve relevancy, two things need to be emphasized:

1. It is necessary to give general education a massive infusion of illustrations from the world of work in order that the majority of students will have subject matter related to what concerns them in real life.
2. Rather than requiring students to learn information or facts that have been produced in each subject area, they should be taught to use concepts and methods as tools to solve problems and to fulfill responsibilities as citizens, parents, breadwinners, and taxpayers.

B. Provide ample opportunities to explore the knowledge, skills, technical requirements, working conditions, political and social environments, and responsibilities for each of the career fields that are open to them.

1. The knowledge, environmental factors, and skills common to the occupations which comprise a broad family of occupations rather than a necessarily limited list of unrelated occupations must be explored.
2. All students must be assisted in the selection of a broad career-cluster goal appropriate to their interests, abilities, and aptitudes.
3. Effective and extensive use must be made of business and industry for exploration through selected work experience and observation.

C. Provide guidance services adequate to assure that every young person gains expert help in assessing his personal interests, aptitudes, and abilities in making career choices and in planning an appropriate educational program.

1. Place the major responsibility for orientation to the world of work at the elementary level, with initial emphasis on the development of positive attitudes toward all occupations.
2. Place the major responsibility for helping all students determine general but tentative career goals and life styles at the junior high school level.
3. Place the major responsibility for suitable preparation to take the next step after high school graduation at the senior high school level, whether that step is post-high school or college work, apprenticeship training, or an entry-level job.

D. Provide a curriculum based on career goals that will allow a student to prepare for the occupational fields of his choice by acquiring skills and knowledges that will enable him to obtain entry-level employment.

1. Curriculums must be built around the career cluster or family of occupations concept so that students may select a career goal at the beginning of their high school experience and then tie a majority of their experiences into this generalized goal.
2. More specific career education must be provided in the eleventh and twelfth grades. The minimum requirements to provide in-depth instruction necessary for effective entry-level performance, and to meet state licensing and/or certification requirements, must be observed.

VII. Identify Resources

The purpose of this section is to make provisions for obtaining the necessary resources to be used in the improvement of existing vocational programs as well as the development of new vocational education programs.

Various sources are: textual materials, measurement devices, equipment, physical plant and trained personnel. The development of ancillary services is an important aspect of this item. These may be provided through library services, inservice training programs, etc.

The following are suggested guidelines:

a. How is the need for this item being planned?
b. What are the planned activities?
c. What are the expected outcomes?
d. What questions should be asked to aid in determining effectiveness?
e. What procedures will be established for developing, evaluating, and revising curriculum guides, and other course materials?
f. Ancillary and supportive services
    1. What are the planned activities?
    2. What are the planned outcomes?
    3. What are the district's commitments in terms of organization for administration and supervision of vocational education programs?
g. What practices and policies are used to assure adequate professional and occupational competencies for instructional personnel?
h. Facilities and equipment?

VIII. Program Planning and Review

This section is concerned with integrating information on population needs and job opportunities in the light of the area manpower plans and budget constraints to develop new and improved curricula so that a proper assortment of programs is offered. Clearly this section, which includes area planning, is of paramount importance to the success of the system.

In preparing information for program planning review, the following should be used as guidelines:

a. How is the need for program planning being met?
b. What are the planned activities?
c. What are the expected outcomes?
d. What types of questions should be asked to determine the effectiveness of this activity?
e. Area planning
    1. Multischool and multidistrict planning
    2. Use of Cooperative Area Manpower Planning System (CAMPS)
f. Program Review
    This item is included to represent the requirement for review

of local district program plans. The existence of a decision-making activity which may be beyond the control of the local director is of concern in local-level evaluation. To a large extent, however, the acceptance of a plan will be dependent on the quality and completeness of the program planning information, which provides an opportunity for a further evaluation of that activity. In preparing information pertaining to the review of the planned program, the following guidelines should be used:

1. Description of the district review procedures of the district plan.
2. What are the planned evaluative criteria for acceptance of the plan.
3. Other.

IX. Evaluation

Section 12 of California Instructions for Preparing a District Plan for Vocational Education is paraphrased in the following four paragraphs:

Evaluation is the process of determining the degree to which a system is meeting its objectives. The results of evaluation are used as a part of the management information system as well as meeting the requirements for periodic reporting set forth in P.L. 90-576.

Evaluation in vocational education is comprised of two primary elements: (1) end-point (terminal) evaluation and (2) functional (on-going) evaluation.

End-point evaluation is primarily concerned with how well and how efficiently the system met its overall objectives as determined by follow-up studies of dropouts and graduates; the number of students enrolled versus the number of students who, according to stated goals, should be enrolled and the comparative cost of achieving the stated objectives.

Functional (on-going) evaluation is directed at evaluating how well each basic function is meeting its objectives, which are, in essence, subobjectives of the overall system. Functional evaluation should be carried out on a continuous basis, with results being used for improvements in the system. The basic evaluation should be periodic, with the results used to satisfy the annual reporting requirements.

In planning the evaluation activities it is suggested that the total system should be viewed as having four elements; (1) facilities, (2) staff, (3) instructional program, and (4) students.

Possible elements for consideration in evaluation might be (a) space adequacy; (b) degree to which equipment simulates current industrial or business practices; (c) degree to which available student stations in the several programs meet the needs of the total number of qualified applicants; (d) degree to which facilities are attractive,

safe, and well maintained; (3) and whether there is a formal policy, adopted by and practiced by the governing board to regularly appropriate adequate funds for replacement and maintenance of the facility.

It must be recognized that, currently, teacher organizations wish to play a part in staff evaluation. Either by committee development or as a part of the contract, criteria for individual evaluation and method of applying those criteria should relate to the goals and objectives of the teacher-training program and the inservice upgrading program.

The evaluation of the instructional program should be on a continuing basis by each advisory committee; on a regular annual basis by securing for a period of five years the opinions of graduates as a part of the required follow-up surveys; and an annual survey of employers' (foreman level) opinions of the competencies of the graduates of the preceding year.

When evaluation of the student population is considered, the problem is one of dilemma form: Are the students enrolled capable of meeting the objectives of the individual programs? Or are the objectives developed in a manner that permits the students enrolled to achieve them in the time allotted? (Placement records and withdrawals from the program will reflect one or the other of the queries.)

Further, any evaluation of the student population must take into consideration the degree to which the special programs covered by P.L. 90-576 are in use: Part B, handicapped and disadvantaged; Part D, exemplary programs; Part F, consumer-homemaking education programs; and Part H, work study.

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