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ABSTRACT

Presented in two sections, this report consists of recommendations based on goals suggested by the National Advisory Council and the U.S. Office of Education, and the work of a study group organized as appendixes under each of the same goals. The summary of the recommendations revealed that the most frequently encountered problem was the tendency to treat the symptoms of human differences without considering the implications for education. Other major needs are a total management information system, and coordination between the major colleges and the local county operated vocational centers. (Author/JS)

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VOCATIONAL-TECHNICAL EDUCATION IN HUMAN  
RESOURCE DEVELOPMENT IN FLORIDA:  
A STATEWIDE EVALUATION.

Recommendations of the  
Florida State Advisory Council on Vocational and  
Technical Education

Grant No. 71-0004  
The Florida State University  
Department of Educational Administration

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1970

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on

## VOCATIONAL AND TECHNICAL EDUCATION

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The Honorable Claude R. Kirk, Jr.  
Governor of Florida and  
Members of the State Board for  
Vocational Education  
The Capitol  
Tallahassee, Florida

Gentlemen:

The Florida State Advisory Council on Vocational and Technical Education submits to you the appended Evaluation of Vocational- Technical Education in Florida for your consideration and transmittal to the United States Commissioner of Education and the National Advisory Council on Vocational Education.

Public Law 90-576, also known as the Vocational Amendments of 1968, provides that state councils "prepare and submit through the State Board to the Commissioner and to the National Council an annual evaluation report, accompanied by such additional comments of the State board as the State board deems appropriate, . . . ."

We hope this first annual report will be given serious consideration by you in planning and making quality occupational education available to all Floridians.

Sincerely,

*Walter H. Clausen*  
Walter H. Clausen  
Chairman

The Florida State Advisory Council on Vocational and Technical Education was established by the State Board for Vocational Education on February 25, 1969, for purposes of Section 104(b) of the Vocational Act of 1963, as amended by the Vocational Education Amendments of 1968 (P.L. 90-576). The council is composed of persons appointed by the State Board representing labor, management, education, and the general public.

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## PREFACE

The basic research for this report was performed by a special study group of the Department of Educational Administration of The Florida State University under contract with the State Advisory Council on Vocational and Technical Education.

The study group was under the direction of Professor Richard H. P. Kraft and his associate, Mr. Lawrence Weisman. Each member of the group, and other individuals who were invited to contribute, conducted independent research studies. The rationale for this approach was to allow for a maximum of creativity and to provide a flexible vehicle on which ideas not communicable in more stereotyped studies could be borne. For this report, programs were not studied directly but from various aspects such as facilities, faculty development, and so forth.

The results of this system have been gratifying because of the broad coverage obtained, the quantity of substantive recommendations made, and the apparent validity of the recommendations. The validity of these findings and recommendations is judged on several factors. First, the conclusions reached in these studies dovetail and even coincide with one another. Second, there is clear agreement between these findings and findings of other recent major studies. Finally, many, if not most, of the recommendations are in some stage of implementation, study, or planning by the Florida State Department of Education.

The study group was encouraged to express themselves freely and the conclusions stated in the individual reports

are the responsibility of the authors. The Council's task was to sift through those recommendations and, in the light of other sources and the prior experience and knowledge of its members, adopt a set of recommendations appropriate to its philosophy and level of influence. The council concurs with many of the study group's recommendations that were not adopted; however, these were omitted because they expressed specifics of operations and the council has tried to limit its recommendations to broad policy.

The report is presented in two main sections. The first, which is the responsibility of the council, consists of the summary of recommendations and the recommendations themselves. They are organized according to the goals suggested by the National Advisory Council and the U.S. Office of Education. The second section is the work of the study group and is organized as appendixes under each of the same goals utilized by the council.

The council acknowledges with appreciation the work that was accomplished by the study group and looks forward to its report for next year.

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## ACKNOWLEDGMENTS

I wish, first, to thank Dr. L. V. Rasmussen who served as acting director of this project during my absence. His efforts toward the completion of the project were greatly appreciated.

Special thanks go to Dr. Carl Proehl and the members of the Division of VTAE. Their cooperation was essential to the completion of this project.

The interviews with county office personnel and the visits to various vocational centers and junior colleges were most advantageous. Unfortunately these are too numerous to list here, and we are restricted by an obligation to keep the identity of the institutions studied in confidence. However, their frankness and generosity was greatly appreciated by the entire staff.

The staff of Dr. Lee Henderson of the Division of Community Colleges also was most cooperative. In particular, Dr. Harold Kastner gave quite generously of his time and experience.

Finally, a special debt of gratitude is owed Bruce Howell, executive secretary of the state advisory council, for his support and understanding.

Richard H. P. Kraft  
Project Director

SECTION ONE

RECOMMENDATIONS

VOCATIONAL-TECHNICAL EDUCATION IN HUMAN  
RESOURCE DEVELOPMENT IN FLORIDA

Summary of Recommendations

Curricula are related to people. This simple fact often has been overlooked by curriculum planners who traditionally developed curricula and courses of study in terms of the material or processes to be communicated. This arrangement was satisfactory when only an elite few were privileged to be educated in a formal setting, or needed to be. Today, formal education and training is not only a common right, but a necessity for maintaining a minimum standard of living. It is necessary for educators to adjust the educational processes to accommodate the human differences in the diverse populations now requiring their services. If there is a central theme in the findings of this report, it is that "human resources" is not a purely economic term, but embraces the idea of social development as well.

The success or failure of vocational programs to meet the challenge of the 1968 amendments, and of the special provisions of the state plan, depends on the ability of vocational educators to adjust to the differences in people. The recommendations for Goal 1 emphasize the importance of "value judgments" and the collection of non-monetary data in assessing cost-effectiveness. It is this added dimension that has made cost-effectiveness a relevant tool for today's planners.

Wherever we travelled in the state we were impressed by the sincerity with which administrators, counselors, and teachers were working to serve these human needs. The problem most frequently encountered was the tendency to treat the

symptoms of human differences without considering the implications for education to be found in a study of causative factors. This is the importance of the Beggs (Appendix A, Goal 2) and Clearwater Comprehensive (Appendix C, Goal 2) studies. Literature dealing with the educational problems of the disadvantaged, particularly ghetto youth, is only recently emerging and the implications for teaching are not yet widespread. This is the rationale behind the criteria for evaluation on programs for the disadvantaged which were developed by Mr. Russell (Appendix B, Goal 2). The report of Lawrence Weisman dealt with the barriers raised by lack of this knowledge (Appendix A, Goal 4) and Dr. Jahns has offered some possibilities for diffusing the information (Appendix C, Goal 1).

Another major theme of this report is the need for a total management information system. Whether the topic is facilities, programs for the disadvantaged or physically handicapped, follow-up studies of graduates, or anything necessary for planning and evaluation, the data are either inadequate or incompatible for matching with other appropriate data. The Division of Vocational-Technical and Adult Education has recognized this and already has begun a pilot program for developing a system (Appendix C, Goal 5). Our appeal is, first, for priority for funding and implementing the program that they evolve. Second, we recognize the need for cooperation and information sharing among governmental agencies and the private industrial and educational sectors in order to make the system effective and efficient.

Many of the other recommendations found in this report also have been recognized by the Department of Education and by the State Legislature. The 1970 session of the State Legislature provided a broad mandate to the department to act

in these areas and the department has reacted promptly with a revised list of priorities and an implementing program (Appendix A, Goal 3).

One area of notable deficiency is the lack of coordination between the junior colleges and the local county operated vocational centers. We are suggesting that a spirit of cooperation can be attained even with separate lines of control. We are suggesting that coordination can be of mutual benefit to these institutions in terms of faculty development (Appendix B, Goal 1), recruitment (Appendix A, Goal 4), and facilities utilization (Appendix B, Goal 4).

Some special attention should be given to the organization of programs. We feel that vocational appreciation is essential to a true spirit of democracy and that understanding and appreciation of the next door neighbor's occupation should begin in the elementary grades (Appendix D, Goal 1 and Appendix C, Goal 2). Segregation by occupation not only is out of tune with the egalitarian concept, but also is inefficient. Kraft suggests the educational park as a possible solution (Appendix A, Goal 5). This also would alleviate the deficiencies in extra curricular programs for vocational students as reported by Golden (Appendix D, Goal 1). Weisman has outlined the need for restructuring programs by laddering and by articulation between the county vocational centers and the junior colleges (Appendix A, Goal 4).

With the profusion of recommendations that are attached, one might erroneously assume that Florida's vocational programs are not in good shape. The reader must observe that the recommendations follow a pattern of improving efficiency and of improving on a good job. We have found several indicators to substantiate the effectiveness of the total program. First, the state has one of the lowest unemployment rates in

the nation. Second, Mr. Harris, our facilities researcher, reports that the area vocational technical centers are within commuting distance of 90 per cent of the population, commuting distance being a geographical distance of thirty miles. Finally, with the exception of Computer Assisted Instruction, our team could not find an innovative idea that was not being tried by someone in the field. We cannot claim many original ideas; the preponderance of them were frankly and readily volunteered by the personnel we interviewed.

In a response to a request for suggestions for this summary, Mr. DeCarlo wrote: "They [administrators and faculty] are alert to the problems they confront, sensitive to the difficulties they will encounter, and enthusiastic over the new thrust toward universal [post-secondary] education."

## RECOMMENDATIONS

### Introduction

The goals as stated herein have been extracted from the suggested evaluation goals contained in "Recommendations Regarding Vocational Education Evaluation by State Advisory Councils" as adopted by the National Advisory Council on May 1, 1970, and transmitted by memorandum from Grant Venn, Office of Education, on June 19, 1970.

These recommendations represent some in-depth studies of limited aspects of each goal with some overviews. The list includes only recommendations for improvement and does not reflect the many worthy achievements that have been accomplished. Many recommendations are concerned with programs that are either already under study, or being planned or implemented, and these recommendations are intended to stimulate or support the efforts of the state.

### Goal 1

To evaluate the effectiveness of the State's federally-assisted programs, services and activities in meeting the State goals and priorities set forth in the State Plan.

A major limiting factor for this year's report was the difficulty in obtaining timely, definitive, and quantitative data. Improvements in the information system of the Division of Vocational, Technical and Adult Education will permit more quantitative analyses for the FY 1971 report.

#### Recommendations: Goal 1

##### A. Effectiveness of Programs

1. Cost-effectiveness studies are needed as a basis for evaluation of programs. The Council strongly recommends that cost-effectiveness studies be made to plan, organize, and finance the total program for the most effective instruction in all phases of education.

(Goal 1, Appendix A; Goal 5, Appendixes A and B)

- a. It does not necessarily follow that an educational program with a lesser degree of monetary utility than another should be assigned a lower resource allocation. Further studies of the more subjective aspects of program utility need to be considered in order to develop meaningful measures of these subjective aspects. These measures are needed to minimize the value judgments program evaluators and planners need to make. (Goal 1, Appendix A)
- b. Many program utility aspects will not be refined to the point of being quantified precisely and,

thus, value judgments should continue to remain as a necessary part of the decision-making process. (Goal 1, Appendix A)

- c. It is essential to define and organize relevant information about educational programs--data concerning students and failure rates, staff, course schedules, facilities, equipment, and expenditures--in order to perform cost-effectiveness analyses. All records and reporting of these data need to be kept in computer-readable form and incorporated in a computer-based educational information system at a local or regional level.

(Goal 1, Appendix A; Goal 2, Appendix C)

2. The Council recommends that raw data on completions not be used alone on the annual federal reports as they are not significant. An adjusted percentage calculated by dividing completions by initial enrollments in established programs would be more meaningful. (Goal 5, Appendix B)
3. The Council recommends that standard criteria for the evaluation of programs for the disadvantaged be developed and used as a basis for evaluating the effectiveness of such programs. (Goal 2, Appendix B)
4. The Council recommends that standardized methods to assess change in students in both the cognitive and attitudinal areas of vocational-technical education be developed by the State Department of Education. A survey of test instruments needs to be made and evaluated in terms of their validity and appropriateness for assessing these changes. (Goal 2, Appendix C; Goal 4, Appendix A)

B. Total Management Information System

1. The Council recommends that the continued development and introduction of a total management information system for VTAE be given the highest possible priority. (Goal 1, Appendix B; Goal 2, Appendix B; Goal 3, Appendix A; Goal 4, Appendix B; Goal 5, Appendix C)

C. Staff and Faculty Development

1. The Council recommends that the State Department of Education continue to expand programs of salary continuation during selected periodic work experiences in industry, which are being developed by several counties independently. (Goal 1, Appendixes B and D)
2. The Council recommends that counselors be exposed to the work world through academic and experiential methods. The requirements for certification should include work experience other than or in addition to teaching experience. (Goal 1, Appendix D)
3. The Council recommends that prospective vocational educators be introduced to the latest media, including the computer, and their potential for aiding in making funds available for visiting successful programs. (Goal 1, Appendix B)
4. The Council recommends that the State Department of Education improve the effectiveness of its services in diffusing information of innovative methods and techniques. (Goal 1, Appendixes C and E)
5. The Council recommends that more funds be made available to allow district school systems in the state of Florida to acquire "within school assistance" for vocational programs. This assistance might be in the form of hiring a consultant, securing a fulltime

employee, soliciting university help, and so forth. The above are necessary if innovations are to be implemented effectively, and properly monitored and evaluated. (Goal 1, Appendix E)

6. The Council recommends that creative and aggressive programs of resource center (library and audio visual) service be encouraged and supported. Continuing attention should be given to their needs so that they may meet adequately the expanding demands placed upon them. (Goal 1, Appendix B)

#### D. Facilities

1. The Council recognizes that, at present, existing facilities and funding for new facilities will not meet the training needs of the 60 to 80 per cent of the students who should be involved in vocational programs. Additionally, improved recruitment and guidance will create impacted conditions. The Council recommends that long-term funding plans be developed to meet these needs. (Goal 4, Appendix B)
2. The Council recommends that current use of mobile counseling units directed toward attracting disadvantaged and handicapped persons into vocational training programs be evaluated to determine feasibility for expansion. (Goal 4, Appendix B)
3. The Council recognizes the need for a more specific definition of the role of the school counselor. Completion of a list of behavioral objectives for each school counselor would give the needed direction to the guidance efforts. This also would serve to inform supervisory personnel of the programs and goals of the guidance department at the individual counselor's level. (Goal 1, Appendix A)

4. Since many mothers work during the day and most fathers are not able to be involved during their working hours, the Council recommends that special counseling programs be devised to reach ghetto families in their environment. (Goal 1, Appendix D)

### Goal 2

To evaluate various state and regional, public and private programs as to how they function and how vocational education fits into the total program for human resources development--with reference to duplication, coordination, and/or competition.

This year's report deals almost exclusively with public, State-operated programs. Adequate data on federal and private programs were not available at the time this report was completed, however, these sectors will be considered in the report for FY 1971.

#### Recommendations: Goal 2

##### A. Information Sharing

1. The Council recognizes the need for effective use of interagency committees at both federal and state levels to share information, particularly in the areas of manpower requirements and follow-up of graduates. (Goal 5, Appendix B)
2. The Council recommends that cooperation and exchange of information for faculty development be fostered among institutions and school districts offering vocational technical education. (Goal 1, Appendix B)
3. The Council recommends the development of a systematic program for identifying local, state, regional, and national work experience opportunities that will provide suitable upgrading experiences for

vocational-technical education. As an interim measure, the Council recommends that the exchange of available information be promoted. (Goal 1, Recommendation C, 1; Goal 1, Appendix B)

B. Articulation, Cooperation, Standardization

1. The Council recommends that the position of Assistant Commissioner for Vocational Education be reestablished and a qualified person hired in order to assure proper articulation, cooperation, and coordination of all vocational education programs in Florida. (Goal 1, Appendix B; Goal 4, Appendixes A and B)
2. To encourage articulation between area vocational-technical center programs and junior college vocational-technical programs which exist in the district, the Council recommends that local coordinating boards be established. Representing both public and institutional interests, such boards could play an effective role in precluding the duplication of similar facilities within commuting distance of each other. (Goal 2, Appendix B; Goal 4, Appendix B)
3. The Council recommends that a study on standardization of those prerequisites for admission deemed to be essential be instituted cooperatively by the institutions concerned. (Goal 4, Appendix A)
4. The Council recommends that communication be opened between the area vocational-technical centers and the local community junior colleges so that articulation may be developed between the vocational programs. (Goal 4, Appendix A)
5. The Council recommends that a major recruitment drive, conducted at local level and promoted and planned on a statewide basis, be undertaken to increase the

enrollment of minority groups in vocational education courses. Use should be made of mass media, special experimental programs, and specialized personnel. Where possible, established communications channels within the minority community should be used.

(Goal 2, Appendix B)

6. The Council recommends that priority be given to accelerating the development and implementation of programs that would improve the employment opportunities of migrant workers. (Goal 2, Appendix B)

#### C. Outreach

1. The Council recommends that some specific activities of the Department of Education, the Department of Commerce, and the Department of Health and Rehabilitative Services might be:
  - a. To coordinate a combined statewide and local campaign to encourage employers to hire in specific or related jobs for which they have trained, the disadvantaged, the handicapped, people with police records, and people with bad debts, who are recommended by their vocational educators.  
(Goal 2, Appendix B)
  - b. To initiate a statewide campaign to encourage employers to register all job vacancies with the state employment service so that various manpower agencies--including the State Department of Education--are provided meaningful and relevant data concerning manpower needs. (Goal 2, Appendix B)
2. The Council recommends that tasks of advisory craft committees be defined so as to include the determination of community occupational needs, a description of competencies required, and an evaluation of the performance of graduates.

Goal 3

To evaluate the effects the Vocational Education Amendments of 1968 had upon the State policies and their administration as they were employed to carry out the mandates of the act in the year under review.

The implementation of programs was spurred almost immediately by the 1968 amendments. The passing of legislation and the formal adoption of policies followed closely but with due study and deliberation; they present great promise. However, time has not permitted their effectiveness to be tested and so they are presented in this report in brief.

- A. Extensive comprehensive legislation was enacted by the State Legislature in this year; therefore, the Council recognizes the need for continued emphasis by the State Legislature to support and foster the effectiveness of Florida's programs in vocational-technical education.  
(Goal 3, Appendix A)
- B. The Council recommends that cost codes, to be developed under provisions of House Bill 3950, be made compatible with skill classifications resulting from a standardization of the State Accreditor, the HEW taxonomy and the DOT. Vocational training is organized by basic skills rather than by industry, therefore the same basic skills may be listed under different job titles in different industries. Therefore, to plan for future requirements, basic skill classifications are needed. Further explanation of this principle is found in Appendix B, Goal 5.  
(Goal 3, Appendix A)
- C. The procedure utilized by the Department of Education of regular review and revision of policies and priorities for educational planning is commendable and the Council

recommends that this procedure be continued. (Goal 3, Appendix A)

#### Goal 4

To evaluate the effectiveness with which the people and their needs are served.

The needs of the people were viewed from their broader aspects. A basic question was: "Are the programs providing opportunities for socio-economic mobility, and what, if any, are the deterrent factors?" This question goes beyond the simpler one of "Are job skills provided for all who desire them?" The latter question primarily is quantitative; the first question is qualitative. The qualitative aspects received the greater stress in this report.

#### Recommendations: Goal 4

- A. Improvement of Instruction and Instructional Programs
  1. The Council recognizes the need for occupational preparation and training profiles. (Goal 5, Appendix A)
  2. The philosophy of adapting the teaching methodology to the child, as is being tested in exemplary programs on a pilot basis, appears to be valuable and the Council recommends that further testing and evaluation be conducted. (Goal 2, Appendix A)
  3. The Council recommends that the State Department of Education give priority to continuing the development of guidelines (curriculum guides) to assist schools in the development of measurable objectives in vocational-technical education. State and national leadership is needed to establish a means of systematically updating these measurable objectives. (Goal 1, Appendix B)

4. The Council recommends the development of systematic procedures for obtaining follow-up information from graduates, non-graduates, and employers concerning the adequacy of the vocational-technical education programs. Information should be organized by occupational skill so that it may be utilized for the improvement of instruction and faculty development programs. (Goal 4, Appendix A)
- B. Organization and Structure
1. The Council recommends that occupational programs be restructured into sequential levels--sometimes referred to as "laddering." Students should be permitted to enter at any appropriate level and to exit with a certificate at each level completed. These sequences should lead to technical or professional levels where appropriate. (Goal 4, Appendix A; Goal 5, Appendix B)
  2. The Council recognizes the need for work-oriented programs for all students. In view of the fact that half of Florida's youth does not continue to higher education, the secondary schools in combination with the post secondary institutions should offer more work-oriented education. (Goal 5, Appendix A)
  3. The Council recommends that the concept of "Educational Parks" instead of single isolated schools be investigated. Programs of vocational instruction, especially, may be enriched and expanded to afford a wide choice of educational opportunities for the students. These new programs (with heavy emphasis on vocational preparation) should be developed as an integral part of the total education. (Goal 1, Appendix D; Goal 5, Appendix A)

### C. Facilities

1. The Council recognizes the need for a study to determine the priorities that should be given to support facilities such as libraries, student centers, food service areas, and administrative spaces in future capital outlay programs for vocational-technical education centers. (Goal 1, Appendix D; Goal 4, Appendix B)
2. The Council recommends that output related criteria be developed whenever possible as a means for long range facilities development planning and for periodically assessing the performance of activities and equipment. (Goal 4, Appendix B)
3. The Council recommends that studies be conducted to determine ways to gain fuller utilization of area vocational-technical education facilities during the summer months. (Goal 4, Appendix B)

### D. Admissions and Recruitment

1. The Council recommends that each institution in the Florida Community College System conduct a self study to reappraise its philosophy of purpose and then evaluate its admission policies to see if they properly reflect its philosophy. A study of the catalogue would then be in order to determine if the catalogue fairly represents the philosophy and policies of the institution. (Goal 4, Appendix B)
2. The Council recommends that institutions offering VTE programs examine all prerequisites for admission to ensure that they are appropriate to the skills to be acquired. (Goal 4, Appendix A)

### E. Decision Making

1. In order to make more rational decisions, vocational

educators must have cost data for all elements of their program. The collection of this data need not await implementation of sophisticated data processing systems. While PPBS may be the ultimate objective, cost data can be collected in a program budget format without installation of PPBS. The Committee Recommends that data from the present financial records system be reconstructed in a program element format and such costing procedures as depreciation be used to establish cost data for all courses. (Goal 4, Appendix D)

2. The Council recommends the cost benefit study approach to selecting vocational programs to those counties desiring to expand their economic base and whose vocational programs are minimal or subminimal to their plans. (Goal 4, Appendix C)

#### Goal 5

To evaluate the employment opportunities within the State and the vocational education services provided to meet these opportunities

The growing need for information, as stressed in these reports, is largely a function of centralized planning. At the local level, the nonscientific sources of communication, i.e., faculty and staff contacts with industry and advice from committee and council members, have apparent validity. While for practical purposes follow-up studies are nonexistent, other factors may be judged. Reports of successful placement programs by individual instructors as well as by placement staff, the low rate of course completions (Appendix B, Goal 5) and the low rate of unemployment statewide verify the success of the planning effort.

In broad terms, the problem is not so much that programs need to be balanced, that is, overproduction in certain areas; the problem is to raise the skill levels, particularly of the non-skilled and unemployed, and to increase and improve the work force through additional training.

A few areas of the state have taken the lead in expanding opportunities for minority groups. As the utilization of this source of skilled labor improves throughout the state, the quality of the labor force will improve and the quality of life throughout the state likewise will improve.

#### Recommendations: Goal 5

##### A. Manpower and Instructional Programs

1. The Council recommends a longitudinal study in order to assess, through the application of systems analysis techniques, the extent to which a given group of educational units are, or are not, fulfilling their obligations in meeting both the local requirements for trained manpower and their expected contribution to the State of Florida. (Goal 5, Appendix A)
2. The Council recommends that a pilot program of Individually Prescribed Instruction (IPI) be conducted on a twelve month basis within the public school system to test its efficacy as a means of leveling the seasonal competition for employment. (Goal 5, Appendix A)

##### B. Communication and Information

1. In concurrence with the State Plan, the Council recommends very close and continuous cooperation among all local, state, and federal agencies having any effect on vocational-technical and adult education be instituted. In addition, the private sector's influence, i.e., industrial training programs and private

vocational training schools must be considered.

(Goal 5, Appendixes A and C)

2. The Council recommends that the highest possible priority be given to the continued development and early implementation of a state-wide management information system. (Goal 5, Appendix C)
  - a. It is recommended that the State Department of Education adjust its present annual reporting date for VTE information for the Federal Report to an earlier one. (Goal 5, Appendix B)
  - b. It is recommended that an interagency council be established on the Federal level to adopt a common occupational classification system. (Goal 5, Appendix B)
3. To alleviate the problem of facilities planning and construction that is only partially representative of the total social, economic, and physical vitality of communities, the Council recommends that planning techniques incorporating open public forums (Educational Facility Charrettes) be initiated on a pilot basis. (Goal 4, Appendix B)

#### C. Counseling Programs

1. To meet manpower requirements, the Council recommends that the vocational guidance program include:
  - (1) complete job information, and
  - (2) complete orientation on the economic value of various educational achievements and degrees. (Goal 5, Appendix A)
2. The Council recognizes the need for a computerized vocational-technical data bank and recommends that this be incorporated in the Management Information System. Additionally, occupational guidance should be revised radically and improved in light of

employment requirements. The use of computerized job-supply-and-demand listings could erase the inefficiency and wasted job potentials that create a "skills gap." (Goal 5, Appendix A)

3. The Council recommends that community leaders be approached by counselors, advisory councils and instructors in an attempt to gain their support for employment of all students seeking vocational opportunities. (Goal 1, Appendix D)

D. Professional Requirements

1. The Council recommends that State licensing boards review licensing requirements. All requirements and testing procedures should be appropriate to the work to be performed. (Goal 4, Appendix A)
2. The Council recommends that national associations act to coordinate the development and stabilization of realistic standards for licensing health-related service workers. (Goal 4, Appendix A)

## GLOSSARY

## GLOSSARY

Adult homemaking education.--Courses enabling adult homemakers to acquire knowledge, understandings, and skills relative to personal, home, and family life. The program may include instruction related to child development, clothing and textiles, consumer education, family health, family relations, foods and nutrition, home management, housing, and home furnishings.

Adult farmer education.--Courses enabling adult farmers to acquire knowledge, understandings, and skills relative to the production of one or more agriculture commodities, and to the management of a farm business.

Charette.--A planning technique which requires a majority representation of community residents and community leadership of a multidisciplinary group who gather for a concentrated time period to arrive at facility plans which are part of an overall strategy for community development.

Completions.--Students who successfully complete the required sequence of occupational instruction in their program of study and graduate.

### Computer Systems

Computer-Assisted Instruction (CAI).--The use of the computer to present instructional materials to a student. It allows for immediate feedback, self-pacing, branching, and recordkeeping. Some examples of modes of instruction using CAI might be: (1) drill and practice; (2) tutorial; (3) problem solving; (4) gaming and simulation; and (5) evaluation.

Computer-Managed Instruction (CMI).--The use of the computer within the instructional program to record the progress of a student through a learning sequence, provide

guidance, and control the instruction, gearing it to the individual as needs result.

Consultant Committee.--A group comprised of representative business, industrial, and agricultural leaders, organized for the purpose of advising professional educators concerning occupational education needs.

Cooperative.--A method of curriculum organization which combines in-school instruction with on-the-job instruction and skill development in preparation for employment.

Crosswalking.--The expression of the relationship between the program structure and the State Department of Education classification of object expenditures. A simple table listing program categories vertically and State Department of Education classifications horizontally. This table allows collection of cost by program and also by object classification as required by law.

Data Bank.--A file of economic, manpower, resource, and pupil data useful in planning occupational education programs.

Evaluation.--A process by which an assessment of the kind, quantity, and quality of an educational program is made by an individual or group.

Goals.--Statements by administrative leaders of long-range accomplishments for broad areas of activity implementing the mission.

Information System.--A set of planned procedures for collecting, classifying, and analyzing information contained in the data bank. The purpose of a system is to combine diverse elements into a framework meaningful for decision-making.

Local Educational Agency (LEA).--An agency assigned the responsibility for administering public education in a specified geographical area under the direction of a local

board of education. (Frequently referred to as an administrative unit.)

Man-months.--A unit measure used by the State Board of Education in the allotment of teacher resources for occupational education; one calendar month of employment.

Mission.--A statement, derived from legislation and policies, which describes in broad terms what the program should accomplish, who is to be served, etc.

Military Occupational Speciality (MOS).--A grouping of duty positions so close in occupational or functional relationship that there exists an optimal degree of interchangeability among persons at any given level of skill.

Objective.--A statement of a measurable output to be attained within a set time limit; objectives are derived from long-range goals.

Office of Education Code.--A classification system designed to assist local and state educational agencies in identifying, classifying, and describing subject matter and curriculum activities as they relate to occupations. [See Vocational Education and Occupations, U.S. Department of Health, Education and Welfare, Office of Education, OE 80061.]

Planning Council.--A group of professional educators assigned the responsibility for developing a comprehensive local plan for occupational education.

Post-Secondary.--A level of occupational education and related services for persons who have graduates from high school or dropped out of school, and who need training, retraining, or upgrading for employment in recognized occupations.

Preparatory.--A method of curriculum organization carried on within the school and designed to provide learning experiences directly related to the development of saleable or homemaking skills; in contrast, such programs are not dependent upon job stations in the community for laboratory experiences, as is required for cooperative programs.

## Schools

Elementary School.--A school organized to provide appropriate learning experiences and related services for children generally classified in grades six or below.

Middle School.--A school organized to provide appropriate learning experiences and related services for youth generally classified in grades six through nine. [Some local educational agencies have a modified organization--five through eight, or seven and eight.]

Junior High School.--A school organized to provide appropriate learning experiences and related services for youth generally classified in grades seven through nine.

Secondary School.--A school organized to provide appropriate learning experiences and related services for youth generally classified in grades nine through twelve. [Some high schools are organized as grades ten through twelve.]

Special Programs.--A group of programs for which special funding provisions are made in Public Law 90-756, Vocational Education Amendments of 1968 which include:

Cooperative (Part G): This term refers to Part G of Title I of the Vocational Education Amendments of 1967 which authorizes appropriations for special programs designed to promote the expansion and improvement of the cooperative concept in preparing youth for employment (99.09 00).

Exemplary: A special program, authorized in Part D of the Vocational Education Amendments of 1968, designed to bridge the gap between research and the adoption of a new concept or practice; a program serving as a pattern deserving imitation (99.01 00).

Post-Secondary Preparatory: Instruction for high school students which combines academic and occupational courses designed to prepare the students for continuing occupational education in a post-secondary school (99.03 00).

Program for Disadvantaged: A modified program of instruction and related services for persons who have academic, socio-economic, cultural, or other handicaps that prevent them from succeeding in a regular occupational education or a consumer and homemaking program which is designed for persons without such handicaps, and who, for that reason, require especially designed educational programs (99.09 00).

Program for Handicapped: A modified program of instruction and related services for persons mentally retarded, hard of hearing, deaf, impaired speech, visually handicapped, seriously emotionally disturbed, crippled, or for other health-impaired persons who cannot succeed in a regular occupational or consumer and homemaking program which is designed for persons without such handicaps, and who require special educational assistance (99.09 00).

Remedial Basis Education: A program of instruction and related services concerned with communication and computational skills needed by selected students to make satisfactory progress in a vocational curriculum; usually designed for students academically disadvantaged (99.04 00).

Vocational Work Study (Part H): A term used to describe a program of work experience for certain disadvantaged students enrolled in occupational programs for which students receive wages from funds appropriated under the provisions of Part H of the Vocational Education Amendments of 1968 (99.05 00).

SECTION TWO

REPORTS

GOAL 1

To evaluate the effectiveness of the State's federally-assisted programs, services and activities in meeting the State goals and priorities set forth in the State Plan.

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by Irwin R. Jahns and Ernest G. Gendron
- Appendix D. Vocational Guidance in Florida . . . . .  
by Roy E. Golden
- Appendix E. The Use of Computer-Assisted Instruction (CAI) in Vocational-Technical Education in the State of Florida . . . . .  
by Raymond F. Latta

## GOAL 1

### APPENDIX A

#### COST-EFFECTIVENESS ANALYSIS IN URBAN TECHNICAL EDUCATION (A CASE STUDY)

by

Richard H. P. Kraft

Most of the educational cost-effectiveness work in the past has been concentrated upon quantitative criteria. The main problem area, however, is the obtaining of adequate quantifiable data on facets of education other than costs. It is relatively easy to obtain the input costs to education, the tax share, the bonds sold and contributions from the public and industry. Also, there is little difficulty in determining the short and long term financial returns to the student as a result of certain amounts and types of education. The difficult measure is with personal and social outcomes, with affective domain development, and with benefits to society as a whole.

Criteria to be used by the educational decision maker in any cost-effectiveness analysis that are economic in nature would be: income, earning differentials and cost differentials, payback periods, cost-benefit ratios, expected capital values and expected internal rate of return. The ultimate criterion that the educational administrator could desire would maximize the difference between the present value of benefits and the present value of costs.

Estimating and projecting the capital and operational costs of future educational programs is not so easy, however. This problem is due, mainly, to the financial accounting and budgeting systems which are oriented to the fiscal appropriation structure for management control purposes rather than

towards educational program accounting. Most school districts find it appropriate and necessary (by statute) to use organizational and object class categorizations (such as personnel services, maintenance, etc.) for a financial reporting and budgeting system.

In view of increasing student enrollments and the necessity of allocating scarce educational resources more efficiently, several important questions can be raised.

1. Do the existing education programs provide positive cost-effectiveness relationship?
2. Can cost-effectiveness techniques be used to develop optimum utilization models in terms of human resources (staff) and space facilities?
3. Can a cost-effectiveness analysis be an effective technique for educational planners at local school system level to use as a conceptual tool to develop a planning, programming, budgeting system?

This study used data from representative vocational-technical education programs (electronics technology) collected at two vocational technical education centers located in large urban Florida counties. There were three main phases developed by this study.

#### Phase One

The first phase identified all direct and indirect costs related to the electronics technology programs. Algorithms were developed for the retrieval and assignment of program costs from actual expenditure records. Program costs were then assigned to the private sector or individual students and the public sector of society.

In both school systems the following accounts were utilized:

<u>Account Number</u>	<u>Account Title</u>
300	SYSTEM WIDE ADMINISTRATION
400	AREA ADMINISTRATION
410	Certified Personnel
420	Travel
430	Administration, Materials & Supplies
440	Furniture and Equipment
499	Other
500	SALARIES
510	Certified Personnel
520	Non-certified Personnel
530	Retirement Contributions
540	F.I.C.A. Taxes
550	Life Insurance Contributions
599	Other
600	CONTRACTUAL SERVICES
610	Meetings and General Travel
620	Communications
630	Printing and Reproduction Services
640	Repairs and Maintenance
660	Utilities
670	Rentals
680	Insurance
699	Other
700	MATERIALS AND SUPPLIES
710	Educational Materials and Supplies
730	Building Maintenance Materials & Supplies
750	Landscape Materials and Supplies
800	INTERNAL ACCOUNTS
900	CAPITAL OUTLAY
910	Educational Furniture
920	Educational Equipment
940	Maintenance Equipment
950	Vehicles
960	Library Books and Films
970	Buildings
980	Fixed Equipment in Buildings
999	Other

An example of the Cost-Effectiveness Working Schedule developed by the researchers is shown below.

Account Number

510	Collect direct salary costs
510	Proportion costs on a per pupil basis by course
910, 920	Collect physical inventory data and depreciate
910, 920	Calculate per item depreciation
910, 920	Determine classroom utilization
910, 920	Proportion costs on a per pupil basis by course
970	Collect building cost and depreciate by term
970	Proportion depreciation to classroom area
970	Proportion depreciation on a per pupil basis by course
300, 410	Proportion indirect costs on a per pupil per term basis
420, 430	
499, 520	
530, 540	
550, 599	
600 Series	
700 Series	
800, 940	
950, 960	
980, 999	
All Accounts	Summary of program course costs per pupil

The first part of the cost-effectiveness strategy consisted of the following steps:

- A. Program and student data from a variety of courses were entered on Program Data Sheets.
- B. Student Personal Data were collected for each student in specified vocational-technical education centers.
- C. Simultaneously with collecting student data in both schools, direct and indirect costs were calculated.

The three major steps involved were:

1. collection of direct salary costs and retirement contributions;
  2. calculating indirect costs on a per pupil basis;
  3. proportioning costs on a per pupil basis per course.
- D. The next steps involved:
1. collecting physical inventory data and depreciate;
  2. calculating per item depreciation;
  3. determining classroom utilization;
  4. proportioning item costs on a per pupil basis per course.
- E. The next items to be calculated were:
1. collecting building costs and depreciate by term;
  2. proportioning depreciation to classroom area;
  3. proportioning depreciation on a per pupil basis per course;
  4. proportioning indirect costs on a per pupil basis per term basis;
  5. summarizing all program course costs;
  6. calculating starting salary for graduates.

### Phase Two

The second phase established criteria for determining marginal program utility in terms of marginal income increases for individual graduates of the program and marginal tax increases received by society as a result of the income gain of program graduates. These marginal salary gains were computed based on empirical graduate follow-up income data taken from records of the vocational-technical education centers.

Two aspects of utility were considered: (1) the utility of programs in terms of monetary return on investment to the public or society; and (2) private monetary returns to an individual graduate of the programs. In order to determine the marginal utility or "gain" for each sector, the investment (or expenditures) made by the public and the graduates was first determining.

Private Costs.--The private costs to an individual or his family unit ( $C_1$ ) was determined by:

$$C_1 = E_1 + F + B + S$$

where:

$E_1$  = foregone earnings

F = fees paid by the student

B = cost of his books

S = cost of his miscellaneous supplies.

An estimate of the earnings a student foregoes while enrolled in the program is based on: (1) mean hourly earnings of unskilled labor in general manufacturing for the metropolitan area served by the schools for 1967-1968; (2) extrapolating percentage of increase in earnings for the five years previous to a recent Area Wage Survey; and (3) computing the total foregone earnings for the mean time period (total number of school terms) a graduate would be enrolled.

Student fees were obtained from the Catalogs. Total fees for a student were calculated by multiplying the fee per school term times the mean number of school terms a student required to complete the program.

The cost of books and miscellaneous supplies was determined from records kept by the department heads and the schools' bookstores. It is assumed that the cost of traveling to and from schools is equal to the cost of traveling to and from a job.

Public Costs.--The total cost of the program to the public or society ( $C_2$ ) was determined by:

$$C_2 = C_{et} - I$$

where:

$C_{et}$  = total Electronic Technician program cost, both public and private

$I$  = "internal funds" (account number 800)

The total Electronic Technician program cost was determined as shown in a previous section. The internal funds account reports funds received from student fees, profits on vending machines and other miscellaneous non-public sources of income.

Private Utility.--The marginal utility of the program in terms of monetary return to an individual graduate ( $U_1$ ) was calculated by:

$$U_1 = C_1 - E_2$$

where:

$C_1$  = private costs of the program to the individual student as calculated above

$E_2$  = mean pay entry level of the graduate into the electronics manufacturing industry

The mean pay entry level was determined by calculating an arithmetic mean of the pay entry level wages recorded on the "Student Data Worksheet."

Public Utility.--The marginal public utility ( $U_2$ ) is based upon the monetary return of additional taxes paid by graduates as a result of their marginal income gain. This utility factor was calculated by:

$$U_2 = F_i + S_s + R$$

where:

$F_i$  = the additional margin of Federal income tax paid by a graduate.

$S_s$  = the additional margin of Florida state sales tax paid by a graduate

$R$  = the additional margin of county real estate tax paid by a graduate.

The figures for  $F_i$  were obtained from the 1964-1968 "Federal Income Tax Tables" in the three dependents column.  $F_i$  represents the Federal income tax difference paid on earnings  $E_1$  and  $E_2$ .

$S_s$  figures were obtained from the 1964-1968 "Federal Income Tax Tables." In these tables are listed approximations of sales taxes expended according to level of income. Florida sales taxes during 1964-1967 were at a rate of 3 per cent and in 1968 were 4 per cent.

$R$  figures are based upon the assumption that a graduate, because of the significant increase in his earnings, could afford to purchase a home having a higher assessed value for tax purposes. The estimates of the value of a home a person with a given income could afford were obtained from the local Federal Housing Authority office. Tax calculations were then made based on the real estate tax rates for the counties in which the schools are located. These rates were obtained from the County Tax Collector's records.

### Phase Three

The third phase related to public and private costs and to their respective utility values in terms of marginal monetary return on investment. These values were expressed as cost-utility ratios and yielded estimated times to replace dollars spent by both individual students and the public. The reciprocal of the cost-utility ratio yielded the monetary return expressed as a percentage rate of return on investment.

A final set of calculations involved the computing of cost-utility ratios between: (1) private costs and utility ( $CU_{pr}$ ); and (2) public costs and utility ( $CU_{pb}$ ). The formulae to determine these ratios were:

$$(1) \quad CU_{pr} = \frac{C_1}{U_1}$$

$$(2) \quad CU_{pb} = \frac{C_2}{U_2}$$

The cost is C and the utility is U, so that the cost-utility is C/U, where both the numerator and denominator are in dollars and are common to all other cost-utility ratios used in this system.

The major variables found in individual course costs per pupil were due to:

1. The numbers of students completing a given course--the greater the number of students completing a given course or course section, the less course cost per pupil.

2. The cost per hour allocated to a given instructor for his direct teaching services varies directly with the salary experience step of the instructor and indirectly with the number of course hours per day assigned to the instructor for direct teaching.

3. Furniture, equipment, and space (facility) costs vary indirectly with the number of hours per day a given classroom or laboratory is utilized.

The major variables found in total program costs per pupil, in addition to the above individual course cost variables, included:

1. Program costs varying indirectly with the total number of courses (or credits) required to complete the program and thus the number of school terms required. The 1965 and 1966 non-experienced graduates required six trimester terms to complete their programs. The 1967 graduates required

four trimester and two semester terms and the 1968 graduates required four semester terms.

2. The organization of the school terms for a given school year into three trimesters of equal time periods (four months) or two semesters of five months each and a two month summer session. As only the 1968 graduates were products of the semester system an evaluation of the trimester vs. semester cost factors was not attempted. However, it is noted that during the two-year period of the 1968 graduate's program, enrollments increased and program length decreased by elimination of some required courses and expanding the course content of others to include material previously covered in the eliminated courses, which had the effect of decreasing costs per pupil in all expenditure categories.

### Private Costs<sup>1</sup>

The major private sector costs to an individual electronics technology student consisted of: (1) earnings foregone by the student while attending school; (2) fees; (3) books; and (4) miscellaneous incidental costs to the student.

In order to compute the total foregone earnings for a graduate of a given year, the following data was compiled: (1) the average (mean) annual wage of an unskilled manufacturing worker for each year 1964-1968; and (2) calculations of the total foregone earnings over the average time periods (number of school terms) required to complete the electronics technology program.

The total private costs of the program is the sum of the four categories of costs listed above. These costs for the non-experienced stratum steadily increased from 1965 through 1967 mainly due to the steady increase in wage levels

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<sup>1</sup>See Table 1, page 38.

TABLE I: PRIVATE AND PUBLIC RATES OF RETURN TO INVESTMENT IN ELECTRONICS PROGRAMS  
(Dollars)

		Teaching Salaries and Retir. Benefits	Furniture and Equipment Deprec.	Building Space Deprec.	Ind. Cost	Total Cost	Total Public Cost * (-Acct. \$900)	Total Private Cost C <sub>1</sub>	Marginal Utility Private U <sub>1</sub>	Marginal Utility Public U <sub>2</sub>	Private Rate of Return %	Public Rate of Return %	C <sub>1</sub> /U <sub>1</sub>	C <sub>2</sub> /U <sub>2</sub>
1968 Graduates	NE	1057	149	45	474	1725	1597	5815	2313	548	39.8	34.3	2.51	2.91
	E	1086	148	55	500	1789	1651	6758	2831	679	41.9	41.1	2.39	2.43
1967 Graduates	NE	1235	154	44	557	1990	1820	6568	1791	292	27.3	16.0	3.67	6.23
	E	1375	229	65	561	2230	2080	5918	1063	241	18.0	11.6	5.57	8.63
1966 Graduates	NE	1796	512	122	660	3090	2948	6201	1943	442	31.3	15.0	3.19	6.57
	E	1691	408	102	582	2783	2652	5803	1605	364	27.7	13.7	3.61	7.31
1965 Graduates	NE	1431	371	86	761	2649	2493	5956	1802	408	30.3	16.4	3.31	6.11
	E	1451	334	81	761	2627	2471	6432	1497	337	23.3	13.6	4.30	7.33

\*Acct. \$800 - Internal Account

of foregone earnings during this period of time, as the time period needed to complete the program remained relatively constant. The 1968 graduate's costs decreased significantly due to program curriculum revisions which reduced the average number of months required to complete the program, thus reducing the time period calculation for foregone earnings which were offset only slightly by the increase in wage level of foregone earnings for the 1968 graduate.

Students classified as experienced indicated a wider variance of private costs influenced by both the variation in wage levels and the duration of enrollment with the latter having the greater effect with 1965 graduates and the former having the greater effect with the 1966-1968 graduates.

### Public Costs<sup>1</sup>

Public costs include the total program cost less the "internal funds" account number 800. As noted earlier, the "internal funds" account records funds received from student fees and other sources are classified as non-public.

The major cost variables that applied to total program costs also apply to the public costs. The 1965 and 1966 experienced graduates indicated lower public costs than the non-experienced because the former received equivalency credit for their work-experience or previous training and completed their program course requirements in a few number of school terms. This cost trend reversed with the 1967 and 1968 graduates as the experienced graduates included greater numbers of Korea and Viet Nam veterans receiving educational benefits. A large number of these veterans tended towards either taking more advanced courses--with higher course costs due to lower enrollments per course--or elected to take more courses than the minimum actually required to complete the program.

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<sup>1</sup>See Table 1, page 38.

### Private Utility

Among technical education's foremost tangible benefits to an individual student is the incremental margin of earnings between an estimate of what his earnings would have been without technical education at the same point in time as his first year of post-technical education and his actual earnings during the first year of his post-technical education employment. There are many nonquantifiable aspects embodied in the utility of any educational program which often may carry more weight than monetary aspects to an individual student.

The average (mean) marginal utility in monetary terms for an individual student in the non-experienced stratum is given in Table . The earnings of \$3,835 for the 1968 graduate, for example, represents the annual earnings the graduate would have earned if he had not entered the program and continued his employment as an unskilled manufacturing worker. These earnings are estimated on the same basis and were obtained from the same source as foregone earnings. The first year earnings are the empirical average annual earnings of the graduates as they entered the industry. The difference between these two earnings yields the marginal monetary utility of the program expressed in dollars.

The trend in marginal utility is consistent with other results in this study--that of increasing marginal utility from 1965-1968 with the exception of the transitional 1967 graduates.

### Public Utility

The marginal increment in taxes paid by the graduate represents the monetary utility or return to the public on its investment in technical education students enrolled in the electronics technology programs. Again, it is emphasized that this represents a perhaps modest aspect of the total

utility of a given technical education program as intangible benefits to society which permit an educated person to participate more fully in society, may carry more weight in determining relative utility of various educational programs.

A non-experienced graduate, for example, annually pays additional federal taxes of \$399; state sales taxes of \$24; and local real estate taxes of \$125. This totals to an incremental margin of \$548 greater than if taxes were computed on the earnings base of an unskilled manufacturing worker. The \$548 is the value assigned to the monetary public utility of the program for the 1968 graduate.

#### Cost-Utility Ratios and Rates of Return

Private Rate of Return.--The 1968 graduate (non-experienced) has invested approximately two years of foregone earnings and direct costs totaling \$5815. In return he received average earnings of \$2313 greater than he would have had he continued as an unskilled manufacturing worker.

These two factors are used in the computation of a cost/utility ratio which yields a figure useful for comparison of the program's relative effectiveness over previous years and relative utility value, limited to the monetary aspect, with other educational programs. The 1968 graduate as noted in Table yields a cost-utility ratio of 2.51. This ratio number is also equivalent to the number of years it will take the graduate to receive a return of \$5815 or "total return" on his investment. This rate of return assumes that the graduate has no further increases in earnings during the 2.51 year period following his graduation. Since this is a rather weak assumption in that the graduate will more likely receive pay raises during this time, the rate of return is probably conservative.

Because both the cost and utility factors are in the common units of dollars, the rates of return to the graduate

on his investment are computed by simply taking the reciprocal of the cost/utility fraction. These rates of return are based on the first year earnings after graduation.

Public Rate of Return.--The public (or society) invested \$1597 over a period of two years in a 1968 graduate's (non-experienced) program. For this investment the public received in the form of additional taxes paid by the graduate during his first year of employment \$548. The cost-utility ratio indicates a period of less than three years in which the graduate will return society's investment of \$1597, assuming that the graduate has no increase in earnings during this time period. Again, this assumption being unlikely, it would be expected that the graduate will return the investment to the public in an even shorter period of time than reported in Table . The public rate of return of 34.3 per cent is also based on the first year earnings after graduation.

1. The sampled electronics technology education programs are an economically worthwhile investment both for individuals and society and should be continued.

a. Statistical mean data indicate that a 1968 ET program graduate, without prior electronic training or experience, invested \$5815 of his own funds. This investment, including foregone earnings, was returned to him within two and one-half years at the rate of 39.8 per cent per year.

b. A public investment in this same student of \$1597 is returned to society in the form of increased local, state, and federal taxes paid by the graduate in less than three (2.9) years at the rate of 34.3 per cent per year.

c. The rates of return for graduates with prior electronic training or experience were even higher because they required less time (school terms) to complete the program.

2. Further cost-effectiveness analyses should be undertaken for use in educational planning. The findings of this cost-effectiveness analysis illuminated the importance of the general public's investment in education. People other than those directly involved with education (non-parents, retirees, etc.) have a vested interest in the decreased tax burden or increased public services provided for them by the additional taxes paid by persons raising their income levels through post-secondary education.

Accurate cost-effectiveness analyses are of significant value and use to the educational planner.

a. Wide variations in direct teaching costs per course were caused by variations in (1) class size, and (2) class load of teacher or teacher utilization.

b. Other direct cost elements such as facility space, equipment, and furniture were also subject to side cost per course variations caused by variations in the efficiency of space utilization which, in turn, was caused by an inflexible schedule of courses during a given school week. It does not appear logical that program courses be scheduled in blocks of one or two hours daily, five days per week, regardless of the course's subject content. More flexible scheduling of classes should be designed for post-secondary vocational-technical schools.

3. It does not follow that an educational program with a lesser degree of monetary utility than another is less worthwhile and therefore should be assigned a lower resource allocation. Further studies of the more subjective aspects of program utility need to be considered along with the value judgments of program evaluators and planners. Meaningful measures of these other program aspects need to be further developed. [These non-financial aspects would include utility values such as increased intellectual curiosity, creativity, employment satisfaction, social mobility

and adaption, social status, utilization of leisure time, and growth of an informed electorate.]

4. It is felt that many program utility aspects will not be refined to the point of being precisely quantified and, thus, value judgments should continue to remain as a necessary part of the decision-making process. As procedures for evaluating non-monetary benefits of educational programs become more refined, the precision and efficiency of cost-effectiveness analysis undoubtedly will increase.

5. It is essential to define and organize relevant information about educational programs--data concerning students, staff, course schedules, facilities, equipment, and expenditures--in order to perform cost-effectiveness analyses. All records and reporting of these data need to be kept in computer-readable form and incorporated in a computer based educational information system at a local or regional level. It is not economically feasible to extract and organize manually the relevant data necessary to perform a cost-effectiveness analysis. The program costing algorithm is of such a complex nature requiring a substantially large number of calculations that the procedure further necessitates the use of an electronic computer. The complexity of calculation arises from three major factors:

- a. joint costs of programs shared with instructors, rooms and equipment;
- b. an object classification oriented accounting-budgeting system rather than program oriented;
- c. fiscal year accounting-budgeting dates are non-coincidental with school term or school year dates.

6. Concerning the interpretation of the training-earnings profiles which have been constructed, it can be said that they have noteworthy implications for administrators and top-level decision-makers in vocational-technical education.

- a. the private rate of return on "educational investment" is astonishingly high;
- b. all (public) cost-utility ratios (C/U) indicate a positive rate of return.

If monetary indices are accepted as a measure of effectiveness, then, given the excellent performance of graduates of vocational-technical schools in the labor market, extra public funds should be distributed toward vocational-technical education in order to maximize private and public benefits. In other words, if educational decision makers are really concerned with earnings, employment, and maximizing benefits, then the expansion of job-oriented training in vocational-technical institutions should be given high priority.

GOAL 1

APPENDIX B

THE ROLE OF INSERVICE TEACHER EDUCATION AND STAFF  
DEVELOPMENT PROGRAMS IN THE SUPPORT OF  
VOCATIONAL EDUCATION IN Florida

by  
Michael A. DeCarlo

Introduction

The Florida State Plan for the Administration of Vocational Education: Parts II and III, under the Vocational Education Amendments of 1968, identifies and defines vocational education objectives in the following areas:

1. Secondary
2. Post Secondary
3. Adult
4. Disadvantaged
5. Handicapped

The Florida State Plan indicates further:

Based on identified needs, emphasis during the next five years will be placed on developing and expanding programs at the post-secondary level, initiating more programs for the disadvantaged and the handicapped, identifying and demonstrating more effective programs and practices, and upgrading the supportive services required for quality vocational education. [Emphasis mind.]

It has been pointed out by lay public and educators that one of the most effective means to bring about constructive changes in education is to bring about "the necessary changes in understanding, attitudes, and practices among personnel assigned to teaching responsibilities."

In August, 1969, the State of Florida Commissioner of Education established the area of teacher training and

development as one of the major priorities of the Department of Education. By legal mandate, each district is required to develop a comprehensive program of staff development. Further, it was provided that plans for junior college staff and program improvement are to be developed by each junior college.

This study, begun in June, 1970, has a two-part goal:

First (Short-range goal)

To provide the Florida State Advisory Council with initial observations and recommendations concerning selected factors which have an impact upon inservice teacher education/faculty development programs and their evaluation.

These factors are as follows:

1. Accessibility of data indicating the degree to which faculty development programs are supportive of the objectives of the Florida State Plan;
2. Cooperation and coordination in faculty development programs;
3. Opportunities for periodic updating of vocational-technical faculty through selected work experiences in industry;
4. Student and employer feedback as a factor in improving and updating faculty development programs;
5. Library support for vocational-technical faculty development.

Second (Long-range goal)

To determine the extent to which inservice teacher education/staff development programs have contributed to the attainment of the objectives of the Florida State Plan.

Vocational-Education Facilities/Activities  
Selected for the Long-Range Study

<u>County</u>	<u>Facility/Activity</u>
Dade	1. Lindsey Hopkins Education Center 2. Miami Data Junior College (Plan II institution)
Duval	1. Florida Junior College at Jacksonville (Plan I institution)
Hillsborough	1. Tampa Bay Area Vocational- Technical Center
Pinellas	1. Pinellas Technical Education Center
Calhoun, Franklin, & Holmes	1. Washington-Holmes Vocational- Technical Center 2. Chipola Junior College (Plan I institution) 3. Panhandle Area Education Coopera- tive (encompasses Bay, Calhoun, Franklin, Gulf, Holmes, Jackson, Liberty, Walton, and Washington Counties)

Rationale

1. Dade, Duval, Hillsborough, and Pinellas Counties have been designated by the State CAMPS Committee as densely populated, economically depressed areas having high rates of unemployment, low family incomes, and high student dropout rates. These are identified in the Florida State Plan.

2. Calhoun, Franklin, and Holmes counties have been designated by the Department of Commerce as sparsely populated areas having high rates of unemployment, low family incomes, and high student dropout rates. These are identified in the Florida State Plan.

Item Evaluated

Accessibility of data indicating the degree to which faculty development programs support the objectives of the Florida State Plan

Findings/Conclusions

Sixty-seven counties submit Master Plans for In-service Teacher Education, and twenty-eight junior colleges submit Staff and Program Development Plans. Time-line dates for initial submission, approval, status/interim evaluation reports, and for final reports and evaluation for the counties and junior colleges do not coincide. They are, in fact, quite different. County master plans run as high as 300 pages in length. Reporting formats are not structured so that programs related to Florida State Plan objectives are grouped. As a result of these several factors, neither groups of reports have been synthesized for the 1969-70 year; and if they had been, it would be extremely difficult, if not impossible, to determine the degree to which faculty development programs were supportive of the objectives of the Florida State Plan. It is impossible, for instance, to determine from the junior college Staff and Development Plan Reports the degree to which vocational-technical faculty have participated in these programs, the nature of these programs (those of direct benefit to them), or the amounts expended in those areas of direct benefit.

In view of the continuing need to assess both inputs and outputs, as specifically related to the Florida State Plan, essential data must be made more accessible.

Recommendation

It is recommended that the State Department of Education establish formats and procedures for submission of

data in terms of the specific objectives of the Florida State Plan, and in accordance with the recommendations adopted by the representatives of State Advisory Council on Vocational Education.

### Item Evaluated

Cooperation and coordination in faculty development programs

### Findings/Conclusions

1. Major examples of cooperation and coordination are the five consortia embracing thirty-four counties. Finding it economically unfeasible to conduct these programs independently, groups of counties have banded together to share personnel and other resources. Members of the Panhandle Area Education Cooperative, for example, cooperate in seventeen common components of inservice teacher education designated by the State Department of Education. There are many other forms of cooperation within these consortia.

2. Representatives of other county vocational-education centers and representatives of junior colleges have agreed that considerably more cooperation is possible in the area of faculty development programs. Florida Keys Junior College (a Plan I institution), for example, has a small vocational-technical faculty and is relatively isolated geographically. It is economically and practically difficult for the college to develop its own adequate program or to justify bringing to the college the various specialists that could contribute to faculty development programs in all the technical areas. A dean remarked that the types of programs, dates, etc. of the other community colleges were not published for mutual information. He indicated that if his institution were aware of these other

programs--say at Miami-Dade Junior College--it might be possible for it to send faculty where there was a topic of special interest.

3. Whether or not economically feasible for institutions to conduct their own programs, cooperative planning and pooling of personnel resources could result in more economic and enhanced programs of faculty development. It is conceivable that several junior colleges and/or vocational-technical centers with relatively identical vocational-technical offerings are independently developing programs with similar content and utilizing several consultants. A review of the Directory of Post-Secondary and Adult Occupations Curriculums for Florida, Bulletin 70V-2, January, 1969, prepared by the State Department of Education, suggests that there is considerable possibility for extending cooperation and coordination.

#### Recommendations

1. It is recommended that there be fostered among junior colleges and county vocational centers, an exchange of information concerning faculty development programs.

2. It is recommended that the cognizant divisions of the State Department of Education explore avenues for increased cooperation and coordination in the developing and conducting of faculty development programs

#### Item Evaluated

Opportunities for periodic updating of vocational-technical faculty through selected work experiences in industry and business

#### Findings/Conclusions

1. There is no evidence of a systematic program for identifying local, state, regional and national work

opportunities directly related to upgrading in specific areas. The gathering, publishing, and disseminating of such data would provide all vocational-technical faculty in the state with information concerning the range of alternative sources of appropriate upgrading work experiences. Such information would obviate, in considerable measure, the need for individual searching for positions. Further, this would facilitate faculty development planning.

2. Many teachers are employed on a ten-month basis and are compelled frequently to accept work whether or not it provides the kinds of upgrading experiences necessary.

3. When salaried positions are found that provide the desired upgrading experiences, there is a danger that employers may utilize the "employee" in such ways that he is diverted from his objective.

4. There is particularly strong opinion among persons involved in vocational-technical education that current provisions for these experiences are too limited to keep faculty current, and that there must be more effective programming. It was stated, for example, that electronics teachers should have this experience at least every third year. Those involved with faculty development felt that an expansion of selective and periodic upgrading work experiences would improve in considerable measure this facet of faculty development programs. It was also felt that this arrangement would alleviate some of the problems created by the employer-employee relationship

### Recommendations

1. It is recommended that there be developed a systematic program for identifying local, state, regional, and national work opportunities that will provide suitable upgrading experiences for vocational-technical instructors, and that such information be disseminated to counties, junior colleges, and other agencies involved in vocational-

technical education. As an interim measure it is recommended that the exchange of available information be promoted.

2. It is recommended that the State Department of Education initiate a study to determine the feasibility of an expanded program of salary continuation during selected periodic work experiences in industry.

#### Item Evaluated

Student and employer feedback as a factor in strengthening faculty development programs

#### Findings/Conclusions

1. Although the importance of having this information is universally acknowledged, there is a definite lack of established procedure for gathering and interpreting this data for its several uses, including that of strengthening faculty development programs.

2. In spite of the recognized difficulties encountered in obtaining and assessing this feedback, it was felt that systematic procedures needed to be established, with designated central responsibility at each facility. At some small institutions responsibility for this effort is fragmented or made a responsibility of the counselling office. At institutions with very large enrollments, and large numbers of graduates and non-graduates entering the work force, central responsibility for this function is imperative. The following information will suggest the scope of that responsibility:

<u>Junior College</u>	<u>Adult/Vocational Enrollment</u> <u>Fall 69</u>
Florida Junior College at Jacksonville	8,708
Daytona Beach Junior College	5,516
Pensacola Junior College	4,599
Miami-Dade Junior College	3,026

Junior College Technical and Terminal  
Occupational Enrollments 1968-69  
(Credit, Non-credit, Part-time, Full-time, Programs  
Two Years or More and One Year or Less)

<u>Area</u>	<u>Number of Field</u>	<u>Total</u>
Technical & Technician Training	46	14,108
Vocational	105	27,894
Health Occupations	21	4,584
Business	27	12,565
Totals	199	59,151

Source: Division of Community Colleges.

3. The adequacy of programs of instruction will be reflected in substantial measure by the effectiveness and adaptability of students in their positions of employment. Student "felt" competencies and deficiencies will be conveyed by their own evaluation of their preparation. Employer evaluation of the same factors will also provide valuable data. Considered in conjunction, these evaluations should yield information that will contribute to curriculum planning and to faculty development programs.

Recommendation

It is recommended that there be developed systematic procedures for obtaining follow-up information from graduates, non-graduates, and employers concerning the adequacy of the vocational-technical education programs. Information should be organized by program type, so that it may be utilized for the improvement of instruction and faculty development programs.

Item Evaluated

Library support for vocational-technical faculty development

## Introduction

Considerable emphasis has been placed upon individualized instruction and independent study. In an age of rapid-change technology, it is particularly important that library resources and services be adequate to meet the individual study needs of both faculty and students.

In 1965, about 75,000 scientific and technical periodicals in some sixty-five languages were published in the world. Contained therein were about two million articles per year indexed in some 3,000 scientific and technical abstracting services. The Report of the National Advisory Committee on Libraries, October, 1968, stated that the use of scientific literature had been increasing by 12 to 17 per cent per year. It has been pointed out that the proliferation of scientific-technical information may defeat its own purposes, unless it is adequately acquired and made accessible.

The initiative and success of the library in acquiring materials, communicating to faculty its availability, and facilitating accessibility serves the following ends:

1. Stimulates faculty to habitual use of library resources and, hence, self-improvement
2. Provides current awareness of changes and innovations that have a direct bearing on curriculum and teaching
3. Facilitates for faculty development planning the identification of sources of change and innovation in government, business, industry,

- and education so that faculty may selectively schedule visits and/or training for upgrading
4. Encourages faculty to prepare course objectives which involve a high degree of student familiarization with and use of these resources at an early point in their education.

The nature and scope of existing programs and reaffirmation of the occupational program responsibilities of community junior colleges serves, in some measure, to highlight the task of libraries in meeting informational needs in these areas. This is no less true for all other agencies engaged in vocational-technical education.

As each vocational-education facility/activity selected for the larger study is reviewed, an inquiry will be made regarding the degree of library support for vocational-technical faculty development.

Miami Dade Junior College was selected as the first library to review.

#### Findings/Conclusions

1. Miami Dade Junior College is conducting an imaginative and aggressive program of support for the Division of Technical, Vocational, and Semi-professional Studies.
2. In recognition of the existing and continually expanding importance of vocational-technical programs, a library staff member has been assigned as liaison to the division.
3. A series of orientation programs, and other formal and informal meetings have been held to familiarize vocational-technical faculty with materials and services available.
4. During the year, 112 individual vocational-technical faculty contacts have been related to library services.

5. Bibliographies have been prepared for faculty members upon request.

6. Periodic printouts of newly acquired materials have been provided for the division.

7. In addition, as part of its overall staff and program development plan, Miami Dade has completed educational specifications describing the establishment of a faculty development location on the North Campus. This location will include samples of the latest devices, educational technology, programmed, materials, journal and research articles, plus a faculty discussion and interchange area.

8. Miami-Dade Junior College is among the institutions cooperating in the University of South Florida project to prepare a union list of serials for higher education institutions in Florida. Since major reliance in vocational-technical education is upon serial information sources, this project will further facilitate identification of informational resources within the state.

9. Library personnel are particularly sensitive to the valuable role they can play in furthering the development of vocational education, and are enthusiastic in meeting this responsibility.

10. Library personnel were pleased with the past allocations which have made possible a high degree of support for this critical area; however, some apprehension was expressed concerning the adequacy of future support available in order to meet expected increased demands.

#### Recommendation

Creative and aggressive programs of library service should be encouraged and supported. Continuing attention should be given to their needs so that they may meet adequately the expanding demands that are being placed upon them.

## GOAL 1

### APPENDIX C

#### FACTORS AFFECTING TEACHER INNOVATIVENESS AND THE DIFFUSION OF AN EDUCATIONAL INNOVATION

by

Irwin R. Jahns and Ernest G. Gendron

#### Statement of Problem

In general, this study was concerned with the processes by which an educational innovation becomes diffused within educational systems and subsequently adopted by classroom teachers. More specifically, the purposes of this study were:

1. To explore the extent to which a specific innovation--informal reading inventories--have been diffused and adopted by Adult Basic Education teachers in the State of Florida;
2. To ascertain those factors that have been most influential to a teacher's adoption of informal inventories; and,
3. To determine those factors that have been most influential to a teacher's overall innovativeness.

#### Background and Conceptual Orientation

A central concern of professional educators is the rapidity with which social and technological change has been occurring in American society in general, and in educational systems in particular. Educators, like other professionals, have found it difficult to keep abreast of these changes and to make the necessary adaptations in instructional and

administrative procedures. All too often those who have attempted to keep up to date have found that it is difficult to operationalize and implement innovative techniques and procedures. Folk wisdom reinforces this dilemma in the following quote attributable to a teacher: "I don't need any more training. I'm not teaching now nearly as well as I know how."

This study was based on the premise that merely knowing of the existence of an innovation, or even being familiar with its general nature, is insufficient for the utilization of this innovation. The process through which a teacher becomes aware of the existence of alternative "innovative" techniques and technology, considers their relevance and application, and ultimately tries such innovation has often been found to be a long and tedious procedure. Five stages in the adoption of an innovation have been proposed. These include: (1) awareness; (2) interest; (3) evaluation; (4) trial; and (5) adoption. Movement through these stages is largely a mental process and cannot always be readily observed from the behavior of a given teacher. Many factors can facilitate or impede movement through this process. These factors could reside in the individual teacher, in the general educational circumstances in which the teacher functions, in the specific instructional situation, or within the nature of the innovation. [This conceptual orientation drew heavily from the adoption and diffusion work of various sociologists and anthropologists as reported in Everett Rogers, Diffusion of Innovations and other sources.]

To achieve the purposes of this study, a single educational innovation was selected that was highly relevant to a particular category of teachers in the State of Florida. Three questions were asked:

1. To what extent has this innovation become diffused throughout the county-wide school systems in the State?

2. To what extent have individual teachers progressed from total ignorance of this innovation to adoption of the innovation as a regular classroom device?
3. What factors, if any, can be discerned that could account for variations in the diffusion and adoption of this innovation?

### Methodology

The innovation which was selected for study was the informal reading inventory. These have been deemed by knowledgeable people to have considerable value in assessing adult reading competencies with few of the disadvantages of formal standardized tests. These reading inventories have been in existence for a number of years but have not become incorporated into the routine instructional procedures of many teachers of undereducated adults. Consequently, adult basic education teachers in local educational systems became the population for study.

Of the forty-two Florida counties providing adult basic education programs, ten were selected on the basis of their representativeness from which to obtain specific teacher information. Data were obtained by group interview from teachers attending regularly scheduled adult education teacher meetings during January and February of 1970. If no such meeting was scheduled, a special meeting was called by the county program coordinator. A total of 202 teachers, or 68 per cent of all adult basic education teachers employed in these counties were interviewed. A questionnaire was utilized to facilitate obtaining the information necessary to explore the central concerns of this study.

### Findings

Diffusion of the Innovation.--The data indicated

that of the 202 ABE teachers involved in this study, 24 or 11.8 per cent had adopted the use of the informal reading inventories. An additional 40 teachers, 19.8 per cent, were at the trial stage or using the inventories in a limited way. Of the remaining 68.2 per cent, 32.6 per cent had never heard of the inventories, 10.4 per cent had heard of them but did not seek further information, and 25.2 per cent had some information about the inventories and were evaluating their possible adoption.

A wide variation was found to exist in the extent to which the informal reading inventories had become diffused between the several counties studied. The extent of adoption ranged from two counties with 100 per cent of the teachers unaware of the informal inventories to one county with as many as 25 per cent of the teachers regularly using these inventories. In those counties in which at least a few teachers were using inventories, from 10 to 43 per cent of the teachers were unaware of their existence.

The data seemed to indicate that the counties with larger programs had a greater proportion of teachers using this innovation. Speculation could be raised about why this should be the case. Commitment, training, availability of needed resources or other factors could possibly contribute to innovativeness.

Adoption by Teachers.--In general, it was found that the extent to which a teacher had progressed from total unawareness to adoption of the educational innovation was not affected by such personal characteristics as age, sex, and income; by such educational attributes as prior educational courses or teacher rating of his prior educational experience; or by mobility and kinship factors relating to parental and familial influence. It was found that adoption of the innovation being studied was significantly associated with a number of specific program considerations. For example, it was found that:

1. Those teachers who believed that they were getting more than enough supervision and direction were more likely to be further along in the adoption process than those who indicated that they were getting less than enough supervision.

2. A teacher's perception of his coordinator's reaction to a proposed innovation was found to be positively associated with his stage in the adoption process--those teachers who felt that their coordinator would react favorably to the introduction of an innovation were found to be further along in the adoption process than those teachers who viewed their coordinators as less favorable toward the introduction of new ideas.

3. A significant association was found to exist between a teacher's estimate of the proportion of his fellow teachers using the informal inventories and his stage in the adoption process--those teachers who estimated that a high proportion of their fellow teachers were using the informal inventories were found to be further along in the adoption process than those teachers who estimated that only a few of their colleagues were using the innovation.

4. A significant association was found between a teacher's length of association with the informal reading inventories and his stage in the adoption process--those who had been familiar with the inventories for longer periods of time were further along in the adoption process than those with shorter association.

5. The availability of the informal inventories was significantly associated with a teacher's stage in the adoption process--in those programs where the inventories were readily available or were distributed to teachers, the proportion of teachers using them was much greater than in those situations where the inventories were either unavailable or available only by special request.

6. Those teachers who perceived the informal inventories as adaptable to their teaching method were found to be much more likely to be using this device than those teachers who viewed it as difficult or impossible to adapt.

Overall Innovativeness of Teachers.--In addition to the adoption of a specific innovation, data were obtained from which to assess the overall innovativeness of the sampled teachers. Findings from this exploration indicated that several of the same factors were operating. However, it was found that other factors had an influence on overall innovativeness. These factors included the teacher's educational background and orientation, membership in professional organizations and attendance at professional meetings, prior teaching experience, sources from which the teacher tended to seek information about his field, frequency of social interaction with other teachers, opinions of a "good" teacher, and estimation of the proportion of fellow teachers using innovations.

#### Conclusions and Recommendations

Based on an analysis of the above data, it was concluded that:

1. Educational innovations are not uniformly diffused or adopted throughout the educational systems in the State. The reasons for this are not altogether clear, but some possible reasons can be identified. For example, it would be reasonable to expect that key decision-makers in local educational systems can and do exercise considerable influence on impeding and/or enhancing the acceptance of various innovations by members of the system. How decisions are made, as well as who makes different types of decisions would be a central influence affecting teacher innovativeness.

2. Certain teacher characteristics greatly influence their overall innovativeness and their likelihood of adopting a specific educational innovation. In general, those teachers who were more cosmopolitan, that is, in more frequent and more intensive contact with their professional colleagues outside of their local situation were more innovative than those who were less strongly oriented to professional contact. Such factors as the number of professional teacher organizations the teacher belongs to, the type of meeting that he prefers to attend, the information sources that he utilizes, and the extent of his educational background were found to affect overall teacher innovativeness and thus, his likelihood of adopting an educational innovation.

3. Also, certain teacher perceptions of his instructional circumstance affect teacher innovativeness. Whether real or imagined, teacher reactions to the quantity and quality of the supervision they receive and of the expectations held by supervisors and peers have considerable influence on the teacher's decision to conform or deviate from traditional instructional behavior.

Since most teachers must obtain useful and relevant information in order to function effectively in their local situation, it would appear reasonable to conclude that sources of "relevant" information exert considerable influence on teacher behavior. These sources of information might include, but not be limited to, peers, supervisory personnel, and professional meetings and publications.

Assuming that a major dilemma which faces the professional educator is encompassed in the diffusion of innovations throughout educational systems and in their ultimate adoption by teachers,

--it is recommended that a study be conducted to determine the effect of exposure to professional

publications and professional conferences on the instructional innovativeness of VTA teachers in the State of Florida;

--it is recommended that a study be conducted on the kind and amount of supervision VTA teachers receive and its effect on teacher innovativeness; and,

--it is recommended that a study be conducted to determine the qualities of county VTA supervisory staff that affect educational innovativeness in local school systems.

Two studies could readily be designed to implement these recommendations. The first would be of a quasi-experimental design using a control group and an experimental group. A situation would be structured within a limited number of selected educational systems wherein the experimental group would be provided the means to become more actively engaged in professional activities related to their field. Pre- and post-measures on the utilization of an array of relevant practices would be obtained along with other data. Differences which exist at the termination of the project period, a time span of approximately three years, could then be ascertained and possible causal factors identified.

The second study would focus on the real and perceived supervisory practices being implemented in selected educational systems. Data would be obtained from VTA supervisors and teachers, including information concerning awareness and utilization of the instructional innovations pertinent to the particular curricular area being studied. The analysis would focus on discerning both supervisor and teacher factors most influential in the adoption of instructional innovations.

Data from both of these studies would become the bases from which pre- and in-service faculty and administrative development programs could be designed. These studies could be developed in conjunction with current E.I.E. or faculty development programs.

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This report has been adapted from a dissertation study entitled "Relationships of Selected Factors Affecting Adult Basic Education Teacher's Innovativeness and the Diffusion of an Educational Innovation" conducted at The Florida State University during the winter of 1970.

## GOAL 1

### APPENDIX D

#### VOCATIONAL GUIDANCE IN FLORIDA

by

Roy E. Golden

This evaluation of guidance services in Florida's public educational system has been accomplished by sampling methods. The evaluation utilized interviews with personnel in guidance departments in five selected counties. The counties are referred to by letters A through E. Further materials were received from other counties and have been integrated into the report. The counties can be identified by contacting the author.

The recommendations listed reflect not only the author's evaluative efforts, but also a composite of the wishes of most of the guidance personnel interviewed. The recommendations can be supported by the interviews and data collected.

The guidance department is a member of pupil personnel services. The National Association of Pupil Personnel Administrators, in the April, 1969, booklet titled Pupil Personnel Services--A Position Statement, prepared by Robert W. Stoughton, et al., stated that "provisions for continuous evaluation of staff performance and program effectiveness must be built into the organization pattern of pupil personnel services." (p. 18) The offered suggestions were given to stimulate the development of evaluation procedures adapted to local program needs. It appeared that professional organizations have recognized the need for evaluations, though the techniques for conducting the needed evaluations were not offered.

The state goals for guidance and counseling programs of pre-vocational and vocational education were given in the Florida State Plan for the Administration of Vocational Education. The goals were stated by indicating that funds will be used to: (1) provide group and individual guidance for the development of career choice; (2) continue development and expansion of guidance services at area vocational-technical centers; (3) provide placement and follow-up services for secondary and post-secondary vocational students; (4) update the Directory of Post-Secondary and Adult Occupation Curriculum for Florida; (5) provide and maintain community liaison between vocational students and employers; and (6) provide workshops, institutes, and other inservice activities for vocational guidance and counseling personnel. It was further stated that approximately 15 per cent of the funds allotted to counseling will be used for pre-vocational instruction.

These seven objectives were evaluated in each district investigated. A detailed investigation of each district was not undertaken in favor of a few selected school districts to represent the state. In general, all seven objectives are being met to some degree in every school district visited.

Placement was supplied by individual VTE instructors in many of the VTE centers and not by guidance personnel. This condition was considered to be the best of possibilities, since the shop instructors were more familiar with available local jobs. Few VTE centers were found to provide follow-up activities. One center director stated that they did not need to have follow-up information in order to demonstrate that VTE makes students employable. If any of their students becomes unemployed, they would merely have to contact the school and they could again be placed in a job. He further commented that there were more requests by local industry for students than there were students to fill the need.

Recommendation 1

In every district visited there was a need and a desire to hire more counselors. (See Table 1.) The reason for lack of sufficient counselors at present time was exclusively given as a limited budget. "There just was not money in the budget to hire any more counselors." When the author would suggest an overall shortage of qualified counselors, it was always met with the general conclusions that there were qualified people available if only the funds were available.

TABLE 1  
PRACTICES OF COUNTIES IN HIRING COUNSELORS

County	Screening Committee	Hiring Non-Certified	Guidance Personnel Fully Integrated
A	Yes	No	No
B	No	No	Yes
C	Yes	No	Yes
D	No	No	No
E	No	No	No

District B reported that they always had six applications for every counseling job available. That same district did not have one counselor employed that was not certified and all but two of them were at least at a masters level. District A had approximately 30 per cent of their counselors uncertified, however. They, too, reported a shortage in funds over a shortage of counselors. School District C was the only district where the supervisor of guidance stated there was a shortage of qualified counselors. This district, however, had all their counselors certified and had a black counselor in every junior and senior high school in the

county. District C was not experiencing a shortage of counselors at the time of the survey. They, too, were of the opinion that if more funds were available there would be more qualified counselors employed.

At first glance, this recommendation may appear to be in conflict with the McKay Committee Report of March, 1970, in which is cited a counseling crisis existing in Florida Public Schools. This crisis generally was taken to mean a critical shortage of counselors, though this was not stated specifically in the McKay Report. In reality, the factual situation is that qualified counselors are having to take other jobs in the school system because there are no counseling positions open to them. The crisis, then, is that Florida schools are barely meeting the lowest accreditation standards of one counselor per each 600 students. The crisis is found to exist within the school system by not making funds available for counseling positions. This author is in strong agreement with Recommendation 16 of the McKay report wherein it was stated that the school districts should be required to meet level 2 accreditation standards for counselors, or a 1:375 ratio for grades seven through twelve and 1:1000 ratio for elementary schools. The emphasis of Recommendation 1 of this report is placed on the school systems to come up with funds for positions, and then counselors will be available to fill them.

### Recommendation 2

At present, in every school district there should be a coordinator of guidance to provide leadership to counselors in schools, coordinate inservice activities, and supervise the overall county guidance program. It is recommended that a vocational guidance coordinator also be employed at the county level to serve as consultant and

provide liaison between staffs at the area vocational-technical center and its feeder schools. Such a person would have the responsibility of coordinating vocational guidance in the public schools, developing inservice programs concerning vocational counseling and disseminating vocational materials to school counselors.

In three of the school districts visited, there were county-level guidance supervisors available for interview. In only one of these three was there another county-level director of adult vocational guidance. (See Table 2.)

TABLE 2  
GUIDANCE PERSONNEL AVAILABLE

County	In Every High School	In Every Jr. High	County Supervisor	County VTE Supervisor
A	Yes	Yes	Yes	No
B	Yes	Yes	Yes	Yes
C	Yes	Yes	Yes	No
D	Yes	No	No	No
E	Yes	No	No	No

The two counties without a specified VTE guidance supervisor expressed a strong need for such a person. The VTE program for District B has been greatly expanded since the establishment of such a position. This individual was appointed to be in charge of Guidance Services for Adults, which was also extended to mean anyone in VTE programs exclusively. His job was expanded to include collecting data concerning vocational placement and follow-up surveys. The following is a summary of a relevant report from District B.

### Summary of Placement and Follow-up Procedures

#### First Center visited:

##### A. Points noted

1. Vocational areas seem to be "dumping ground" for students unable to succeed in academic programs. Very little job placement of students.
2. No stated method for follow-up.
3. High dropout rate--almost no graduates in vocational areas. Instructors frustrated by low ability and interest of students. One instructor suggests teachers have inservice time to visit prospective employers and gain, first hand, the qualification of each job.

##### B. General observations

The Radio-TV Technology reports the most success in job placement of students. This results possible from the fact that Radio-TV is the most highly technical trade taught at the school. Very poor students are simply not able to work in that area as they may be in re-upholstery or even auto mechanics. Mr. N, Radio-TV instructor, finds ample employment opportunities for students. Very little success in job placement, however, is found in the other technologies. Essentially, the problem seems to result from the fact that the majority of students in the vocational courses show very little educational development at all. Many lack even rudimentary skill in reading, writing, and arithmetic. On the basis of the somewhat hasty evaluation, it would appear that the vocational program needs certain reorganization and improvement before they will be able to benefit from job placement and follow-up.

#### Second Center visited:

##### A. Points noted

1. Students in MDTA COOP, placed by COOP coordinators. Nurses Aide and Key Punch students generally placed by instructors. All others usually placed by Guidance.

2. No consistent follow-up procedures, except MDTA COOP. Several instructors say they could quickly report follow-up data if needed.
3. Guidance would appreciate help in finding employers for students in programs.
4. Guidance recommends a central office for coordination of placement efforts and follow-up.

#### B. General observations

Placement procedures vary by training area. In Nurse Aide Training virtually all students are placed by instructors. There is a great demand for trained Nurse Aides and every student who successfully completes the course and wants to work can be placed easily. Instructors are registered nurses who know almost all the institutions hiring Nurse Aides. The same is generally true of the training programs in Key Punch, Auto Body, Auto Mechanics, and Upholstery. Occasionally there will be a student of limited ability who is suited only to a very special kind of work and such a student may be referred to a guidance counselor for help in finding a job. Instructors simply may not have the time needed to find a suitable job for such a problem student. If this happens, the counselor will make a very determined effort to place the student. He may actually take the student around to possible employers, attempting to present an honest picture of the student's capabilities and potential. Students under MDTA Multi Cooperative Training are placed in on-the-job training by the COOP Work Coordinators. Under this program, the student receives both job training and basic remedial education. The coordinators are constantly making contacts with local employers representing practically every major type of work available in the county. Employers interested in retaining good trainees for permanent positions are sought by the Work Coordinators and most COOP graduates remain employees of the business or industry that has helped train them. The Guidance Department works in placing students from the less technical areas of vocational training where there is less demand for workers. These areas include sales and cashiering, sewing, child day care, and clerk general. When a student training in one of these areas is not capable of high level work (such as a clerk general student who qualifies only as a file clerk) it often becomes difficult to find a suitable job for the student. Students from these

areas are not likely to be "instantly" placed on a job as are students training in the technical or industrial trades. Broadly speaking, Guidance works in placing low-level students and students training in non-technical areas.

Third Center visited:

A. Points noted

1. Excellent placement method established through Student Personnel Division.
2. Seven-year follow-up study in progress by Guidance.
3. No problems or needs--excellent managed, self-contained system.

B. General observations

All placement efforts are channeled through the office of Student Personnel Services, which facilitates the keeping of records and centralizes the placement process. This office prepares lists of graduates by technology and sends them to all major employers in the area. "Techdays" are scheduled at which time business and industries visit the center for the purpose of interviewing graduating students. Fifty to sixty employers participated in "Techdays." Students are included on a list prepared by the State Department of Education for distribution to all employers in this state who hire at least 25 employees. Instructors themselves often develop leads for job placement of the students in their particular technology. But all such business is ultimately directed to the Guidance Office. It is not enacted solely between instructor, student, and employer.

Fourth Center visited:

A. Points noted

1. Placement handled by instructors. Instructors have many contacts with employers.
2. No consistent follow-up--instructors do their own.
3. Assistant Principal expressed need for a school coordinator who might be in charge of follow-up and administrative aspects of vocational education.

4. Central placement office recommended (Assistant Principal suggests the Dade County system for job placement and follow-up might be used as a model).

B. General observations

High School operates an extensive industrial training program for high school students. Selection of students is made by the guidance department but it does not serve as a recruitment agency for the industrial program. The Assistant Principal feels that more students could benefit from the program if more counseling and information were available. Such might be among the duties of a "local" placement coordinator for vocational education. As the program operates now, some classes operate way below capacity. Placement of graduates is generally accomplished by the vocational instructors as they know a multitude of employers through their craft committees. Job placement is not a frequent responsibility of the guidance department. No standardized follow-up procedures exist. The Assistant Principal believes that follow-up could be one of the most important functions of the placement coordinator. He would like to see a better effort to inform employers of the county's training program and to promote that program. A placement coordinator should be a public relations or personnel management man who could serve as a liaison between the schools and the business community.

Fifth Center Visited:

A. Points noted

1. Almost all students placed by instructors. School has excellent reputation--many employers come or call looking for students to work for them.
2. No follow-up method, but most instructors say they know where almost all of their graduates are.
3. No problems within the system--no outside help needed.
4. No particular recommendations for improving the system.

B. General observations

Nearly all training is in technical areas where the demand for workers is constantly high. Students selected for training show potential for high level

work. All instructors are well acquainted with many employers in their field of work and over the years have established excellent rapport with business and industry. Employers know that graduates are well trained in their area and nearly all students (95% estimated by Guidance) have a job secured before graduation. Typical of the way technology students are placed in jobs are the methods used by the dental assistant and laboratory assistant programs. In the dental assistant courses many dentists from the community participate in the training by coming into the class to perform dental work and present demonstrations. There, dentists are able to meet and observe the students in training and then later hire a graduate. The laboratory-assistant-training program is structured so that all students receive the second half (six months) of the course in on-the-job training at a local hospital. All of the students in the lab class, reports the counselor, were hired by a local hospital immediately upon completion of training.

#### Sixth Center visited:

##### A. Points noted

1. Instructors place most students. Department head sees program as a "feeder" for schools such as the area Vocational Technical Institute.
2. No standard follow-up methods.
3. Department chairman expresses need for a central placement office and coordinated effort in job placement and follow-up.
4. Recommend central office with a "local coordinator in each school to do administrative chores." Department chairman will be glad to help write up proposals for improvement of the system.

##### B. General observations

Ideally, their Vocational Programs should be feeder programs for post secondary training facilities such as the AVTI, so feels the Coordinator of the school's vocational programs. He believes that many of his high school graduates are not job ready at 17 or 18 years of age both for lack of maturity and lack of

sufficient technical training. Students desiring to continue their education are encouraged to apply at the AVTI. Others join the armed services and a minority are actually employed at full-time work in their area of training, but the coordinator emphasizes that this situation does not result from a lack of employers. For example, an auto mechanics instructor flatly states that he can place any student who wants to work full-time upon graduation. His experience in the trade and his contacts through the craft committee provide placement opportunities for all his serious and motivated students. The coordinator of the school's vocational programs believes that a central office for placement and follow-up would take a tremendous load off his instructors. He would prefer a local coordinator in the school who would handle administrative duties, conduct follow-up studies, promote the school's industrial training programs in the areas' business and industries, and work in curriculum development. A coordinator might or might not be an instructor himself but his work would permit the other instructors to spend more time at actually teaching.

#### Seventh Center visited:

##### A. Points noted

1. The school is not deeply involved in the matter of job placement as most students continue their education in one of the comprehensive high schools. Most of the adult students attending the evening program are presently employed and are studying to upgrade themselves.
2. No specific follow-up methods are utilized. Instructors express desire to be able to follow the progress of their students as they continue through high school.
3. A particular problem here is the difficulty in assuring that a student will continue his education at a high school offering training in his preferred area.
4. A central office could provide follow-up data needed by the school to evaluate its vocational program.

##### B. General observations

As seventh graders, all students spend three weeks

in the shop areas (7 or 8 areas) as an introduction to the field. In the eighth and ninth grades, the students spend greater time in fewer areas of training, having selected fields of special interest. Since the school is essentially unknown, it has students from many areas in the county. There is an effort made to place students into a comprehensive high school that offers further training in their areas and interest. This is not always possible and some types of training offered at this institution simply are not given at other schools (e.g., dry cleaning). All faculty interviewed agreed on the importance of making continued training in the field available to all vocational students upon graduation. This junior-high program is new and follow-up procedures have not yet been done. The faculty recommends that follow-up of graduates be handled through a central office. Such research work would help in evaluating the effectiveness of the vocational program.

### Summary and Observations

#### A. Recommendations for further study

1. All centers were very receptive to the idea of a central office especially for the purposes of follow-up. Two of the institutes seem entirely self-sufficient in placing graduates and one has an excellent system that might be incorporated into a central system.
2. The assistant principal at one institution suggested that a system used by Dade County schools might be worthy for study as a possible model.
3. It was suggested that a committee begin work on a proposal for a central office for placement and follow-up of vocational students in the county.

#### B. Possible duties of a central placement office

1. To serve as a liaison between the county school system and industry and business. To inform employers what the programs have to offer.
2. To conduct follow-up studies on placement of graduates.
3. To coordinate placement procedures between centers to make maximum use of placement opportunities.

4. To improve communication between the instructors, counselors, and vocational personnel in all centers.
  5. To collect placement and follow-up data and communicate that information to the data processing system.
  6. To prepare reports of the county's vocational educational programs for the State Department of Education and Office of Education.
- C. Possible duties of a "local" coordinator of vocational placement follow-up (a person working in a particular school).
1. Selection of students for a school's vocational training program.
  2. Preparation of data for a central office and the data processing center.
  3. Development and improvement of course material.
  4. Coordination of placement opportunities between central office and school.
  5. One suggestion received was that a "local" coordinator for vocational placement and follow-up might be a current employed vocational instructor. It was suggested that such a person might work half the day as an instructor or coordinator, spending the other half of the day actually working with one or several large employers in his particular technology. This time would be used for the purposes of (1) keeping abreast of latest developments in the technology or industry, (2) promoting the school's vocational training programs and developing leads for job placement of students, and (3) making follow-up reports on former students now working for employers in the community. This kind of an assignment might be rotated; one vocational instructor taking it one semester every two or three years.

### Recommendation 3

The role of the guidance department is not always understood in every school and by every principal or administrator. This is not always the fault of the guidance department. However, a comprehensive completion of behavioral

objectives in terms of the guidance department's goals as well as objectives expected of every student coming in contact with the guidance services would be most enlightening. Because of the ambiguous nature of individual behavior, it should be understood that such a task is a most difficult one. This task, however, would accomplish much toward the achievement of more unified and cooperative understanding of the duties of the guidance counselors.

#### Recommendation 4

The program of any guidance department is under the administrative responsibility of the principal and/or directors of the educational institution. This administrative authority is sometimes used to stop or seriously alter certain aspects of the guidance services without the understanding of the guidance personnel. These kinds of misunderstandings which result in a reduction of guidance services should be eliminated when and if possible before they happen.

Examples are difficult to generalize to every school, but a somewhat minor experience is as follows. A certain school district held an inservice Adult Vocational Guidance Clinic which featured leading professional educators in the area of counselor education. The clinic required an all-day session. There were some principals in the district who did not want their counselors to attend the meeting. Their reasons were as different as the principals, yet the central issue was that their jobs could not go unattended for an all-day affair.

This kind of non-helpful interference of the development of guidance personnel can only serve to reduce the morale and services expected from the counselors, not to mention the loss of expected gain in professional knowledge.

Counselors are, by and large, very dedicated to their jobs. Most of them surveyed in this study indicated a

personal dedication to improving their abilities to perform their duties. One counselor in District B took three weeks of personal leave and three weeks of his vacation in order to gain experience in industry. This counselor was dedicated to learning as much as he could about job opportunities and expectancies. He wanted to improve his vision of the work-a-day world and gave up his vacation time and three weeks of regular pay to accomplish the task.

#### Recommendation 5

Every district visited was united in the plea for summer representation of guidance personnel in our schools. Many vocational decisions are, by necessity, made during the summer months. In most of the schools of the state during the summer, the students that do come in are forced to be advised by the secretary on duty. Obviously, secretaries are not trained counselors and are not qualified to assist students in their vocational and educational choices. In some of the districts it was reported that counselors are more needed in the summer months than at any other time of the year. It does seem reasonable, when one stops to think about the matter, that the summer is full of students with no jobs and little to do but be idle all day. What better time for the student is ever available? He would have plenty of time to think and read about vocational careers.

#### Recommendation 6

Physical facilities for guidance in many of the schools have to be improved in order to facilitate the ongoing guidance programs. Whenever possible, guidance suites should be relocated or restructured to facilitate privacy, group work, and storage space. The entrance to some guidance

suites are located such that students have to cross through the administrative offices in order to see the counselor. In one district it was reported that some of their counselors do not even have telephones. There is adequate evidence that the location of counselors' offices affect the manner in which counselors are viewed by students. The counselors should be concerned that they are viewed by students as being accessible and concerned for them as individuals.

The physical facilities in only one district was reported as being entirely adequate. Some schools in other districts were still having to put up with made-over broom closets. One small rural school visited was, indeed, using a made-over storage closet. The counselor was very interested in displaying the vocational material available, however, there just was not physical room to place the information. She eventually devised a system to display some pamphlets by making a special rack that hung from the back of the entrance door. Facilities are a very integral part in the guidance function; and in this regard, portable guidance labs might serve the rural areas better.

Facilities in the vo-tech centers visited were very adequate and comfortable. Some of them were not guidance suites, but general office space in the administrative area of the institution. The physical location and design of the offices in which guidance departments are housed should provide adequate space for the performance of the task of disseminating VTE information.

#### Recommendation 7

The need for more qualified counselors cannot be met by hiring paraprofessionals, but the effectiveness of those already employed can be improved greatly by such action. Paraprofessionals in other educational areas have allowed

the professionals more time to do the aspects of their jobs that were professional. The analogy to engineering technicians is obvious. The more technical help a professional has, the more effectively he can spend his own time. Many of the districts surveyed did not like the idea of a highly specialized paraprofessional; that is, a person trained to do only one single duty. They were also very anxious that the paraprofessionals not be reduced to recruiters or salesmen for VTE. Every guidance professional expressed the standard concern for all students and not for some special students. The area of VTE has been somewhat neglected in the past, not so much from lack of concern, but from lack of information about the VTE students and their needs. Kenneth Hoyt has a research project designed to give this kind of professional understanding of the VTE student. Hoyt called the VTE student the "specialty oriented student" and defines him as ". . . one whose motivations toward educational achievement are built largely around a desire to acquire a specific occupational skill or set of skills. Courses designed to broaden his potential for a vocational living have little or no appeal to this student. He may be described as expressing relatively more interest in being "trained" rather than in being educated."<sup>1</sup>

The paraprofessional would probably serve well in the area of VTE since he would be somewhat of a product of a similar process.

Clerical help was needed by every district surveyed except in District C that reported a secretary for every guidance department in the county. The other districts reported that counselors were spending far too much of their valuable time doing clerical duties simply because no one else was available. This kind of condition should not be allowed to continue.

In every district visited came the cry that counselors

are being used for other than guidance functions. Counselors in one district were required to move furniture and perform other janitorial duties from time to time. This mismanaged use of valuable guidance personnel's time helps to underscore the reported shortage of counselors.

### Recommendation 8

Every counselor interviewed expressed a deep concern for students. Everyone also agreed that the guidance services of vocational students are not being met as well as those students planning to attend college. Many counselors expressed exasperation over the present parental biases against VTE and in favor of college preparational courses for their youngsters. The counselors know, through past records, that many of these students will not go on to college. However, these same parents express a desire for their children to have a better life job than they, yet they do not understand that college prep courses do not train their sons or daughters to enter the world of work. In general, counselors blame parents for the students preferring college prep courses over VTE courses.

It appeared obvious from these interviews that a concerted program for presenting the factual vocational picture for children, with and without VTE, was needed. Such a program was not found in any of the school districts visited. Further, many of the counselors expressed a reluctance to assume the mammoth job of combating parental academic biases. Perhaps it could be added that they do not have the firm dedication to VTE that one would necessarily have to have in order to encourage their own child to take advantage of VTE.

Counselors, typically, are people interested in others. They are also vitally concerned that the individual does not become forgotten by the big educational system that

is constructed around him. The counselor desires the best future for all students he serves. Following these qualities of a counselor, one should rightfully expect the counselor to be involved in the community in more than just a passive manner. The counselor should be actively engaged in social community causes that serve to better the prospects of a brighter future for the students of his community.

Counselors should actively work against discrimination against students for whatever unjust reason. The guidance department should be aware of every employer that does not give equal opportunity to all employees. The guidance department should vigorously work for every student, but especially for those that will not be received fairly by prospective employers.

The counselors interviewed concerning this issue demonstrated a verbal understanding of their responsibility. It has to be hoped that they are also engaged in actively doing something.

#### Recommendation 9

Prevocational courses are a definite need in order for students to develop some understanding of the world of work. These courses should help the student gain insight into his own self-concept and how it relates to his vocational ambitions. Some districts had sample on-going programs, but not all of the schools within any district have prevocational courses. The prevocational courses in one district's comprehensive junior high school took the form of meeting only once a week in small groups led by a guidance counselor. There was a schedule of topics to be covered each week. The topics progressed as the grades went higher. The end result would be that the student should gain enough information to ensure his making a good vocational choice.

Recommendation 10

In the districts visited there was only one vo-tech high school found that offered extra-curricular activities such as band, competitive athletic teams, and school proms and parties. Most vo-tech centers that serve high school students do so by busing them in for a half day. This, then, becomes the only thing the student can do because of his absence from the school where the extra-curricular activities are present. The loyalties of the students are split and many students are discriminated against by the feeder high schools. As a simple example, in District B the high school student bused into the vo-tech center had to give up his opportunity of receiving a hot lunch. This same center was well represented in students from most of the high schools in the area. (See Table 3.)

TABLE 3  
SCHOOL DISTRICT D HIGH SCHOOL FEEDERS  
TO THE VO-TECH CENTER

School	Percentage of Total 11th and 12th Grades Enrolled	
A	56	In county of school's residence served by busing.
B	51	
C	23	In an adjacent county of school's residence served by busing.
D	13	
E	19	
F	24	
G	12	In a third county not served with busing.

It was stated by some (vo-tech centers) that giving up these social frills was part of the price the VTE student had to pay. They pointed out further that this was a good indication of the dedication of a potential VTE student. At this point it should be noted that most schools visited that offered VTE courses had them well filled with students to the point of being forced to become selective of students applying for admission.

The fact there are more potential VTE students than there are places for them mitigates against beginning programs that are costly and will not add to VTE. The purpose of including this as a recommendation was to point out the possible limitation VTE centers will face in the expansion of high school student enrollment. It also demonstrates that an answer to the bias against VTE might simply be to provide adequate VTE facilities and programs at an age before the student becomes committed to his biases.

#### Recommendation 11

Counselors should know first hand the value of work. This should include experiences received in other than academic settings. If counselors expect to influence others to value work and VTE, then they should be active in the area. This activity might not be limited to just non-technical professions but also include job experience in highly skilled areas. This recommendation is concerned with the training, both pre-service and in-service.

The counselors that are presently employed and those subsequently employed without work experience should be required to participate in summer programs of working in local industry. This work experience would give counselors first hand impressions of the job requirements and possible satisfactions.

In none of the districts visited was there a summer program formally established. All of the county supervisors contacted were in favor of the school system paying the salary of a counselor so employed. This is perhaps the only manner in which it could become a requirement of the counselor's job. There are very limited possibilities at present for counselors to gain summer work experience of this type. Of course, it is always possible for a counselor to gain a summer job of some description; however, these menial, manual labor jobs are not very satisfactory for the knowledge that counselors should gain. A counselor should gain knowledge of skilled and semiskilled occupations which is possible only with school sponsorship.

The summer work program for counselors should not preclude having a counselor in every school system available to the students that need summer counseling. This work program could be performed in other ways. For example, counselors could be placed in local industry on a half-day basis. This half-day program has not been attempted in any district visited to date. It was suggested for vocational instructors by several schools within the districts visited. The point to remember is that while counselors prefer not to call themselves teachers, it is a present requirement that to be certified in guidance one must also be a certified teacher. The implication is obvious that counselors are in some way teachers. If the half-day industrial employee is good for vocational teachers it must be good for vocational counselors.

#### Some Concluding Comments

This investigator realizes that the survey taken was limited for the task of a state wide evaluation; however, it was purposeful in its direction. The glimmer of information gained in this survey can serve only as a window to view the

more important concerns of guidance in the state. Many areas of concern were not represented in this report, due to limitations of time and personnel. Only those areas of needed improvement were mentioned. There are many major concerns of the counselors serving in our school systems that will never be found in a report centered in areas of needed improvement. Those unsighted, unheard, and often simply unnoticed concerns of counselors that are being accomplished with all the dedication and concentration of purpose necessary may be more important, ultimately, than these few which have been cited here.

ANNEX A

Summary of Vocational Guidance Survey Taken in District A

SCHOOLS: 15 Senior High Schools  
17 Junior High Schools

1. Number of vocational guidance activities conducted by your school this year 1,652
  - A. Speakers 402
  - B. Films and audio/visual materials 894
  - C. Career units in classes 209
  - D. Visitations 308
  - E. Explorer scout program 67
  - F. Clubs with vocational interest 119
  - G. Tours within your school 153
  
2. Check the vocational materials utilized in your school this year
  - A. Chronicle 19
  - B. SRA 18
  - C. DOT 24
  - D. Occupational Outlook Handbook 28
  - E. Occupational Outlook Quarterly 9
  - F. Careers (Largo) 15
  - G. State Department of Education Publications 26
  - H. Commercial brochures (New York Life & Prudential) 26
  - I. Armed Forces Publications 25
  - J. Kiwanis booklets 8
  
3. Check the following programs which are offered in your school:
  - A. DCT 7
  - B. Work/Study 6
  - C. NYC 12

ANNEX A.--Continued

4. Does your school have a VOE Counselor?

Yes

No

\_\_\_\_\_

\_\_\_\_\_

5. Does your school designate one counselor to coordinate vocational guidance activities?

Yes

No

\_\_\_\_\_

\_\_\_\_\_

ANNEX B

Taken From An Evaluation of District J

Question Asked: How adequate are the guidance services in your school?

PERCENTAGE DISTRIBUTION

Group	Total	1 <sup>a</sup>	2	3	4	5	6	7 <sup>b</sup>	Mean Rating
Teachers	34	12	3	9	18	26	14	18	4.6
Students	74	1	11	13	18	22	24	11	4.6
Administrators	8	0	0	13	37	13	37	0	4.8
Pupil Personnel Practitioners	11	9	9	18	36	18	0	9	3.8

<sup>a</sup>Definitely inadequate.

<sup>b</sup>Superior

Verbatim Comments Regarding Question Asked

- Teachers
1. We are provided with the services of a guidance counselor.
  2. We deserve this rating (6) due to the cooperation of all concerned.
  3. Not enough trained personnel (as written) to meet all the problems when needed. They do the best they can. (Rating 2)
  4. Much improved since Dr. B\_\_\_\_\_ and Mr. \_\_\_\_\_ joined our staff.
  5. We don't have enough help with counselors.
- Students
1. I have never been in the guidance office to talk to them.
- Administrators
1. No counselor in residence. If need one, have one close by that can get.

2. Counselor and special services are available to all students (bogged down "clerically").

Pupil Personnel  
Practitioners

1. Need a good full-time secretary. This would free counselors for more individual and group counseling.

Additional Comments: Taken from an Evaluation of District J

Teachers: None

Students:

They should not have dogs running around the school yard.... Several comments about poor Physical Education facilities-- stress put on dirty locker rooms and showers.... There should be more freedom for students.... "J"AVTC one of the best schools in the county.... There needs to be plan of organization.... Everything is confused. "J"HS is up and moving fast with dope, sex, etc. I think drastic measures should be taken with this situation. Remember that we are the next generation to come. I don't want a bunch of loonies running the U.S. Let's stop the crime and the first and best place to start is in "J"HS. Our schools are overcrowded and there is too much tension among the students.... It's hard to get out of a class which you dislike because it has to be oked by the teacher.... The schools are overcrowded.... School would be better if there were less students and more teachers.... I think it is a pretty nice school though just the guidance services should improve a little.... I don't like the way the middle schools are arranged this year.... Give more time in academic subjects so the teachers can explain better and have a time in the day for students to come to the classroom for additional help.... Students not informed about some of these things (services offered).

Administrators:

More adult help needed in the guidance office.... Suggest standardized tests be administered early in the school year to get maximum benefit from results.... Emotionally disturbed children need help. Also, teachers need help with emotionally disturbed children.... One counselor has been very helpful in assisting teachers with emotionally disturbed children.

Pupil Personnel Practitioners:

Not fair that vacant positions in county office weren't open to all counselors. Made for bad feelings....Release time for teacher-counselor workshops....There should be a Guidance Director in each school and this person should be involved in planning county-wide programs....Counselors should be employed for 11 months to do evaluations, and follow-ups.

## GOAL 1

### APPENDIX E

#### THE USE OF COMPUTER-ASSISTED INSTRUCTION (CAI) WITHIN THE INSTRUCTIONAL PROGRAM IN VOCATIONAL-TECHNICAL EDUCATION IN THE STATE OF FLORIDA

by

Raymond F. Latta

The purpose of this paper is to examine the use of the computer within the instructional program in Vocational-Technical institutions in the State of Florida. It is felt that use of Computer-Assisted Instruction (CAI) or the lack of its use will be indicative of the responsiveness of the vocational education system in the State to new innovations. Further, this research paper should shed some light on the present use of CAI in providing individualized instruction.

This paper is structured in the following fashion. A cursory review of CAI has been provided and its use in the K-12 public school system discussed. Following this introduction, the use of CAI by the Department of Defense (DOD) and in vocational-technical education is discussed. The paper concludes with some reflections regarding CAI and its use in the State of Florida. The reflections have been pulled together using both the review of the literature in this paper and the supporting bibliography.

Before beginning, one must differentiate between instructional technology and CAI. Instructional technology is viewed by this author as a process whereby one attempts to optimally utilize knowledge, research, and creativity in the facilitation of the human learning process. CAI, on the other hand, is simply one medium which is available to educators for use within this process.

CAI is almost twelve years old. Having moved from a

conceptual idea in 1950, CAI is starting to prove its operational effectiveness and efficiency in facilitating learning. To date, CAI has documented an impressive array of increased instructional effectiveness in such areas as: (1) elementary schools, in reading and mathematics; (2) junior and senior high schools, in science and computer science; and (3) college, in physics, mathematics, computer science, and teacher training. With this array of success it is only natural that vocationally oriented systems consider applying these computer techniques to assist vocational educators in their ever-increasing task of offering the best education to those in need of vocational training.

The initial conceptualization of CAI, which was crude, has grown to be a much more sophisticated system. The various applications available today speak for themselves in this respect. For example, when CAI is considered today, the following applications must be given consideration: (1) drill and practice which provides a potential automation of the problem-solving routines or homework to be mastered by a student; (2) tutorial approaches which attempt to establish the ideal teacher-student dialogue; (3) problem-solving tasks that use the computer both as a problem-structuring device and as a calculating tool for generating answers; (4) gaming and simulation which attempts to replace empirical activities with symbolic representations; and (5) evaluation tasks such as sequential testing and other analyses of data (Dick, Latta and Rivers, 1969). Each of the above applications or models of instruction which are available when using CAI represent a match between the computer as a tool and a specific learning problem.

In summary, of the many communications technologies which have become available to education, the most complex, and perhaps the most valuable, is the application of high speed computers to the instructional process. Its success

in the public schools is well documented. A cursory survey of nine of the major public educational systems which are using CAI in the United States revealed that well over 20,000 students had experience with CAI during the 1969-70 school year (Dick, Latta and Rivers, 1970). Most users of CAI have found it to be at least as successful as other teaching devices and techniques (Mitzel and Brandon, 1967). As a result of the above it should not be too long before CAI will be utilized on a much wider basis, for CAI has shown itself to be an effective means in realizing educational goals.

#### The Use of CAI in the Military

The use of CAI in the military resulted from many growing needs. Four needs which contributed in part to the spread of CAI throughout the DOD training programs are as follows: (1) the DOD has seen a tremendous growth in computer-related, complex weapons systems. With this came the need for highly trained, technically oriented personnel. The military was quick to see that a great deal of this training could take place on computer-controlled equipment. Further, the computer could be made, using CAI, to individually focus on each trainee's particular learning deficiencies; (2) all manpower and personnel development activities with the DOD have come to recognize a growing spread of talents and aptitudes on the part of the new inductees. The problem of assigning inductees to areas or Military Occupational Specialties (MOS) has, therefore, increased as there are more variables to be considered. The computer offered some assistance to the DOD in storing such information and keeping track of assignments, etc.; (3) the military, all branches, has experienced a growing cast of increasingly complex weapon systems. This has forced an increased awareness of a need for efficiency, speed and effectiveness

of training procedures. Within this setting, the DOD also must provide for a wide range of logistic variables such as class size, scheduling, competent instructors, etc. CAI, according to military personnel, holds a great deal of promise in providing viable alternatives for handling small classes, individualizing the instruction where needed, and providing instruction to trainees where competent personnel is unavailable; and (4) the military has committed itself to various training programs for special student populations. Two such projects are "Project 100,000" and "Project Transition."

Project 100,000 is aimed at training a large group of marginally capable young men who will be required to fill various roles in the military service. The project is designed to strengthen the basic academic skills which these youths learned through the K-12 public school system. For those leaving the service, Project Transition is aimed at providing vocational competency to all those returning to civilian life who desire training for a vocation (Hansen, 1968).

Hickey (1968) referenced a multitude of projects in the military which involved the use of CAI. The success of these projects also is well documented in Hickey's review. Freman in a recent article in the journal Educational Technology entitled "Computer Support of Instruction at the US Army Infantry School," alluded to several of the Army's activities in CAI.

The Infantry School is charged with investigating only one portion of computer-assisted instruction. The Department of the Army has assigned to our service schools the task of investigating computerized instruction during the time frame 1968-1973.

The tutorial dialogue mode is being investigated at Fort Monmouth, New Jersey, by the Army Signal School. In tutorial dialogue, the computer questions the student, and based upon his answer determines which path or branch of instructional information to feed him; then it

re-checks his knowledge and branches him to the next appropriate chain of information.

The Army Quartermaster School, at Fort Lee, Virginia, will prepare executive decision type problems which stimulate the theater Army supply system to train officers and enlisted men to become better supply managers. These students will interact with various supply variables to discover how these manipulations impact upon supply, transportation and resupply.

The Infantry School at Fort Benning is investigating the drill and practice use of the computer. In this mode, the student learns various skills and techniques during prior conventional instruction. Then he comes to the cathode ray tube (CRT) console, where the computer presents him with a series of problems to solve which require that he practice these skills and techniques.

The Command/General Staff College at Fort Leavenworth, Kansas, is exploring the pros and cons of time sharing and how the computer can best assist faculty development and training in the use of the computer as an instructional and research tool.

Human Resources Research Organization at Alexandria, Virginia, has a long range project to come up with a "how to" package including how to restructure learning material for computerized instruction, what is the best peripheral equipment or hardware, and what computer language or combination of languages will provide maximum flexibility to the instructor when preparing his lesson. (Freeman, 1969)

The Navy and Air Force are not far behind the Army in their investigation of CAI as it relates to their training programs. The Naval Academy at Annapolis (Manion, et al., 1968), for example, has undertaken a multimedia approach. This project perhaps is more comprehensive than those of the Army mentioned earlier in that this project is investigating the assignment of media and scheduling problems within the same computerized system. The fact that CAI is but one medium available for assignment and scheduling is indicative of the scope and comprehensiveness of this project.

Colonel Felch, who is presently a doctoral student at The Florida State University, reflected on the DOD's investments in education in a recent paper.

The Department of Defense estimates that it expends annually over 3.5 billion dollars for training alone. This is a substantial share of approximately 39 billion dollars expended annually in the United States for education. Military education is largely of a technical vocational nature involving the training of young men in highly technical skills under conditions of strict requirements of quality and quantity. The combination of defense, political, economic and social pressures are such as to place high priority on educational techniques that will optimize training objectives and serve to train today's modern military man so that he is knowledgeable and effective in the shortest possible time with a minimum expenditure of time and money. (Felch, 1969)

#### The Use of CAI with Vocationally and/or Technically Oriented Materials

Regardless of what review of CAI one turns to, one will find very little on the use of CAI in vocational-technical education. The above holds true at both the national and state levels. To date, there has not been any significant development in CAI in vocational education in the State of Florida. Due to this lack, projects using CAI and vocational and/or technical materials were reviewed.

The best review of instructional technology and its use in vocational education is that of Robert Morgan, who currently is Head of the Department of Educational Research at FSU. Morgan, who was formerly Director of Instructional Materials and Practices at the USOE, and who therefore is well qualified to write on this topic has stated clearly that:

. . . the public schools are making far less use of the new products of instructional technology than private industry or the military. And in the public schools, vocational education lags far behind the academic programs in the utilization of technology. (Morgan, 1969)

Several studies have been made outside of the vocational education system which are indicative of the fact

that CAI can be effectively and efficiently used within this public school system. The sad point is, that the success of using CAI in these endeavors has not transferred into the vocational system. Perhaps one exception of this might be the Philadelphia Public School system which is using CAI in educational situations wherever the medium has proved successful (Charp and Wye, 1968). It should be noted that Philadelphia is using CAI within their vocational education training programs. Some studies outside of the vocational training setting but which used vocationally and technically oriented materials are as follows:

1. Pennsylvania State University's project using CAT in technical education (Mitzel and Brandon, 1966 and 1967). Course material in engineering science, technical mathematics, and communication skills were developed and presented, using CAI, to vocational-technical students. The programs were found to be successful and the researchers were able to conclude that CAI appears to hold a great deal of promise in training and retraining of these individuals pursuing an education which is technical or vocational in nature.

2. A study by Bryan (1968) clearly illustrated the potential of the computer in simulating defects in a troubleshooting exercise. The technique used by Bryan was developed by H. R. C. Dale. The student, while seated at a terminal was asked systematic tests using a schematic diagram in an attempt to find the cause of improper equipment performance. The difficulty level of the material was increased as the learner gained sophistication. The results of this use were indicative of the use of CAI in providing simulated experiences. To match this process, the traditional setting would require one teacher monitoring one student. What would the cost/hour of a one-one situation be in this instance compared to the cost/student/hour using CAI? Considering that one

can lower the cost of the CAI system simply by increasing the number of terminals and students using the system, it might not be too long before CAI is very feasible in economic terms.

3. Bitzer (1966) using the Plato system and software designed to introduce prospective nurses to the clinical aspects of medical-surgical nursing found CAI to be effective in this situation. The small study involved seven freshmen in nursing who were taught using CAI and the same number of freshmen taught using the traditional method. Betzer found the mean score for the CAI group to be twenty-six as compared with twenty-three for the control group. This finding was found to be significant at the .09 level. Further, an attitudinal evaluation revealed that students perceived the following to be advantages of CAI over the traditional method of instruction: (1) active participation; (2) allows the individual to proceed at his or her own rate; (3) provides immediate feedback; and )4) effective in simulation of work with patient.

4. A study by Schwartz and Haskell (1966) who used a CAI program for training electronic technicians in basic data-processing.

As was mentioned earlier, none of the above efforts and/or programs or uses have transferred to the vocational education system. Altoona Area School District, Altoona, Pennsylvania, which has a computer at their vocational technical school, to date has not used CAI in their vocational training programs (Altoona Area School District, 1970). Perhaps the Altoona Area School District will research the above area in the near future. It would appear that they have both the hardware and software necessary to undertake such a study.

Some Reflections Regarding the Use of CAI  
in Vocational Education in Florida

The following are offered in no particular order but are based on the literature cited in the earlier pages.

1. Several comprehensive documents on vocational education have been comprised, but few, if any, discuss the use of educational technology and/or the computer within the instructional program. Arnold's report to the Department of Public Instruction and the Pennsylvania State Board of Education is an excellent report, but it does not get into instructional technology, needs for it, etc.

2. Most vocational-technical institutes in the State of Florida are within twenty miles of a computer which would facilitate a CAI project, yet nothing is being done in this direction.

3. Costs of CAI are high and no one is trying to circumvent this fact. However, the UTAH study (Straubel, 1969, 1970) indicated clearly that: (1) it is feasible to use Air Force instructional materials in civilian vocational settings in the State of Utah; and (2) U.S. Air Force Programs are not only transferrable, but can be shown to reduce the time required to learn certain skills. What one does not know is how many programs the DOD has which might be transferrable. As much of the cost of CAI is in the development of software, how many programs using CAI does the DOD have which might be transferrable? The scope of the material which the DOD might have comes into clear focus when one considers the fact that the U.S. Air Force alone in the last few years has developed over 5,000 hours of programmed materials, each course designed to achieve specific objectives and containing the minimum criterion set for success.

4. One wonders if the state and federal governments are providing the institutions which train vocational

educators with enough financial resources to acquaint the prospective educator with the latest in instructional technology. I am referring, here, to "hands-on" experiences, not a lip-service treatment or exposure. For example, how many vocational educators at The Florida State University have visited the CAI center which is under the direction of Duncan Hansen? Should some introductory courses at the CAI center be provided to acquaint these future educators with the medium being discussed throughout this paper? There is perhaps a prerequisite question to all of the above which might be, Is there anything to be gained by exposing our future educators to a tool which appears to hold a great deal of promise for education in the forthcoming years? My response to the above would be affirmative, but who is going to shoulder the cost, however nominal it might be? The State? The Federal Government?

5. Teacher attitudes play an important role in deciding what resources are used in our public school systems. Finch (1970) found this to be very much the case in vocational-technical education. As Computer-Assisted Instruction was a resource taken into consideration by this study, some of the implications of this project should be applicable to the scope of this paper. For example, consider the following findings:

1. vocational educators tend to have a more favorable attitude towards those resources which have been around for a long time;
2. vocational educators tend to utilize traditional resources to a greater extent than progressive resources such as CAI, educational television, etc.;
3. traditional resources are much more available to vocational educators than are the progressive resources;
4. teachers with positive attitudes towards resources tend to use them regardless of availability. For example,

if one had a negative attitude towards CAI and CAI was made available, those educators with negative attitudes towards CAI would tend not to use the medium.

It would appear from the above that teachers' attitudes play an important role in the instructional technology which they use within their instructional process. This might have several implications for inservice training, teacher training programs, etc.

6. There exists a shortage of trained personnel in CAI in vocational education. In order for CAI to filter into vocational education, educational technologists will need to be trained specifically for vocational education. Until these individuals are in adequate supply in the state of Florida, vocational schools will have to be provided with financial resources which can be used to buy within school assistance in developing and implementing innovations such as CAI.

7. The cost of CAI has been discussed and most people resisting CAI use the cost aspect as their defense. When a state can determine the cost-effectiveness of other media, then perhaps we can compare the cost ratios and select those most consistent with our objectives. To carry out any such evaluation the State will need an Integrated Management Information System (IMIS) which is capable of supplying the data for cost-effectiveness studies. As CAI is but one of many educational uses of the computer, perhaps the State of Florida might consider the computer for the above mentioned MIS. Either way, it would be foolish to neglect CAI in vocational education without first examining the cost-effectiveness ratio of this medium. Further, cost-effectiveness ratios of other media should also be considered in any decision either to use or avoid CAI.

8. As the DOD has implemented CAI at the national level to reduce its costs and increase effectiveness, it

might also be wise for a state to consider this innovation at a state level rather than at a local level. How much would such a system with drill and practice material cost in the State of Florida? Who would finance the research of this possibility, the State or Federal governments? Certainly, these questions ought to be pondered.

The task most commonly facing the educator is that of "re-educating" or altering attitudes already established in those seeking to learn. This is true whether one is considering education in the DOD, K-12, vocational-technical, or otherwise. The need to individualize instruction is becoming prevalent. Further, the students within the educational system are demanding that education be more realistic and suited to the needs of the individual. Regan (1967), like Christal (Office of Naval Research, 1965) feels that the real issue today is whether or not we can deny students the effective attention and assistance available through the use of the computer. I would concur with the above, but add that research in vocational education regarding the use of CAI should precede any decision to implement such a system. Past research would appear to indicate that CAI can be just as efficient and effective in enhancing learning effectiveness in vocational education as it has been in the military and other public school systems.

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## GOAL 2

To evaluate various State and regional public and private programs as to how they functioned and how vocational education fits into the total program for human resources development with reference to duplication, coordination, and/or competition.

- APPENDIX A. A Work-Related Educational Center for Potential Dropouts and the Disadvantaged . . . . . 111  
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## GOAL 2

### APPENDIX A

#### A WORK-RELATED EDUCATIONAL CENTER FOR POTENTIAL DROPOUTS AND THE DISADVANTAGED

by

Richard H. P. Kraft

E. G. Holly, former Assistant Superintendent for Escambia County, spearheaded an occupation-oriented education center in Pensacola that may become a model for the nation. The E. Dixie Beggs Educational Center has been established along the lines which Holly envisioned--a work-related program in the lower grades which would take potential dropouts and the disadvantaged [economically, cultural, or educationally] and place them in an educational environment in which they would be stimulated to learn. This means removing these children from the "traditional academic classroom situation" and even the "traditional vocational education program" and placing them in special programs.

Said Escambia Superintendent, J. E. Hall:

At the Beggs Center we are seeking to reach intelligent but detached youngsters. . . . Hopefully, potential dropouts will become achievers. More importantly, they may become productive, proud adults. [1]

Holly and others had been concerned about this segment of the student population for some time. Holly was convinced the fault was not with the pupil, but with the system--there was no machinery for dealing with the multiple problems of pupils who did not achieve in the academic classroom.

Because of today's stress on the "necessity" for getting a college degree, pupils lacking academic interests and/or capabilities find themselves labeled retarded, dropouts, or delinquent.

They did not, and perhaps never would, look ahead to being a college graduate with a white collar job. Since their schooling seemed geared almost exclusively in this direction and it was not for them, they developed negative attitudes. They had chips on their shoulders. . . . First they slowed down, then stopped, then quit.

So, we had many jobs to do at Beggs. First, we had to develop in these pupils attitudes that were positive. We had to have programs that would interest them. We needed to make them feel . . . [their] job training was as important as the academic kind. And we had to convince them that they were preparing for productive jobs and for meaningful roles in society. [2]

### Planning and Development

The Beggs Center concept began to take form in 1965. In a survey of five Pensacola junior high schools with 5,000 pupils, it was found that at least 1,200 never would get a high school diploma. [1] The need for some kind of special program thus was self evident.

In 1968-69 a pilot program was conducted which consisted of special courses in academic subjects--mathematics, reading, and communications--and shop and classroom experiences. Periodic home visits also were made. This phase was considered important because it opened lines of communication with parents, many of them for the first time. An attempt was made to allow the students engaged in the pilot program to participate to a limited degree with the on-going programs of the regular school; however, returns here were slight. [1] But, overall, the results of the pilot study were such that the Escambia County Public School Board gave permission for full scale implementation of the program.

Certain criteria for selection of students were established through the pilot program. These were:

- I. Grade Retardation
  - A. Repeater
  - B. Social promotion

- II. Reading Retardation  
At least two grades behind in reading achievement
- III. Low Scholastic Average  
Has not, nor is he presently, succeeding in his grade level offering. (This may not include students who are achieving in remedial work.)
- IV. Attendance Problem--Symptomatic of:
  - A. Attitude of student toward school
  - B. Home problems
- V. I.Q. Range Over 75--To serve as an indication that the student is not necessarily in the retarded range but is rather an educable nonachiever.
- VI. Personality Deficiencies
  - A. Poorly defined value system
  - B. Aggressive
  - C. Resentful of authority
  - D. Impulsive
  - E. Low frustration tolerance
  - F. Poor or low self-concept
  - G. Withdrawn--within framework of school
  - H. Nonparticipating
- VII. Final acceptance of Student at Discretion of School Administration [1]

### Implementation

By screening student records, and on the advice of teachers, 3,400 students were identified as meeting the established criteria. After identification, meetings were held with these students in their schools, the program was explained, and the two prerequisites for enrollment were given. These prerequisites are: (1) the student himself must be interested, and (2) the parents must be interested and approve of the child's participation. Conferences were held with

both students and parents in the schools. Then, visits to the homes were made. The people at Beggs feel that these two prerequisites are very important to the entire program.

Fourteen hundred of the qualified students returned application forms with parental consens and, of these, 600 were selected. Student selection was carried out, with few exceptions, on a random basis. An indication of the interest of students and parents is the fact that there is a waiting list of students for the Center. The school population for the 1969-70 school year consisted of 400 boys, 205 girls, 65 per cent Caucasian, 35 per cent Negro, between the ages of 14 and 19.

### Curriculum

The Beggs curriculum is a mixture of academic learning, occupational training, and on-the-job work. The philosophy is that all general related subject matter will evolve out of mathematics (simple, practical mathematics needed in their chosen vocation), communication (skills in writing and speaking to help them obtain jobs and perform successfully), and reading (to an extent that meets at least the basic requirements of their vocation).

Students in Beggs are assigned, as much as possible, to the vocational area of their choice. Students are allowed to change areas and it is believed that it would benefit most students, and particularly the younger ones, if they were rotated through several vocational areas. Vocational areas available for boys are power mechanics, woodworking, horticulture, electrical appliances, or building maintenance; for girls there is office education, the health areas, and home economics.

Each of the vocational areas is a focal point of a team of teachers--two academic, one vocational, and a

counselor. The pupil teacher ratio is 12 - 1. The school day is divided into three ninety-minute shifts. Two shifts are with academic teachers and one is in a vocational area. The counselor is there to reassure and support the student and to give feedback and suggestions to the teachers. Class time is scheduled so that students may spend some time "on-the-job" with Pensacola business, sales, service or industrial firms.

### Teacher Training

Finding teachers to handle the innovative Begga routine has been difficult. Only secondary teachers were hired at the Center, and although all of these are above average in competence and desire to work with these students, it is believed that the related academic programs would be more successfully taught by upper elementary teachers who are more child oriented than the content oriented secondary teachers.

Holly stated:

The need for programs such as this, and for teachers to handle them, has been apparent and increasing for years. Yet, today, there is not one college of education in the United States producing them for us. [2]

However, the University of West Florida (UWF) responded to the needs of the Beggs program and moved rapidly to begin development of a program to train teachers for schools of this type. This program, too, may be the nation's first of its kind.

### Testing

The people at Beggs have some definite and definitive ideas about testing. They firmly believe that evaluation should be done on an individual basis rather than in group testing. The disadvantaged child rejects all group testing;

they associate their failures with group tests. Therefore, before attempting to evaluate this program a detailed evaluation system must be developed that can be done with each individual child. This is verified in the paper on vocational education programs and services for the disadvantaged by Charles Russell found in this report.

### Financing

In addition to specially trained teachers, a method of evaluating pupil progress and programs, further financing is essential. The Center occupies an old, twenty-classroom school building only a few blocks from downtown Pensacola. It has a \$600,000 budget provided partially by the State and partially by the County; the Federal Government has provided \$45,000 to help pay counselors. The faculty numbers forty-six--administrators, teachers, and counselors. At present, efforts are being made to get a three million dollar, three-year Federal Grant to support the program.

Holly made this observation:

We see three possible results coming from Beggs. One is that after the work and experience pupils get here, the academic retrogression of some will be reversed. These may well return to the regular schools and go on to college. For some, Beggs will establish interest and capability in a vocational area and they will be transferred to Area Vocational Technical Centers. For those who remain, we are determined to develop some kind of employable skill.

In other words, we want to give them enough training in some area so they can get a job earning a decent living. [2]

### Conclusions

The Technical Assistance Team reported that "The E. Dixie Beggs Education Center is a unique facility and program for disadvantaged youth." It would also appear that with its

emphasis on individualized instruction, more pertinent teacher training, better evaluation methods, and better work experiences, the E. Dixie Beggs Educational Center has taken strides toward improving vocational education in Florida and, as indicated by the large waiting list of applicants to enroll in the school, toward improving the image of vocational education.

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GOAL 2

APPENDIX B

REPORT OF VOCATIONAL EDUCATION PROGRAMS  
AND SERVICES FOR THE DISADVANTAGED

by  
Charles Russell

Introduction

Unavailability of Quantative Data  
for this Report

The 1970 editions of Form VTAD-20, Report of Class Operation, the standard forms for reporting vocational classes designed exclusively for students with special needs as well as regular vocational classes containing students with special needs, are not available at this writing. As a result, it is not possible to evaluate accurately the state's efforts to accomplish its objectives as stated in Parts II and III, Florida State Plan for the Administration of Vocational Education.

A qualitative evaluation of vocational education programs and services for the disadvantaged will be included in the June 30, 1971 report for the period July 1, 1969 - June 30, 1970.

This report is the result of a study of available data collected primarily by the Florida House of Representatives Special Vocational Education Subcommittee, and the Division of Vocational, Technical, and Adult Education, Florida Department of Education. In addition, the cooperation of the Division of Vocational, Technical, and Adult Education staff is greatly appreciated.

School District Vocational Education  
Advisory Council

Major Findings

"The most difficult task of vocational educators is not to assist the disadvantaged in the development of saleable skills. Rather, it is to assist the disadvantaged graduate of a vocational education program in obtaining employment that will enable him [the graduate] to use his new skills." (State Director, NAACP]

The key to the success of programs for the disadvantaged is the placement of graduates in the specific jobs for which they trained or in related jobs requiring essentially the same skills. When the majority of the graduates must seek employment in jobs they could have obtained without any formal training, both the programs and potential students suffer. The "aspiration level" of a relatively high percentage of the members of the disadvantaged community is extremely low because success is such a great exception. The general attitude of the disadvantaged community is that "Whitey is still against us and, therefore, it makes no sense to waste all that time in school when The Man is not going to give you that good job in the first place."

Community involvement in programs for the disadvantaged is of paramount importance, if the success level of these programs is to be increased substantially. Involvement in this instance means the coming together of the various segments of the community--employers, educators, public officials, and the disadvantaged--to seek ways to remove the unnecessary barriers to the enrollment of minority groups in vocational programs and employment after completion of such programs, and to take action to bring about desirable changes. The type of action suggested here must be organized, legitimate, and positive in order to improve

the total community, essentially in the economic sense, by increasing the productivity of the total community. The most practical means of increasing the economic well being of the disadvantaged is by providing disadvantaged families and individuals with adequate earned incomes which are derived from better jobs.

The task of providing the sole means of escape from poverty for the disadvantaged is beyond the ability of vocational educators. Such a task must be taken on by all segments of the community, working harmoniously together for the common good.

The District Advisory Council could serve as a liaison group between the school and various segments of the total community, providing information in both directions, and assisting in mobilizing available community resources in a cooperative and coordinated effort to deal with the problem of increasing the productivity of the poor. In addition, the Council could assist in minimizing needless additions of programs within the district, except as the district needs require them. Finally, since public resources are scarce, the Council could assist the district policy-makers in the establishment of priorities for programs and services that would be based upon the needs of the total district.

It should be noted that in several instances a regional council (involving two or more counties) may be both desirable and practical. Therefore, the basic intent is to provide advisory councils throughout the state that would be the most practical in accomplishing effective community involvement.

#### Automated Information System

#### Major Findings

In order for decision makers at both state and local

school district levels to make accurate decisions regarding student needs and, subsequently, accurate decisions regarding the allocation of scarce resources (both human and financial) to meet those needs, accurate and timely information must be available.

It is essential to note that there is a considerable number of programs for the disadvantaged that are under the control and operation of other public agencies that prepare youth and adults for the world-of-work, and is therefore similar, in many respects, to the vocational education programs and services in the state's public secondary schools, area vocational-technical schools, and junior (community) colleges.

The major finding is the fact that there is no agency within state government that has knowledge of the state's total effort to provide vocational education programs and services for the citizens of Florida in general, the disadvantaged in particular. At the school district level the situation is not much better. At both levels, however, recommendations are being made to expand current programs and to add new programs without accurate knowledge concerning the degree to which present needs of the people are being met.

Several obvious questions come to mind which are not necessarily relevant to this report, but which certainly are relevant to the decision making process. What are the vocational education needs of Florida? To what extent are these needs being met? Are there duplications of services that can be eliminated without reducing effectiveness? What are the possibilities of reallocating resources to provide programs and services to a greater number of people?

The need for accurate, timely information is of particular importance to vocational education because of the relatively high cost of programs as compared with other kinds of educational programs.

Some Specific Activities of the State Advisory Council  
in Cooperation with the Department of Commerce  
and the Department of Health and  
Rehabilitative Services

Major Findings

The state's efforts to improve the productivity of its citizens are being deterred by employment policies of employers and by the attitudes of many employers who either directly or indirectly attach stigmas to people with arrest records, or to former mental patients, or to the handicapped, etc. In addition, many employers place little value upon the educational attainment (both academic and vocational) of employees and potential employees.

In many instances job qualifications are unrelated to job requirements. The use of aptitude tests that are socio-economic in nature rather than vocational are in common usage. In addition, the requirement of a high school diploma seems irrelevant if the individual is a recent graduate of a vocational training program which prepared him for the job he is seeking.

Probably the main deterrents to employment for many citizens are racial and sex discrimination. It should be understood that the discrimination referred to here is what may best be described as passive discrimination. That is, many jobs that traditionally have been considered to be male jobs but which can be performed effectively by females generally are denied to females. In the case of passive discrimination, one example is the employer's attitude that the employment of black citizens in certain positions, or more than a certain number of black employees is "bad for business."

Employers do not take advantage of many programs that are already in operation by encouraging their employees to upgrade their skills and/or improve their academic

backgrounds. There is also evidence of lip service on the part of many employers regarding cooperative efforts with vocational educators and others engaged in preparing people for the world of work.

The result in both instances is an unnecessary increase in per student costs due to lowered enrollment on the one hand, and unsatisfactory job placement of program graduates on the other hand.

The suggested activities which follow are, for the most part, self-explanatory. The results of such activities could result in increased employment for the disadvantaged, for females, for the handicapped, and reduced ratios of unemployment and underemployment. Thus, the total effort of the state, through its agencies, becomes more effective.

### Evaluating Programs and Services

#### Major Findings

Available data indicates that there are no uniform guidelines for determining if programs and services for the disadvantaged are meeting the needs of the disadvantaged. In some instances, program admission policies successfully screen out potential students who have an interest in that program and who have the vocational ability to satisfactorily complete the program.

Programs and services for the disadvantaged are somewhat different from regular programs and services and should be evaluated using a different set of guidelines. These guidelines, which are presented in the form of recommended criteria, are attached to this report in Annex A.

Responsibility for Out-of-School Youth  
and Potential Dropouts

Major Findings

In terms of general policy, there is no specific accountability for out-of-school youth and potential dropouts, as educational categories, within the state's educational system. This does not mean that no one is officially concerned about these people or that there are no programs designed specifically to meet the needs of these citizens.

Within the statewide educational spectrum, there is little accurate record keeping to determine the extent of need and no policies relative to the problem itself. The problem becomes of greater importance today, because federal law requires that all area vocational education schools provide programs and services for out-of-school youth. This means that the high school, the area vocational center, or the junior college might be given primary responsibility. Clearcut responsibility should be established. The age and academic attainment of these youth (14 - 20 years, non-high school graduate) seem to indicate that the local school district should have responsibility.

To Increase Minority Group Enrollment

Major Findings

A recent study conducted by the Southern Regional Education Board indicated, in the fall of 1968, that less than 20 per cent of an estimated 100,000 blacks in the 16 - 20 age range were enrolled in post secondary vocational education courses. The percentage of increase in both enrollees and the total number of black youth ages 16 to 20 have not changed this overall picture to date in any significant way.

It is obvious then that many student-age blacks who might profit from vocational education programs are not doing so.

Since equal educational opportunity includes (or should include) having equal access to a job after a successful training experience, a recruitment campaign to encourage student-age blacks to enroll in vocational education programs seems logical.

Recommendations to remove job employment barriers are included elsewhere in this report.

Efforts should be made to use the communications media within the black communities of the state. In addition, special recruitment efforts may also be initiated as applicable.

#### Employment of Citizens with Special Employment Disabilities

##### Major Findings

There is some evidence that there are thousands of citizens with police records or bad debts, or who lack a high school diploma but has a saleable skills, etc. In other words, there is a group which is unable to obtain adequate employment, primarily due to circumstances beyond their control--ignorance in terms of how the "system" works.

In addition, the current wave of the use and abuse of narcotics and drugs has brought about the creation of a new breed of "disadvantaged person"--the rehabilitated "pot smoker" who has paid his "debt to society" and is now job hunting without success.

The rehabilitative process of an admittedly unknown number of our citizens should include a "second chance" to become a productive citizen. In some instances, this may be a first chance.

For those who acquired saleable skills within the

state's educational system, and for those who are willing to enroll in a course and who successfully complete the course, some effort should be made to encourage employers to hire them, provided the former vocational educator makes a satisfactory recommendation.

Because of the complex nature of this issue, it could be handled only at the local level, but some effort is essential to the future well-being of the individual and his society.

It should be noted that this proposal deals only with graduates of vocational, technical and adult education programs (includes CAMPS, OEO, etc.).

### Programs for Migrant Workers

#### Major Findings

The problem of migrant workers is essentially a federal problem, but a problem that is a part of the state of Florida. That portion of the migrant problem within the state is not the result of state policy. Rather, it is because of the fact that jobs are available for migrants in Florida, for limited periods of time each year.

Because of the complexity of the problem of migrants, there is little accurate data available that would enable the state to make a reasonable estimate of the entire situation.

Within the educational area there is a Division of Migrant Services, State Department of Education, which works with school districts containing migrants to provide educational services for migrant children and adults.

In several school districts, attendance officers, special education teachers, and other professional staff are employed specifically to work with migrants. In addition, several school districts have provided special

instruction for professional staff members who work with migrants.

In spite of state and local efforts, certain problems of migrants have continued for decades and therefore, more must be done. It is essential, however, to find out what is being done and what needs to be done to provide equal educational and employment opportunities to migrant youth.

Because of the nature of the migrant problem, it may be necessary for the state to operate certain programs.

#### Summary

The general attitudes of a small, non-scientific sampling of employers, vocational educators, lay citizens, minority group leaders, and employee-graduates of programs for the disadvantaged are:

1. The existing programs are good.
2. There aren't enough programs.
3. The graduates have difficulty getting jobs.
4. Some of the skills being taught are going to be obsolete in a few years.
5. Some admissions policies are unrealistic.
6. Some programs are no different than academic programs which caused the kids to hate school in the first place.
7. There is a desperate need for vocational counseling.
8. The disadvantaged are denied entry into certain programs through the use of academic-type admissions policies.

There is a general consensus of opinion that there is some progress being made (in the overall sense) relative to an increase in employment opportunities for the disadvantaged, as a result of programs that were implemented to

provide equal educational opportunities. No one is denying the fact that problems exist that hamper the state's total efforts to increase the productivity of its citizens. In addition, there is evidence that the state is attempting to resolve these problems, and that there is some effort to encourage business and industry to employ qualified disadvantaged citizens.

What is needed is adequate information regarding manpower needs, the state's current efforts to meet those needs, and to make the state's efforts more effective.

It will be necessary for state and local leaders of government to use the influence of their offices to encourage members of the disadvantaged community to take advantage of the programs and services that are available and which will provide the most effective means of breaking the cycle of poverty. In addition, the state and local government should use their persuasive powers to encourage employers to hire those qualified citizens within their communities because it's "good for business" and it helps the state to solve one of its most difficult social problems.

As was stated initially in this report, a qualitative evaluation of the vocational education programs and services for the disadvantaged will be included in the June, 1971 report.

## ANNEX A

### Recommended Criteria for the Evaluation of Vocational Education Programs for the Disadvantaged

#### Preface

Vocational education programs for the disadvantaged should be designed especially to meet the peculiar needs of disadvantaged persons. Such peculiar needs demand special kinds of activities and services that may not be found in any other programs within a given school district. The importance of the activities and services alluded to above cannot be overemphasized however, for if such programs are to be successful, certain specific services and activities must be an integral part of the programs.

All formal educational endeavors require periodic evaluations for several reasons. It is essential to determine if a given program is effective in terms of accomplishing its goals and, if not, what corrections are necessary to produce the desired effectiveness. The initial allocation of resources to accomplish a given task is always tentative, therefore, resource allocations must be changed, as applicable, to assure the successful accomplishment of the task.

The recommended criteria which are included in this paper are not the sole criteria for the evaluation of VTE programs for the disadvantaged. These criteria, however, are practical in that they focus attention on those aspects of the program which accommodate the special needs of ghetto students.

It should be emphasized that a program that is evaluated under these criteria should not be considered satisfactory or unsatisfactory, since that is not the purpose of evaluating a program. Rather, these "evaluative criteria"

will identify those aspects of the program which will contribute to, or detract from the effectiveness of the program.

### Evaluative Criteria

#### I. Program Goals and Objectives

The goal of any program for disadvantaged persons should be to produce productive citizens, that is, persons with a saleable skill and, in addition, persons who have a sense of self-dignity and self-worth.

The program objectives must be specific and clearly stated so that educator and student, employer and politician will know the capabilities of the graduates. The objectives must also be of sufficient substance so that graduates will have a saleable skill.

#### II. Recruitment of Students

Programs for the disadvantaged require special recruitment efforts, for disadvantaged students have generally become disillusioned by the time they become eligible for such programs. In addition, the disadvantaged student places little if any value in work except as a last resort effort to survive. An effective plan of recruitment is necessary and the plan must include the use of those communication channels with which the disadvantaged student is familiar, that is, those communication channels that are already in existence within the immediate community of the disadvantaged student. The recruitment plan must include the use of simple, direct vocabulary, without being patronizing; making genuine identification with the needs of the student; avoiding judgmental or moralistic tones; and taking a positive, optimistic and encouraging approach.

### III. Educational Process

The educational process for disadvantaged students while similar to the process of individualized instruction for regular students, is significantly different from other educational programs. The learning activities must be person-oriented as well as skill-oriented (craft or trade). Since the verbal skills of disadvantaged students are usually limited, emphasis must be on the concrete rather than the abstract, and emphasis on usage and application instead of theory, rules, and formulas. There must be extensive substitution of non-verbal cues for the verbal, as applicable, until students have developed adequate verbal skills which will enable them to continue the successful learning experience. There must be evidence of a coordinated effort between counselor, occupational teacher, and remedial instruction teacher to assist students in making job choices and, where possible, job placement.

### IV. Services to Disadvantaged Students

Counseling Service.--The counselling staff should have an optimistic view of life's possibilities, high energy, and be committed to serve. The staff should consist of representatives of the ethnic groups included in the program(s). Students should have ready access to the counselling services and such services must meet the needs of the students. It is the responsibility of the counselling staff to provide direct, practical help to students to deal with problems that are relevant to them.

Supportive Services.--Whatever services are needed to assist the student in accomplishing his vocational education objective should be included in the program.

This particular section of the program must be "tailored" to fully support the total program. Student needs for the successful completion of the program should be the major determiner of what services are necessary.

#### V. Follow-up of Graduates and Drop-outs

There should be a plan of follow-up of all students who enroll in vocational education programs. In the case of graduates, the follow-up report should include the job that was obtained by the graduate and a performance report through the first year of employment. In addition, the graduate should be asked to make an assessment of the vocational education program in which he was enrolled after he has been employed in the job for which he trained or a related job for at least one year. The assessment should include those features of the program that helped him the most and those features of the program which helped him the least. Graduates who are not employed in the job for which they trained or related areas should also participate in the assessment.

In the case of dropouts, efforts must be made to determine why the student dropped out of the program. If possible, the dropout should be contacted and a report of his reasons should be made a part of the follow-up records.

Follow-up records provide excellent data for the assessment of programs and for program revision.

#### VI. Community Involvement

If the vocational education program for the disadvantaged is to be successful, it must respond directly to the concern of the disadvantage community.

The most effective way of learning of these concerns, although the most difficult way, is through community involvement. There should be a plan of involvement in which vocational educators will work with a variety of community groups which have devoted their continuous energies to school problems. There should be continuous, two-way communications between the school and the disadvantaged community. Respect for community opinion and a deeper identification with their problems are urgently needed to establish the climate for cooperation.

Finally, representatives of the disadvantaged should be included in policy level positions such as the local advisory council, occupational committees, etc. to provide decision makers with a more accurate estimate of the desires of the total community which, in point of fact, is pluralistic and diverse.

## GOAL 2

### APPENDIX C

#### INTRODUCTION

by

Lawrence Weisman

The idea of vocational education in the junior high school is not new in the United States nor in the State of Florida. Many junior high schools have at least one vocational course, typically, diversified mechanics. [Booker T. Washington Junior High School in Dade County has fifteen.]

What is unique in Florida is the integration of the program into the curriculum for all students enrolled. Revolving the students through a number of "hands-on" vocational experiences has several potential benefits. First is vocational appreciation, and this should help the individual in selecting an occupational career and also should contribute to his general education, in the democratic sense, by giving him an appreciation of the skills of the workingman next door.

Another foreseeable benefit is motivation to other learnings. We might speak again in terms of appreciation: the student comes to appreciate the value of communications skills and quantitative skills through his use of these tools in his shops. More subtly, relationships can be established with economics and the other social sciences, to the arts through design, and to the physical sciences through structural studies.

There may be, for the school dropout, the possibility of using his skills for employment. The construction teacher related to me his experience of finding three of his former students (recent dropouts) on a job, with one earning \$3.50 per hour and the other two earning \$2.75.

Finally, there is the possibility of improving one's life style through the application of these skills in home improvements, do-it-yourself auto repairs, and so forth. Economists have come to recognize that there is earl economic value in self-services that must be computed in evaluating a family's economic condition.

The implications for learning have not been fully explored, as Mr. Safransky is painfully aware. His comments on difficulties with accreditation hint at his frustrated dream of a kind of core program in which the academic subjects revolve around the vocational ones.

The Beggs experience, reported on by Dr. Kraft, uses something of this concept. Dewey might have called it "functional." Today we call it "relevant."

## FINDINGS AND RECOMMENDATIONS

by

Richard D. Pate

Student and teacher interviews indicate that vocational-technical education at an early secondary level has positive effects on retaining potential dropouts:

1. Encourages students to remain in school by increasing their interest;
2. Introduces to those who may not remain in school an employable skill;
3. The program also has definite economic values (improving future life style) in introducing to the students various skills needed to perform home repairs and improvements.

The following recommendations are made based upon the assessment of the Clearwater Comprehensive Junior High School program and include excerpts from Mr. Safransky's report:

1. Continued assessment of the program's objectives is warranted. Methods of assessment need to be further refined and developed including systematic follow-up studies on students who have moved through the program.
2. An evaluative comparison between Clearwater Comprehensive Junior High School and other junior high vocational programs (Dade and Escambia counties) should be made in terms of program cost-effectiveness;
3. Guidelines need to be developed by the State Department of Education to assist schools in the development of

- instructional objectives in junior high school vocational-technical education. A means of systematically updating these objectives at local, state, and national levels needs to be established;
4. Standardized methods to assess change in students in both the cognitive and affective domains of vocational-technical education need to be developed by State Department of Education. A survey of test instruments needs to be made and evaluated in terms of their validity and appropriateness for assessing these changes;
  5. Alternative program and staffing organization models need to be evaluated in terms of cost-effectiveness. This analysis should emphasize such factors as student failure rates and related costs, areas of successful achievement among students, and areas related to the affective domain;
  6. Further consideration should be given to the various means of introducing all students to the "World of Work" at the elementary school level. An early introduction to this area might help prevent the stigma which some students and parents attach to vocational-technical education. It would also introduce the students and parents to the financial rewards of these careers.

AN EXPLORATORY APPROACH TO PRE-VOCATIONAL EDUCATION  
AT THE JUNIOR HIGH SCHOOL LEVEL

by  
Robert J. Safransky

Background

The Pinellas County School System under the leadership of Dr. Thomas B. Southard, Superintendent, and Mr. Joe D. Mills, Executive Assistant Superintendent for Vocational, Technical, and Adult Education, has developed a concept of a comprehensive junior high school. The opportunity for effecting this concept arose in 1968. When the Federal Government, through P.L. 89-10, Title III, provided for a research project entitled "Project Ideals in Action," setting up a pilot demonstration center for grades seven, eight, and nine, in ten Florida Counties, the time to move seemed at hand. However, due to several circumstances, the Pinellas County bid for inclusion in the project was not approved. The Superintendent and the School Board, deciding that the need for such a school had not lessened, approved the financing of Clearwater Comprehensive Junior High School as a part of its regular budget allotment for the 1968-1969 school year.

Implementing the Idea

On June 12, 1968, Robert J. Safransky was appointed Director and given the authority to recommend a staff. Staff selection, though somewhat hurried because of the

short time available, was from volunteers within the county, teachers new to the county, and beginning teachers. These teachers were interested in and wanted to work in an innovative program. The staff assembled on July 15th in an intensive workshop to develop the plans for an innovative approach to junior high school education. A dominant theme of the workshop and of the school was that total staff involvement would be used in setting up and organizing all phases of the school program.

Some of the major tasks completed during the workshop were the development of school philosophy, curriculum, and schedule as well as basic operating procedures. Also, recruitment of the student body was begun.

The workshop made use of consultants in curriculum, learning techniques, and adolescent psychology. Both university professors and school system specialists were used as consultants. The staff also developed proposals for supplies and equipment. The Superintendent, realizing that an innovative program would require additional expenditures, requested and received an adequate budget from the School Board.

Pinellas High School, a black junior-senior high school, scheduled to be phased out as part of the desegregation plans of the county school system, was selected as the site of the new comprehensive junior high school. The physical facilities were suitable for a comprehensive junior high school. Physical space was available for a large number of vocational areas in addition to the necessary academic suites. The physical plant was repainted in attractive color combinations. Some remodeling and renovations were necessary to meet the demands of the new program.

### Public Relations and Publicity

Clearwater Comprehensive Junior High School draws its students on a voluntary basis from an extended area of the county which overlaps the boundaries of seven other junior high schools. The large area served by the school and the specialized nature of the pupil population made it necessary that the school's purposes and services be given widespread publicity. Considerable time and effort were and are being expended in "telling the story" of the school.

A concerted effort was made during the first and second school year to inform the public of the opportunities available for students who would benefit from a comprehensive program. Newspapers in the area were cooperative and articles and pictures frequently appeared telling the school's story. These articles have been collected and put into a scrapbook by the chairman of the school's public relations committee.

Several hundred slides were made of the students in action. These slides of students engaged in vocational and academic classwork, art, band and various activities were shown to many civic and professional clubs and were used by faculty members to explain their school's program in their college classes.

An extensive and effective program of informing the sixth graders of the feeder elementary schools was undertaken by a team of staff members from the guidance and pupil services department. In addition, the director, students, and several parents spoke to all the elementary principals on the goals and purposes of the school. An article on the school appeared in the school system's internal publication, Chalkboard.

The school also produced an informative and interesting newsletter each month. As the Graphics Department

increased its supply of equipment and capabilities, the newsletter included photographs and was printed on the off-set press by the students.

A parent handbook, which explained the nature of the school and the nature of adolescence, and an informative handbook for the students were developed and printed.

### Objectives

The objectives of Clearwater Comprehensive Junior High School are those set up in the Project Ideals Proposal:

- A. To reduce the dropout rate in grades seven, eight, and nine by providing an integrated approach to academic and pre-vocational studies;
- B. To provide a new pattern of learning in preparing students for the world of work.

Working within this broad framework, a school philosophy was drawn up by the staff. This philosophy (see Annex A) serves as a guide for overall objectives and as a model for individual course objectives.

The program is aimed at students who are generally capable of high school work, but who are likely, due to a lack of success in a college-oriented program, to drop out of school before graduation.

The program also benefits students who are able to do college preparatory work but desire an opportunity to explore various occupational areas.

### The Program

The guiding rationale of the program was that all students, by exploring the various occupational offerings, would find areas of interest. The traditional comprehensive concept was followed in that the need for academic

skill development was not neglected, but emphasis was placed on the idea that there is no real dichotomy between academic and vocational education.

Since a major way in which Clearwater Comprehensive Junior High School differs from a conventional school is the emphasis on pre-vocational exploratory experiences, a block of time is provided for those experiences at increasing depth for each succeeding grade level. The seventh grade student is scheduled for a two-module block of exploratory experiences which include a three week session in each of twelve areas. The eighth grade student explores his interests in semester courses for three modules per day, and the ninth grade student can study up to two hours a day (four modules) for a semester or a year. The following areas are offered at the present time:

Business	Electronics	Horticulture
Construction	Food Services	Metal Shop
Dry Cleaning	Graphics	Drafting
Home Economics	Tailoring	Power Mechanics

A Junior High Work Experience Program is open to eighth and ninth grade students. This program permits those students who need to work the opportunity of attending classes part of the day and to work the remainder of the day. Two work experience coordinators are employed to supervise the program.

The academic subjects--English, Mathematics, Science, and Social Studies--are taught at each grade level in classes with a low pupil-teacher ratio.

Physical Education, Health, Vocal and Instrumental Music, and Arts and Crafts experiences also are available for students at all grade levels. In addition to the regular music instruction, piano and guitar lessons are offered to individuals and small groups of students.

Vocational and academic area teachers are making efforts to maximize the individualization of instruction

and to use new approaches to learning--especially those approaches designed to make learning interesting--such as simulation games, non-competitive grading and frequent encouragement. Common learning objectives in pre-vocational and academic areas are stressed. An effort is made to provide occupational information and consumer know-how in every class.

### Student Body

#### Nature of the Student Body

It is difficult to generalize about the nature of any student body. In general, however, due to the fact that the program is designed to reach the drop-out-prone student, certain common patterns are noticeable. The general stereotype of a student who has fallen behind in grade level and/or in achievement, whose grades have fallen on the low end of the scale, whose interest in school attendance and application are less than average fits the majority of the students. Most of the students come with an attitude that they have not succeeded in school and a wish that they could quit and go to work. Invariably the item they cite in giving reasons for attending is the chance to do something in the pre-vocational areas that will be more interesting than the regular classroom activities to which they have been accustomed. There are, of course, a number of exceptions in the form of students who achieve in all areas and have a clear idea of the technological area in which they are interested and cannot get in a regular junior high program.

#### Effect of the School on the Student Body

All of the problems connected with disenchantment with school and its attendant behavior patterns do not

disappear. However, most students express a liking for the difference of the program and most develop a strong interest in one or more of the pre-vocational exploratory areas. They express a liking for shorter and smaller academic classes and the added attention received from the faculty. They express an appreciation for the grading system which allows them to be graded on their own merits, and both students and parents indicate that there is an increased interest in school. Many students achieve a remarkable level of skill development in a vocational area, and along with it a new sense of pride. A very large percentage of the students indicate a desire to return the following year--many despite a long bus ride and, as a consequence, an extended school day.

#### Problems Relating to Behavior

As one might surmise, dealing with students who have "turned off" school involves problems such as absenteeism, tardiness, and lack of application. Students who have been disenchanted with school and who have developed a poor self-image generally have developed compensatory habits which do not disappear overnight. A strong guidance program and the wide variety of offerings do seem to be effective, however. Most students and many parents express more interest in school and remarkable changes have been noted in the behavior patterns and attitudes of many students. A positive effort is being planned by the faculty to focus their efforts--together with those of special services personnel--on helping students overcome specific behavior patterns that need to be improved.

#### Student Involvement

Special efforts are made to involve students as a technique to revive their interest in school and to help

them develop school spirit. The student council is structured to include a maximum number of officers from each grade and class. The students wrote the constitutions for each grade in their social studies classes. There are no grade requirements for council participation, but conduct standards set by the students regulate the requirements for holding office. The same procedure is applied to all other areas, e.g., increasing the size of the cheerleader and pep squads, and various activity groups. As a consequence, many students who had been used to non-participation became leaders, or at least became actively involved. Students apply some of their newly acquired skills to perform various jobs for the school. The construction classes have built a storage building for the horticulture class and remodeled the main lobby. The power mechanics classes maintain mowers and other small power equipment, and the horticulture classes gradually are implementing a master landscape plan for the school. Pride in these achievements is reflected in a very low rate of vandalism.

This approach has proved--in the opinion of the faculty--to be one of the most successful in dealing with students who have a history of not liking school. Numerous parents have expressed surprise and pleasure that their sons or daughters were active in various organizations and reported noting more interest in school on the part of the students. Increased involvement has paid dividends also in the areas of social competence and harmony as evidenced by the election of minority race students to class presidencies by a majority of white students.

Faculty evaluation of the student activities program at the end of both the first and second year indicated the need to continue increasing the number of clubs and activities to promote even greater student involvement. The faculty also recommended that club meeting time and intramural activities be a part of the regular schedule.

## Faculty

### Profile of the Staff

The staff of Clearwater Comprehensive Junior High School was selected from teachers who desired to work with the type of student for which the program was planned. The staff is racially integrated and has performed as an integral unit that could serve as a model for schools beginning full integration of staff. Thirty-eight per cent of the staff have a Master's Degree. More than fifty-three per cent of the faculty took courses during the school year or are doing so during the summer. Faculty members have played active roles on committees such as Project Education 70's and in their subject area professional organizations. Several staff members have held or will hold the presidency of their subject organization.

Staff turnover will be six out of thirty-seven members. Two black staff members are being transferred to other schools in order that the school system might comply with a court order to integrate faculties. One member has reached retirement age. One teacher is returning to school for work for an advanced degree; one is transferring to another school; and one is leaving the school system. Overall retention of the staff during the first two years has been excellent.

### Staff Organization

The staff is organized in a pattern to encourage inter-staff, inter-departmental communications, and to obtain teacher involvement in setting and achieving the goals of the program.

Administrative Council.--The director has an administrative advisory council which includes the director, assistant director, curriculum coordinator, pupil services

coordinator, and the guidance director. This group meets each day for the purpose of articulating all elements of the program.

Department Heads.--Academic and vocational subject areas have elected department heads who meet with the director on a regular basis to discuss and decide how to articulate various phases of the program.

Grade Groups.--Grade groups are composed of academic and vocational teachers who serve as a faculty council for each grade.

#### In-Service Time Within the Schedule

A weekly four-module, in-service period is written into the schedule. This amounts to approximately one-third of a day each week during which students are released from classes. The use of this time requires special permission annually from the State Department of Education. During the first two years this time has been used as follows:

Use of Consultants.--Consultants have been used extensively in the beginning workshop, and intermittently throughout the first two years of operations. These have been primarily county and state department specialists but have included specialists from outside the state. For example, Dr. N. H. Frank from the Massachusetts Institute of Technology has been one of the consultants.

Teacher Training.--Reading, research, and faculty discussions have centered upon industrial education, the learning processes, understanding the disadvantaged child, use of community resources and educational media, and the methods of individualizing instruction.

School Operation and Improvement.--The greatest amount of in-service time has been focused on the development of the program. Instructional packets in many areas and an improved pupil progress reporting system were

developed. A considerable amount of time was used in writing behavioral objectives.

### Staff Involvement

Considerable effort has been made from the beginning of the program to obtain maximum involvement of all staff members in all phases of the program. Scheduling, budgeting, and operational procedures are worked out by committees and approved at full faculty meetings.

This school year the staff has been involved in the student interviewing and admitting process. The guidance and administrative staff feel that this procedure will help the students identify with teachers and also help the teacher get to know potential students.

### Guidance and Pupil Services

Guidance is a vital part of the program and is readily available to all students. Every student is scheduled into a small group guidance class for one-half hour per week throughout the school year. This is a required course and is considered an integral part of the curriculum. The time is spent on orientation to the school (especially in the seventh grade) and an explanation and interpretation of tests, interest inventories, study habits, attitude development, personal-social development, and vocational-educational planning. There is a guidance ratio of one counselor to 128 students. The guidance department has full support of the faculty and administration.

Special efforts have been made to provide for coordination of pupil services. Referrals from teachers, guidance counselors, and the administrative staff are channeled to such agencies as the Public Health Service, State Welfare and Vocational Rehabilitation Department, Child

Guidance Clinic, Family Services, Juvenile Protective Agency, Juvenile Court, and the Juvenile Detention Center. Coordination with the agencies above, as well as with volunteer groups such as a clinic mother and community resource people and tutors, is offered by the coordinator who works closely with the guidance department and specialists such as the psychologist, school nurse, social case and attendance workers who serve the school part time.

#### Evaluation of the Program

Evaluation of any experimental or innovative program is an on-going process that includes both objective data and subjective professional judgments about the success of the program. Considerable staff energy and time have been and are being used to develop or adapt evaluative instruments.

Standardized achievement tests are administered to all students in the county at certain grade levels. These tests indicate basically what is generally known about non-achieving students--that such students are not achieving at normal rates and that they are reading below grade level. Resistance is encountered in administering such tests in the sense that disaffected students "tune them out" and attach little importance to the worth of such tests. Non-achievers exert little or no effort to succeed on standardized achievement tests.

The faculty feels that students will have to be evaluated on instruments that reflect changes in attitude, behavior, social competence, and interest in school. Student perception scales and teacher rated student behavior scales have been devised with the help of the county research department. These instruments indicate a shift toward a better self-image and improved behavior. However, the staff

is still looking for more effective ways to evaluate in the area of the affective domain.

A new progress reporting form replaced the letter grade method of evaluating students. This has been well accepted by students, parents, and teachers.

The research department of the county school system conducted a survey of students and staff members. This survey dealt with feelings toward the school and the degree of achievement and progress pupils and teachers thought had been attained. The results show, in general, that students and staff feel considerable progress is being made in achieving the school's objectives. The survey also indicated that the students had a strong liking for the school and understood what the school was trying to do for them. The research department also is doing a long range study on the dropout rate for the area which the school serves. This study, when completed, will give an objective measure of success of the major goal of the school--to reduce the dropout rate.

A subjective survey of the faculty, conducted the past two years, indicates that they feel substantial progress is being made in meeting the objectives of the program.

### Effects of the Program

#### On the Community

It is difficult to assess the impact on the "school community" since there is no compact, contiguous school community. Students, disaffected with a regular academically-oriented program, are drawn from the entire northern half of the county. However, admission requests to the school as well as parental cooperation and enthusiasm indicate that the school serves a need felt in the area from which students are drawn.

The general community has become aware of the effort of this school to provide pre-vocational education through the school's public relations program. As a result of this publicity, various community organizations have contributed time and money to the school, e.g., Clearwater Garden Club, Women in Construction, Kiwanis, etc.

### On the School System

#### On Central Staff

The new program has indicated the need for closer and continuous articulation of programs at various levels. It also has required much help from central staff in the implementing of the experimental program. (For example: securing experimental status from State Department of Education, completing the necessary remodeling, etc.)

#### On Other Schools

A new approach to junior high school education by the experimental school has stimulated other junior high schools to reexamine their programs. It has pin-pointed the needs of disadvantaged and disaffected youngsters for modification of traditional programs to meet their needs. Finally, some elements of the experimental school's program have been incorporated into other junior high schools-- JHWE Program, Food Services, Horticulture, Construction, etc.

### On the School Faculty

Since the program differs from that of the traditional schools in which most teachers have acquired their experience, faculty members must make considerable adjustments in teaching methods and techniques for this program. The faculty at times experiences frustration and disappointment in their efforts. Nevertheless, a great majority of

the faculty find the program challenging and feel that they have become more involved in the total program than they were in a conventional program.

#### On the Students

Almost all of the students like the program and are more interested in school as evidenced by their statements and, in many cases, by those of their parents. The wider choice of offerings, smaller classes, and greater individual attention from the teachers are the specific areas most often mentioned by students and parents. Many students have developed skills in the vocational areas that exceed minimum entry level job requirements. The students are proud of their skills, ability to handle complex equipment, and to do a worthwhile job.

#### Problems of Implementing an Experimental Program

##### Accreditation Standards

Accreditation standards have been developed by the State Department of Education to set basic requirements for school system and school to be accredited. The standards are developed as minimum and optimum measures of conventional programs, e.g., length of school day, length of periods, etc. However, the standards or the interpretation of applicability of them often impede the development and operation of an experimental program. Experimental schools should be exempt from meeting standards designed for a traditional program. An experimental school or program should develop its own standards with the assistance of the State Department of Education. An experimental program should file periodic progress reports; however, the reporting format should have been negotiated previously with the controlling agency.

An experimental school has to have a period of time to try out its program and to remove the "bugs" in it. After this trial period is completed, the school should meet the previously negotiated standards that measures its program.

### Developing and Implementing a Research Design

It is entirely right and proper that the Accreditation Section ask an experimental school or program to show evidence that the program benefits the students. Therefore, an experimental school should ask for assistance from local and state research departments in developing a valid research design.

The involvement of the research departments would aid the experimental school in all aspects of researching the program. The research departments would apply their expertise in selecting instruments to measure the progress of the program. They would be able to identify the confounding and intervening variables that distort the findings of many experimental studies. The expertise of the research department would also be applied to the selection and use of the appropriate statistical procedures to treat the data.

The benefits of active assistance from the Research Department on an experimental program would be the following: first, a valid design would be established with all hypotheses and limitations clearly indicated; second, the findings of the experimental program would have more validity for other educators seeking to develop better approaches to junior high school education.

## Misconceptions

### Of the General Public

An experimental program should be presented in a positive manner to the general public. This is of especial importance for pre-vocational or vocational programs. A large segment of the general population conceives of vocational education as education for "other people's kids" or for "dumb kids." All of vocational education suffers from this misconception; only a long term information program will alleviate the problem.

### Within the School System

Many aspects of an experimental program are not understood even within a large school system. The nature and purposes of the experimental program should be clearly presented to the entire staff through internal communication channels. From time to time during the first year or two of an experimental program, restatements of the purpose and objectives of it should be presented to the school system's staff.

## Developing School Spirit

All new schools must develop spirit among faculty, students, and parents. Students and parents must feel that they are important to the success of the school program. Athletics, fund-raising events, and intramurals are methods to develop school spirit. Active student organizations also give students opportunities to develop pride in themselves and their school.

## Summary

1. Efforts must be made to break down the false dichotomy

between vocational and academic programs. These efforts must be directed at students, parents, the general public, and at the teaching profession as well.

2. New programs must be maintained and supported for a period of time sufficient to allow longitudinal studies to be made of the products of the new program.
3. Exploratory and innovative programs are hampered to some degree by accreditation and administrative report forms that are designed for conventional programs.
4. There should be strong consideration of special personnel needs in both professional and supporting personnel areas. This concept should be applicable in expediting transfers into and out of the program, increased use of para-professional and non-certificated personnel, and the employment of part-time specialists.
5. In-service time as a part of the regular schedule has proved invaluable for developing the program and should be a basic part of any experimental program. Use of such time should be directed toward understanding occupational education and toward articulating the academic and vocational approaches to learning.
6. Evaluation of an experimental program should not be bound by the use of available standardized instruments. Students with a history of non-achievement "tune-out" such tests and surveys. Also, such instruments do little or nothing to measure progress in the critical areas of rekindled interests, increased vocational skills, and new levels of social competence which the program is set up to develop.
7. Feeder schools and schools which handle subsequent training must become informed about and willing to work with these students whose experiences vary from those in a conventional program which has college as the accepted terminal goal.

8. The large number of students who drop out of school in the junior high school years because of a lack of interest might be reduced considerably if exploratory, pre-vocational programs were available in all junior high schools.

## ANNEX A

### PHILOSOPHY

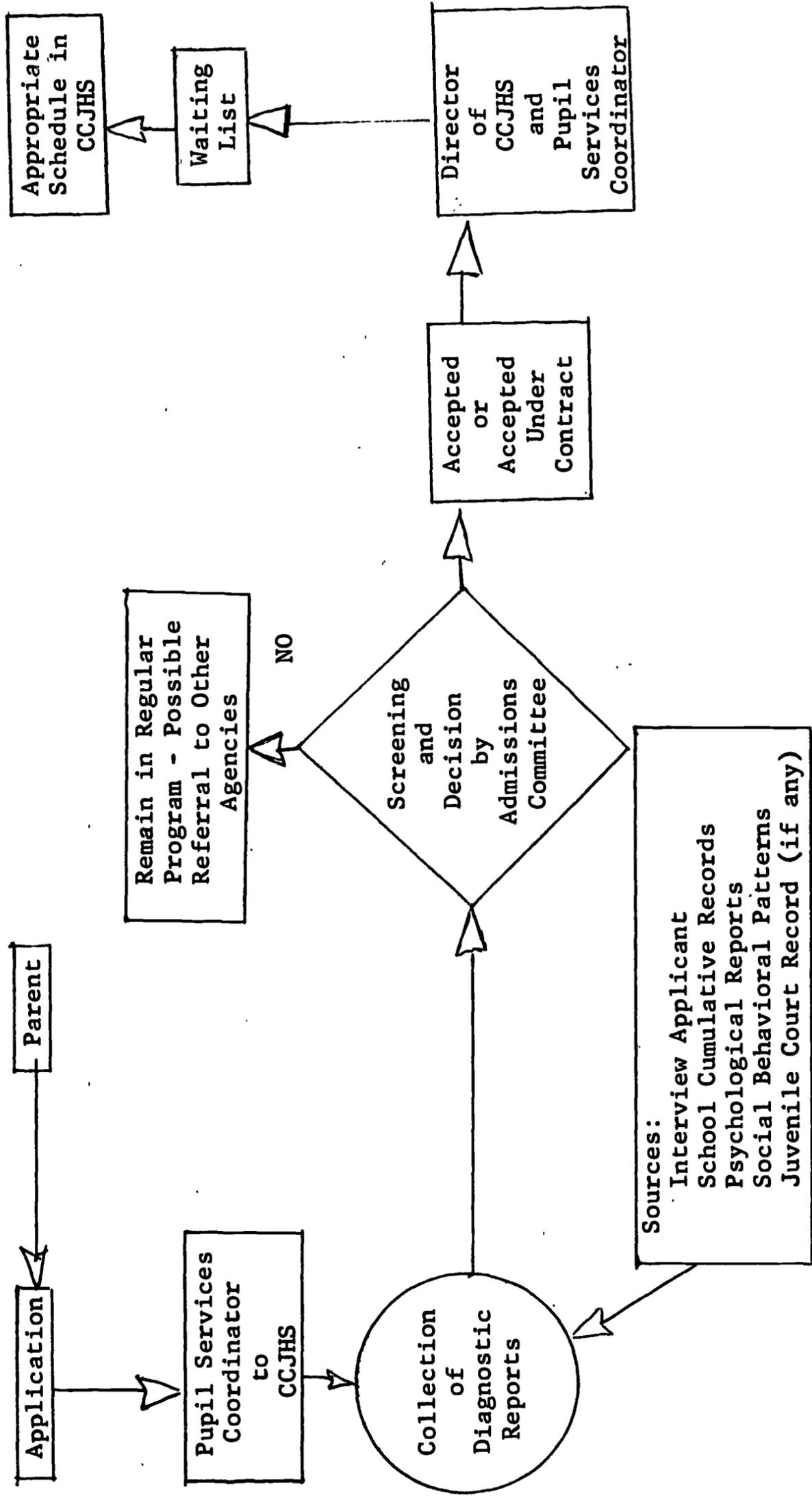
The staff and faculty of Clearwater Comprehensive Junior High School believe that the purpose of our school is to promote the maximum development of the individual toward successful personal, social, and economic participation in our democratic society.

We believe that this philosophy can be met through:

1. student and community involvement in the development of the total school program.
2. experiences that develop a sense of self-worth and greater understanding of others.
3. development of values compatible with the goals and processes of our dynamic society.
4. an environment which will promote good physical, mental, and emotional health.
5. utilization of diagnostic approaches in the development of individual skills.
6. a comprehensive curriculum that offers exploratory experiences designed to meet the needs and interests of each individual.
7. a planned program of professional development and evaluation which leads to continual school improvement.

NOTE: Each subject or special area will write operational objectives within the framework above, specifying sub-goals and procedures to be used in implementing this basic philosophy.

ANNEX B



ADMISSIONS FLOW CHART.--FOR CCJHS AND APPROPRIATE SCHEDULING

NOTE: CCJHS has selective-elective admissions policy established by the Superintendent and B.P.I. Admissions Committee is composed of: Chairman, Pupil Services Coordinator, Administrators, Guidance Counselors, and four or more teachers.

GOAL 3

To evaluate the effects the Vocational Education Amendments of 1968 had upon State policies and their administration as they were employed to carry out the mandates of the Act in the year under review.

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by Lawrence Weisman and Jerry Butzer

LEGISLATIVE EFFECTS OF THE VOCATIONAL EDUCATION  
AMENDMENTS OF 1968

by

Lawrence Weisman and Jerry Butzer

The Vocational Education Amendments of 1968 contain broad and varied provisions and are beyond the scope of this paper. Some aspects of these amendments have been discussed in other accompanying reports. Here, our purpose is to comment only on several broad, yet related, outcomes.

Following the enactment of the amendments, a Special Vocational Education Subcommittee was established. The committee has been chaired by Representative Kenneth H. MacKay, Jr. since its inception in June, 1969. Rep. MacKay has proven an ardent and effective leader for vocational education. On March 2, 1970, the subcommittee published a report of sweeping consequence.

Some of the conclusions and recommendations of this report covered such areas as: public academic bias in education, VTE facilities, VTE funding, counseling and guidance in relation to VTE, implementation of VTE programs in pre-secondary education, admissions standards for prospective students and VTE teachers, training of VTE teachers, the training of minority groups, manpower needs analyses, and organizational and coordination problems.

Following this report eight bills supporting vocational education were passed by the Florida Legislature in 1970. The accompanying annex briefs and lists these bills.

Some areas yet to be resolved by the Legislature are:

1. Organizational and coordination problems. The VTE programs in the community junior colleges are under different systems of control and organization than the vocational-technical centers and the other county operated schools. These problems possibly could be assuaged, however, by filling the post of Assistant Commissioner for Vocational Education which was provided by the Governmental Reorganization Act of 1969.

2. The need for a "total information system" for VTE. This is commended on by other contributors to this report and so will not be described here. One possible conflict is contained in House Bill 3950 which requires "The classification of all vocational courses into not less than three (3) nor more than twenty (20) cost categories." In his accompanying report (Goal 5, Appendix B) Weisman demonstrates the need to use skill as the basic unit for classification. These two ideas are not incompatible, but will require the consideration of the planner.

As further evidence of the impact of the Federal and State legislation, a list of research and development priorities that have been established by the Division of Vocational Education is attached. An "in-house" report by the Division on the status of Implementation of Legislation Passed During 1970, dated July 17, 1970, is also attached.

In March, 1970, a Technical Assistance Team from the Office of Education visited the State of Florida to meet with the staff of the Division of VTAE and also to visit some of the schools in the state. The findings of the team are in agreement with the findings of the study group appointed by the State Advisory Council and are enclosed as further substantiation of the progress that is being made in Florida. An assessment of the progress of these projects will be considered for the next report.

## ANNEX A

### BRIEF OF 1970 VOCATIONAL LEGISLATION

- a. At the present time, vocational education is limited to courses to develop occupational proficiency and shall not be construed to mean any general or exploratory courses offered with any other objectives. (Section 228.041 (26) F. S.). State support for vocational education in the K-12 foundation program generally is based upon one instruction unit for an employed teacher. (Section 236.04 (5) F. S.). In the junior college foundation program the allocation of instructional units is based on one unit for each ten students in average daily attendance in the occupational program (Section 230.765 (1) F. S.). The Florida Legislature in its 1970 session redefined vocational education, provided for the establishment of minimum requirements for a comprehensive vocational program in Florida, including the evaluation of educational output and employment performance, the classification of courses by cost-category and a new procedure for determining instructional special teacher service and supervisory units for vocational education beginning with the 1971-72 fiscal year. Additionally, the Legislature mandated job related instruction in each school district, required the employment of a director of vocational education by each school district and junior college, and created the Vocational Improvement Fund. Also set forth in legislation is the requirement that school districts provide minimum counseling service and authorization for the training and employment of occupational specialists.
- b. House Bill 3897--Definition of Vocational Education. This act defines vocational education as that instruction

not leading to a baccalaureate degree, either graded or ungraded, which provides:

1. instruction given for the purpose of developing occupational proficiency necessary for gainful employment.
2. instruction in exploratory courses designed to familiarize persons with the world of work and motivating them to pursue courses in vocational education.
3. instruction in industrial arts.
4. instruction in vocationally oriented home economics.

c. House Bill 3950--Providing procedure for determining instruction units for vocational education

This act provides for:

1. The state board of education to adopt regulations setting forth minimum requirements for a comprehensive vocational education program within the new definition to begin with the elementary grades, effective in 1971-72. This plan is to include evaluation of educational output and employment performance with emphasis on job placement and satisfactory performance on the job.
2. The classification of all vocational courses into not less than three (3) nor more than twenty (20) cost categories in accordance with criteria established in the act.
3. The state board of education to define a full-time equivalent student, provided an FTE is not less than 810 student contact hours of instruction. The determination of the number of FTE to provide an instructional unit in each cost category.
4. The state board of education to adopt regulations and procedures for the earning and allocation of special teacher units and supervisor units.

5. The allocation of instruction units to districts based upon the FTE served during the prior year with provisions to adjust units during year of operation.
  6. The Commissioner of Education to allocate up to an additional one hundred (100) units in vocational education for meeting statewide needs in accordance with state board of education regulations.
  7. Exemption of the vocational program from the requirement that instructional personnel be employed on 90 per cent of the instruction units.
- d. House Bill 3951--Providing procedure for determining instruction units for vocational education in junior college.

Provisions of this act, in general, parallel House Bill 3950, with the intent that funding formulas will provide comparable funding for comparable programs in vocational education regardless of the type of institution in which they are offered.

- e. House Bill 3892--Requires job-related vocational instruction in each district.

This act provides:

1. That the department of education shall develop and implement regulations to become effective September 1, 1971, providing for practical courses of direct job-related instruction in at least five (5) vocational areas in each school district in the state. Such instruction shall be available to all residents of the district regardless of previous academic attainment and shall be available throughout the year. District boards and local welfare boards shall cooperate to locate, identify and attempt to recruit

all unemployed and underemployed persons into such courses.

2. That provisional certification shall be granted instructors and that no instructor shall be paid less than the salary for a Rank III instructor, and salary supplements shall be allowed as necessary to obtain suitable instructional personnel.
  3. That these courses are to be supported by instruction units and that the minimum support from the district or junior college for vocational education be at least in the amount of state or federal funds that the vocational education programs earn. The expenditure of earned funds to be indicated in an identifiable manner.
- f. House Bill 3895--Each school district and junior college to employ a certified director of vocational education. This act provides that:
1. Each school district earning a special teacher services unit and each junior college earning an administrative and special instruction unit through vocational education, shall employ a certified director of vocational education.
  2. The director is to administer a district-wide or junior college program in vocational education and shall be on the immediate staff of the county superintendent or junior college president at a level requiring involvement in planning and implementing vocational programs.
  3. Two or more school districts, two or more junior college districts or combinations thereof may jointly hire a single director.

- g. House Bill 3896--Establishes a vocational improvement fund.

This act provides that:

1. Priority projects in the use of funds appropriated under this act are to be used for development of vocational education programs for:
  - (a) disadvantaged
  - (b) introductory programs for middle and junior high schools
  - (c) training and in-service projects for improving vocational counseling
  - (d) career associate program
  - (e) development of information systems and job placement services
  - (f) training, in-service and recruiting projects for vocational teachers and support personnel
  - (g) projects designed to restructure vocational education and to insure greater community involvement
2. Department of education to establish rules and regulations for submission of projects and awarding of funds.
3. District school boards eligible to apply for such funds.
4. Priority to projects in which all community resources are involved and which have maximum cooperation between school boards and other local agencies operating parallel or overlapping programs.
5. Each year, department of education to submit as part of legislative budget request, listing of eligible projects and estimated amount of funds needed to support the projects.
6. Commissioner of Education, 30 days prior to each regular session, to submit status report of projects funded under this fund.

h. House Bill 3898--Minimum Counseling services.

This act provides that:

1. Guidelines be developed to provide adequate counseling services in school districts with alternative methods of providing such services outside traditional graduate school certification requirements.
2. Each school district submit a plan for providing required level of counseling services. Plans to provide appropriate phasing in of services to meet required student-counselor ratios for elementary and secondary students. Plans to be approved by department of education.

i. House Bill 3893--Occupational Specialists

This act provides that:

1. Occupational specialists may be used in place of counselors up to maximum of 50 per cent of all counseling positions in the district, to work under supervision of certified counselor. Provisional certification shall be granted when necessary and occupational specialists to be paid not less than salary for Rank III instructor. Salary supplement shall be allowed if necessary.
2. Pursuant to policies and regulations, each school district may submit a program to identify and train occupational specialists with indication that the district board will provide 25 per cent of total cost of the program.
3. That 75 per cent of total cost of approved programs shall be authorized by department of education.
4. That a report be made 30 days prior to 1971 session of the Legislature and each year thereafter on criteria and funding requirements, and after 1971-72 on effectiveness and efficiency of the program.

## ANNEX B

### RESEARCH AND DEVELOPMENT PRIORITIES FOR THE DIVISION OF VOCATIONAL EDUCATION

The following list of needed vocational research and development proposals is based upon a review of several comprehensive legislative studies and upon assessment of local vocational education programs by District and SDE representatives responsible for planning, implementing, and evaluating programs of vocational education in their respective counties.

- Develop and evaluate curriculum, (including instructional materials, course outlines, syllabi and organizational structure) designed to: inform and orient elementary students to the world of work and provide additional orientation programs and exploratory experiences of various occupations to middle school and junior high school students.
- Develop a uniform system to collect, store and retrieve data concerning facilities, enrollments, costs, programs, completions, placements, and job performance of students completing or leaving the program as a basis for formulating and evaluating annual and long range statewide vocational and adult general education program goals and objectives.
- Develop a curriculum including a plan of operation to prepare professional and para-professional career counselors for public vocational education systems.
- Develop, implement and evaluate an exemplary program for disadvantaged youth in four school centers with emphasis on:

- ..Provision for broad occupational orientation at the elementary and secondary school levels so as to increase student awareness of the range of options open to them in the world of work.
  - ..Provision for work experience, cooperative education and similar programs, making possible a wide variety of offerings in many occupational areas.
  - ..Provision for students not previously enrolled in vocational programs to receive specific training in job entry skills just prior to the time that they leave the school. ( Some of these training programs might be very intensive and of short duration.)
  - ..Provision for intensive occupational guidance and counseling during the last years of school and for initial placement of all students at the completion of their schooling. (Placement might be in a job or in post-secondary occupational training. Placement should be accomplished in cooperation with appropriate employment services, manpower agencies, etc.)
- Develop and field trial standards to assess student performance in specific vocational education programs at the secondary school level in 10 selected schools.
- Develop and evaluate guidelines for establishing an information system and job placement bureau in area vocational schools to serve graduates of secondary and post-secondary vocational education programs.

- Develop and evaluate guidelines and instruments needed to follow-up graduates of specific vocational education programs.
- Conduct a study to evaluate a model for determining cost-effectiveness, cost-benefits, and cost-utility of secondary vocational education programs in selected schools.
- Develop, implement and assess the effectiveness of a program of inservice education for vocational division staff members working with disadvantaged and handicapped students in the use of innovative educational techniques and methods.
- Develop and implement detailed plans for establishing a dissemination center providing vocational research, evaluation, and instructional materials and data to local school district, junior college, and university decision makers.
- Development and evaluate programs of teacher personnel exchange with industry.
- Develop and test instruments useful in determining student occupational attitudes and interests at the seventh, eighth, and ninth grade levels as a basis for vocational counseling.
- Determine characteristics of an effective advisory committee in specific occupational areas.
- Develop and implement an inservice program to prepare vocational, technical and adult education division staff in the interpretation of evaluative results and utilization of data and other pertinent information in decision making.

Source: Office of the Administrator for Vocational Research and Evaluation, Division of Vocational Education.

## ANNEX C

### IMPLEMENTATION OF LEGISLATION PASSED DURING 1970

The "Vocational Education Package" provides for major revisions in virtually every phase of Vocational Education as well as its integration into the total educational effort.

In order to implement this legislation within time limitations, a number of activities have to move forward in a coordinated manner.

Immediately following the session, engrossed copies of the bills were obtained.

In view of the time restraints in terms of preparing the 1971-72 Legislative Budget, it was decided that the initial thrust should be directed toward those sections of HB 3950 and 3951 which deal with:

1. The classification of all vocational courses into cost categories, and
2. The development of minimum requirements for a comprehensive vocational education program.

On June 25, Dr. Proehl appeared before a conference of District School Superintendents to discuss the Legislative package.

On June 24 and 25, a work session was held with the Division Staff and Teacher Educators in Vocational Education and Industrial Arts Education.

On June 29 and 30, a similar work session was held with Local Directors of Vocational Education, Directors of Area Vocational, Technical Centers, Junior College Deans responsible for Vocational and Technical Education and representatives of Industrial Arts Education.

At each of these sessions, participants were divided into small work groups to develop initial input relating to (1) cost of courses, and (2) the purposes and objectives of

Vocational Education by level of programs. Emphasis was placed upon the importance for each participant to interpret the legislation in terms of "legislative intent" using the MacKay Committee report for this purpose.

Following these meetings, representatives from School Districts are preparing cost information for courses offered in their respective districts as well as additional program information in terms of target groups of persons to be served. These are to be submitted to the Division of Vocational Education. The course cost information is due July 20; the program information by July 27.

Concurrently, junior colleges are preparing information concerning costs of courses for submittal to the Division of Junior Colleges. The Division of Junior Colleges is also in contact with Associated Consultants in Education concerning a detailed cost analysis possibly on a sampling basis to follow the initial input. Later this month, members of the Council of Academic Affairs will give further consideration to the implementation of the legislation.

In order that there will be input concerning FTE served during 1969-70, the due date for reports of course operation from Districts was moved from **August 1** to July 10. The target date for having this data processed is now August 1.

Program Administrators are developing data which may be used to project K-12 MFP units to be generated by FTE served through vocational courses during 1971-72. Once cost categories and funding formulas are established, they can be applied to these data.

Beginning July 6, selected staff members of the VTAD Division have been assigned to Task Forces with the responsibility for developing plans for the implementation of specific parts of the Vocational Education package.

One Task Force has primary responsibility for the

development of cost categories and funding formulae as well as proposed State Board regulations for the allocation of units to meet state-wide needs under HB 3950 and 3951, coordinating their efforts with the Division of Junior Colleges.

Another Task Force is working on the development of minimum requirements for a comprehensive vocational education program, standards of educational output with emphasis on job placement and satisfactory performance on the job as well as procedures for determining the extent to which minimum requirements are being met, including examination of employment performance of program participants.

A third Task Force is responsible for developing plans and proposed State Board regulations to implement those sections of HB 3892 relating to job related instruction, but not including that part of Section 4 referring to district school board and junior college accountability for State and Federal funds earned by vocational education.

A fourth Task Force is responsible for the implementation of HB 3895 relating to the employment of Director of Vocational Education by school districts and junior colleges.

A fifth Task Force is working on the implementation of HB 3896, the Vocational Improvement Fund.

A sixth Task Force is developing plans for the implementation of item 195a of the Appropriations Act, the lump sum of \$6,000,000 from General Revenue to meet the backlog of need for on-going programs.

Arrangements also have been made with the Director Division of Elementary and Secondary Education for the Bureau of Finance to become deeply involved in that portion of HB 3950 dealing with the allocation and adjustment of units to School Districts and that portion of HB 3892 relating to the accountability of funds by school districts for Vocational Education.

Similar arrangements have been made for the Consultants

for Pupil Personnel Services in the Elementary and Secondary Division to take the lead in developing the necessary guidelines and proposed State Board Regulations for the implementation of HB 3898, Minimum Counselling Services, and HB 3893, Occupational Specialists.

Over the past four years, the Division has worked with school districts in the development, operation, and evaluation of a limited number of experimental projects to meet the needs of pupils at the middle and junior high level-- particularly those who are disadvantaged. Similar efforts along these lines have taken place in Industrial Arts at the elementary as well as the junior high level.

To further implement this legislation, arrangements have been made for an experimental program at the P. K. Yonge School, University of Florida, to develop curricula which will fuse academic and vocational programs in the introduction of elementary pupils to the world of work.

At Florida State University, the Industrial Arts Department has a planning grant (1) to identify ways in which a comprehensive program of Vocational Education can be implemented at the elementary level, and (2) to develop and evaluate curriculum for implementation of the comprehensive program at this level.

As the work on the implementation of the legislation progresses, coordination among the Divisions is being provided by the Commissioner's staff. Members of the Division and the Department are making every effort to implement the "Vocational Education Package" within the intent of the Legislature and the time limitations involved.

Source: Division of Vocational Technical and Adult Education, State Department of Education, Tallahassee, Florida.

## ANNEX D

### REPORT OF THE TECHNICAL ASSISTANCE TEAM TO THE STATE OF FLORIDA, MARCH 17-19, 1970

Four members of the Bureau of Adult, Vocational and Technical Education and three members of the Region IV office met with the staff of the Division of Vocational, Technical and Adult Education, Department of Education, in Tallahassee, Florida. The purposes of the meeting were:

1. To ascertain the progress Florida is making in implementing the Vocational Education Amendments of 1968;
2. To learn of the structure and functions for carrying out the provisions of the Florida State Plan for the Administration of Vocational Education;
3. To meet personally the leaders in vocational and technical education and to discuss with them the strengths and limitations in fulfilling State plan provisions;
4. To observe new and exemplary programs and facilities that have been developed largely as the result of the Vocational Education Act of 1963 and the Vocational Education Amendments of 1968.

The reception accorded the State Technical Assistance team was positive in tone, courteous in action, and enthusiastic in response. For this, the team members are most appreciative. Dr. Carl Proehl and his staff are to be commended for the materials which were assembled or prepared specifically for the meeting. Of special interest was the newly printed State Plan and the document A Plan For the Reorganization of the Division of Vocational, Technical and Adult Education. The documented reports of presentations given were also valuable to the team. In addition to responding to the State

Technical Assistance materials sent to the State, the team was pleased that Dr. Proehl gave each occupational service an opportunity to present brief reports.

The review of vocational education in Florida by the Commissioner of Education, Dr. Floyd T. Christian, was informative and encouraging. Due to his hospitalization, the team members were not able to meet with Honorable Claude R. Kirk, Jr., Governor of Florida.

#### Visits to Schools

The second day of the visit was spent observing programs of vocational and technical education in selected cities. Members of the visiting team were divided into three groups so that a cross-section of programs could be observed. The following schools and vocational centers were visited:

#### Chipley

Washington-Holmes Area Vocational-Technical Center

#### Pensacola

E. Dixie Beggs Educational Center  
Pensacola Junior College

#### Pinellas County

Technical Education Center of Pinellas County  
Pinellas County Agricultural Center  
Parkland School  
16th Street Junior High School (St. Petersburg)  
City Center for Learning

#### Starke

Bradford-Union Area Vocational-Technical Center

#### Lake City

Lake City Junior College

### General Observations

For all intents and purposes, only a cursory review of vocational and technical education could be undertaken during a three-day visit. But it became abundantly clear to the team, as each presentation was made, that constructive approaches to new challenges were being taken by the Florida staff to make vocational education a substantive force in the State. The status of vocational and technical education may be judged, in part, in light of the following factors and innovative practices:

1. In the recent reorganization of the Department of Education the Division of Vocational, Technical and Adult Education was retained as one of the four existing divisions.
2. The Division of Vocational, Technical and Adult Education was reorganized to reflect current leadership needs.
3. The Division is divided into six major functions for operational and budgetary purposes: administration, planning, program administration and supervision, program services, research and evaluation, and State Advisory Council for Vocational and Technical Education. The Division is responsible for working with sixty-seven local school districts and twenty-seven Junior College Boards of Trustees.
4. The Florida Legislature is giving encouragement and financial aid to vocational education.
5. While there is need for additional staff, present personnel give evidence of strong leadership capabilities.
6. The Division function of planning relates to an overall State planning unit which follows the PPBS format.

7. Procedures for planning at State and local levels provide assurance that the vocational education needs of individuals are being met in light of employment opportunities in the State.
8. The Division extends its leadership role through the operation of five area offices.
9. A variety of work experience programs reflect extension of cooperative education to more categories of manpower need and student ability.
10. Stimulated by new emphases in vocational education, a substantial effort in curriculum materials development has taken place at State and local levels.
11. A State authorized Industry Services Program responds to specific industry manpower needs. Coordinated with other State agencies, this program facilitates industry expansion objectives.
12. Communication channels with the Employment Service, Vocational Rehabilitation and Special Education have been broadened and strengthened as a result of the 1968 Amendments. Guidelines and criteria for implementing programs for the handicapped have been developed jointly.
13. An improved and more pertinent teacher education program is being planned in cooperation with the publicly supported institutions.
14. Much of the reporting and accounting system is automated with frequent print-outs available for proper administration and fund control.
15. The Research Coordinating Unit housed in the Division, has stimulated significant research activity.
16. Leadership for the youth organizations in vocational and technical education is provided by Division staff.

Program and Activities of an  
Exemplary Nature

1. The program of consumer and homemaking education in a housing development in Pinellas County.
2. The "diversified mechanics" program for 9th and 10th grade disadvantaged students who are over-age-in-grade and potential dropouts.
3. The cluster trade program for small rural centers.
4. The pilot MDT cooperative program in Pinellas County.
5. The development of a variety of programs for the disadvantaged, e.g., the commercial sewing, commercial foods at Bradford-Union Area Vocational-Technical Center.
6. Provision for visitation to area vocational school by Middle School students in Starke, Florida.
7. The new airplane mechanics program at Lake City Junior College.
8. The co-existence of Junior College, Vocational and Technical Education and the Forest Ranger School at Lake City Junior College.
9. The high placement records of students completing training in, for example, drafting and horticulture at the Washington-Holmes area school.
10. A class in small motor overhaul and repair for handicapped students in the Washington-Holmes area school.
11. The assistance provided by Employment Service counselors in the Washington-Holmes area school.
12. The E. Dixie Beggs Education Center as a unique facility and program for disadvantaged youth. It has been demonstrated that such a school is accepted and needed as evidenced by the unusually large waiting list. Presently 600 students are enrolled.
13. The dental technology program at Pensacola Junior College.

14. The work experience program at 16th Street Junior High School in St. Petersburg, one of many such programs in the State.
15. The extensive use of advisory committees at State and local levels.
16. The culinary arts and air conditioning programs as examples of well-conceived curriculums at the Technical Education Center of Pinellas County.
17. The development of day care programs in response to State licensure law.
18. The horticulture program for mentally retarded students at Parkland School.
19. The building trades laboratory at Pinellas Agricultural Center.
20. The data processing information system in Pinellas County.

#### General Comments

1. The efforts that are being made to provide vocational and technical education for the disadvantaged and handicapped are commendable. If the momentum is maintained, Florida should become one of the more illustrative States wherein vocational education is maximizing the potential of these target populations.

2. Careful planning and open communications between the State and localities have done much to improve the image of vocational and technical education.

3. The availability of vocational services throughout the State has been vastly improved through the construction and designation of area school facilities which are in commuting distance of all the people.

4. Program planning and supervision for the major occupational fields are provided through the respective vocational service areas. It is commendable that business and

distributive education will be developed as distinct units of service as the reorganization of the Division progresses. It would seem desirable to project the same consideration for technical and health which are now combined as one service unit.

5. It would appear that the new Division organization has reduced the number of staff members reporting directly to the State Director of Vocational Education.

6. Based on discussions with the staff, the need for improved teacher education is well recognized. The plan for the revitalization of teacher education services appears to hold great promise in developing the kinds of competencies needed in the emerging vocational and technical education programs.

7. The experimental data processing informational system established in Pinellas County (with implications for statewide coverage) appears to be well conceived and will provide a resource for dependable data.

8. The emphasis now being given to evaluation is commendable. Much progress is being made but does represent an area of activity requiring sustained priority.

9. Considerable progress has been made in curriculum development, but in order to reflect a more balanced effort, there is validity to the State's projected plan for a curriculum laboratory.

10. While the present staff represents a group of competent and dedicated individuals, there is an internal recognition that a planned program of staff development is needed.

11. The State Plan has been distributed to a wide range of audiences. It is recommended that additional distribution be made to public libraries.

12. The State Advisory Council is functioning well even though much time must be devoted to orientation. It

would appear that Division staff should accept continuing orientation roles as an inevitable responsibility in working with the Council.

13. Since the Division is in a transitional period of development, it is recognized by the staff that all segments are not as yet consistent in carrying out the broad functions of the Division.

14. Florida has a great variety of programs that involve work experience. The present organization gives partial visibility to such programs; leadership is segmented throughout the Division. It would appear that a central leadership role is needed to coordinate all work experience programs, including the new emphasis provided for cooperative vocational education programs in Part G of the Act.

#### Visiting Team

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Mr. George E. Wallace, Director, AVTE, Region IV, Co-Chairman  
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The team wishes to acknowledge that the technical assistance visit was beneficial to both State and Office of Education personnel. The team members have a better appreciation of the framework in which the vocational and technical education program is developing in Florida. Further, the dialogue completed provides a basis for refinement of State Technical Assistance efforts and creates a point of reference for the development of a program of work for the Division in the Office of Education.

GOAL 4

To evaluate the effectiveness with which the people and their needs are served.

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## GOAL 4

### APPENDIX A

#### FACTORS AFFECTING PARTICIPATION OF TARGET GROUPS IN VOCATIONAL TRAINING PROGRAMS

by

Lawrence Weisman

This paper addresses the question, "What factors, if any, exist in the vocational programs in Florida's public educational institutions that frustrate full participation in occupational opportunities by minority groups and the culturally disadvantaged?" The question assumes a public policy of commitment to the egalitarian principle of universal higher education.

The task has been approached by first defining policy for the "open door." This was accomplished by interviewing several key officials of the State Department of Education, and by examining Statutes of the Legislature of the State of Florida; Regulations of the Board of Education, State of Florida; minutes of the Community College Advisory Board, 1967-1969; minutes of the Community College Presidents' Council, 1962-1969; the "State Plan of 1957"; and the Florida State Plan for the Administration of Vocational Education, July, 1969.

Institutional admissions practices were studied first by examining the current catalogue of each community junior college. Each catalogue was screened in its entirety with emphasis on general admissions policy and on the specific policies pertaining to each occupational-technical program offered. There is no pretense made that this approach is either accurate or complete. The rationale is that these catalogues are the primary public relations document of the institutions, and the issues examined may have

developed not so much from what is happening as from what people think is happening. Visits to three junior college campuses and two junior college central administration offices indicate that in practice they were more liberal than their catalogues indicated.

Interviews were conducted with officials of three county vocational education divisions. Tours and interviews also were made at two county area vocational-technical centers and one comprehensive junior high school.

### The Open Door Policy

In discussing the admissions practices of the community junior colleges of the State of Florida, the State's policy regarding "open door" admissions must first be defined. In the restricted sense, open door is interpreted to mean that everyone will have the opportunity for post-secondary training. In the broad sense this will mean that everyone will have an opportunity to try the program of his choice. The latter is ideal from the egalitarian viewpoint, but from the psychological viewpoint, may not always be helpful to the individual: frustration can be a bitter pill.

Economically, the State must consider which policy will produce the most for the available funds or which will make the most effective use of limited facilities. There is also the problem of equating supply with demand in career offerings. Politically, a balance must be struck between the altruistic and the pragmatic.

In concept, the State policy leans to the pragmatic interpretation. The 1957 State Plan for Community Junior Colleges lists the following as one of its basic assumptions:

Third, education is valuable because it helps to equalize opportunity for all people. Faith in the influence of education as a way of encouraging personal

improvement has been continually expressed. The supposition that education is a privilege of an aristocracy was very quickly discarded early in American history. This assumption does not imply that all people should have the same educational experiences, but rather that all should have opportunity for education which is adapted to their abilities and their own needs as well as society's needs. [1]

This concept has been written into the State Board of Education Regulations as follows:

130-8.62 Requirements for admission.  
Requirements for admission to and retention in a junior college or any program of a junior college shall be established by policies of the board. Such policies shall be designed to promote the welfare of the individual student and admission to the junior college shall not include educational requirements greater than a high school diploma or its equivalent. [General Authority 230.0102(2)]

In a personal interview, a Department of Education official explained that this regulation does not mandate that a high school graduate be permitted to enroll in a program which has specific course prerequisites, such as algebra, which he does not have. He indicated that the prerequisites for each program are determined by the institution within the scope of the above regulation and state plan.

The Florida State Plan for Vocational Education [2] calls for training opportunities for ". . . persons who can benefit from such programs." This idea is repeated throughout the plan. This conservative view is offset by strong emphasis, throughout the plan, to provide opportunities for the disadvantaged. The issue raised, which is crucial to this report, is: "How can we measure who has potential, who will benefit?"

### Findings

Of the twenty-six college catalogues studied, sixteen showed some aspect of selectivity. Twelve of the

colleges were selective in the allied health services. The most common method of selectivity was the personal interview by a member of the department; a few used committees. Various test and grade standards were also common as were requirements for specified subjects. Of these, chemistry was most frequently required for nursing, followed by "natural sciences." One school required algebra and geometry for dental hygiene.

In a personal interview, the vice president of a major junior college stated that the institution had dropped all prerequisites for the nursing program and had found no difference in performance between nursing students enrolled after the prerequisites had been dropped. This individual further stated that in a college with which he previously had been affiliated, they had found an "inverse relationship" between performance in academic subjects and performance in the laboratories and hospitals.

The vice president of another junior college stated in a personal interview that their prerequisites in the allied health services were not prescribed by any governmental or professional agencies but had been developed by their advisory committee, which is comprised of outstanding medical professionals in the community. An official of the Division of Community Colleges stated that he had found the ". . . highest attrition in nursing in those [institutions] with the highest selectivity.

Several schools indicated in their general admissions policy that they were selective in some areas, but did not offer specifics. This may indicate some selectivity, or it may be a simple hedge against unforeseeable problems.

One school required photographs with the application forms. The need for photographs is questionable, particularly since only a few require them at all. This practice may invite charges of prejudice.

A few schools required personal interviews for vocations in which personality or personal appearance would have little relationship to job performance. In cases like these, the susceptibility to suspicion of prejudice is plain. One school indicated that the interview was for the purpose of determining the sincerity of motivation of the applicant. There is obviously high purpose in the intention of this school, but there is some question of validity. On the one hand, the inner city youth is trained to play it "cool," that is, not to show emotion about things that are important to him. On the other hand, the middle class youths are trained to "play the game" of the establishment; they know what is expected of them and can perform accordingly. This leads to a real, albeit innocent, tendency to favor the advantaged youths. Another fault in this practice is basic to the school's philosophy of purpose: the school should be motivating the disillusioned, disadvantaged youths to take the opportunity to move into the mainstream of society rather than to reject him because he is disheartened or lost in a system that is foreign to him.

In an interview with officials of the institution that required plane geometry as a prerequisite for dental hygiene, it was learned that they did not attribute relativity to the prerequisite of geometry. The requirement was used as a simple screening device since applicants usually exceeded vacancies by approximately 500 per cent. It may be observed that dental hygiene utilized manual dexterity skills primarily; quantitative and verbal skills have substantially less utility. It would seem that this is a prestige occupation that is within the scope of abilities of the educationally disadvantaged, but from which they are barred because of artificial prerequisites.

The health-related occupations had the greatest frequency of overt selectivity. Some of the practices serve

very obvious needs, some reflect the philosophy of the local advisory committee, and some reportedly are based on state licensing requirements. J. Rhodes Haverty of the School of Allied Health Services, Georgia State University, writes of the growing manpower needs in the allied health occupations.

The ratio of one supporting health worker for each physician at the turn of the twentieth century will have risen to 20 or more per physician by 1975.

Added to this manpower problem is the incontrovertible fact that the expense and time, personnel, and money precludes increasing substantially the numbers of physicians in relation to the increasing population as a whole. The only alternatives to this situation are to produce more and different kinds of people devoted to the delivery of health care, who are educated at a lower level of ability. The alternative is to lower the standards of health care itself. This is unacceptable to most people. Thus, in order to satisfy the demands for health delivery service, new patterns of such health delivery service must be found.  
[3]

Thus the problem is two-headed: to meet state and national manpower needs in health services; to provide desirable occupational opportunities for the disadvantaged. Dean Haverty's solution is both logical and practical: to restructure the health related technologies to provide various skill levels.

A major problem is the tendency for these technical occupations to make their fields more "professional" by upgrading the educational requirements and entrance requirements. Dr. Phillip D. Bonnett, while President of the American Hospital Association, has said:

Are we overtraining and overeducating some personnel with resulting frustration and disappointment?

Are the rising requirements for certification, registration, and accreditation realistic, adaptable to changes, and justified or are they becoming rigid, unrealistic and restrictive? [4]

The problem results from strong local professional control. The accomplishment of Dean Haverty's solution will require

strong national planning, coordination, and even control of the job classifications, and licensing requirements. Pending national leadership, state licensing officials can review state licensing practices to insure that the prerequisites and testing procedures are appropriate for the requirements of the occupation. This survey should be done for all occupations where licensing or certification is required.

### Testing

Two county-operated area vocational centers were visited. Both practiced open admissions and used entrance examinations for guidance and placement into work levels. Their policies were to guide students into programs of a level where they had the greatest opportunity for success, but not to prohibit entry into programs where success was not indicated. Remedial programs were offered in those latter cases. In the catalogue and program brochures of the one institution, the following statement was prevalent: "However, before being permitted to register, the applicant must receive counseling and pass a series of entrance tests." The catalogue of the other institution referred to its entrance tests as "guidance tests" and no acceptance stigma was ascribed to them.

Testing is education's most evil necessity. Some of the millstones to be classified are:

1. When used as predictors of success, they tend to be self-validating. There is a psychological impact on the subject, either motivating or discouraging.

2. Their design is frequently not appropriate to the skill being tested. Group type tests which are inexpensive and expedient must test manual skills in a cerebral way. Individual tests which could be designed to test specific skills are cumbersome and expensive to administer.

3. There are no really satisfactory group tests for learning potential. Again, it is a problem of economy. The tests in use at the institutions visited were primarily inventories of knowledge acquired.

4. Mass tests have cultural biases. Unless the biases can be adjusted, there are bound to be significant errors.

In several instances it was noted that test criteria for specified vocational level programs were based on what the learner needed to know to comprehend the instruction, not on what he needed to perform in the occupation. This practice eliminates educationally deprived or deficient individuals from employment in occupations in which they could perform. At best it forces them to take remedial work which is an unnecessary burden upon them and the taxpayer.

The usefulness of the available tests hinges upon three factors:

1. The spirit in which the test is administered and the results disclosed.
2. The freedom permitted the counselor in interpreting the results.
3. The skill of the counselor in interpreting the results and in advising the subject.

In short, too much depends on the counselor and not enough on the instrument. What is needed is an evaluation instrument that is designed as a predictor for vocational-technical students and which provides a cultural scale. The American College Testing Service (ACT) has developed such an instrument and will begin to conduct national norms in Florida and Wisconsin this fall. The project in Florida is being conducted in cooperation with the Florida Community Junior College Inter-Institutional Research Council. The instrument contains records of the subject's socio-economic status so that it will be possible to develop cultural

scales. The tests will be processed by computer and the results will be available on print-out, cards or tape. Thus, state and local norms may be developed as well as national norms. The value of this kind of culturally scaled instrument was attested to by the administrative vice president of a major junior college. In an interview in which differences in the Florida 12th Grade Standard College Achievement Test, between students from predominantly white and predominantly black schools was discussed, he said, "I have found that if I get a student from "X" school, who has a "B" average, he will usually come up to a "B" average here after he has had some remedial work and some time to adjust.

The implication is that the score on that test was a result of the learning environment, not an indication of learning potential. Another implication is that grades in school might be a better indication of potential than test scores.

#### Dead-End Tracking

The basic problem in admissions into vocational programs is to permit the student to enter into a program of choice but at a level at which he can succeed. However, it is the nature of the ghetto student, as described in Gordon P. Morgan's study, to go for the long shot; he would rather take serious risks of failure trying to "make it big" than to be assured of success in a mediocre way. [5] Hence, he will push for automotive engineer, and may, in defeat, refuse to accept an alternative of automotive mechanic. The glory is in the higher technologies and the lower technologies do not offer a sufficient gain to be worth working for.

While it may be argued that there are remedial

programs to help the student achieve in the more academically demanding technologies, the programs extend the time necessary to complete the program. This tends to discourage disadvantaged students who are less able to abstract long term goals than a middle class student. If they do not get discouraged, they develop family or financial problems and drop out.

The answer to this problem lies in providing short range goals with open-end tracking. While many vocational programs are planned to provide some occupational skills in the first six months, the course structures do not recognize it. If the student drops out after six months he is marked a failure even though he may obtain employment in the occupation in which he was training. The student chalks up another failure to his record in the educational system; thus possibly traumatizing him from continuing his education. The school system acknowledged the failure by debiting the departure to its dropout statistics.

Many longer programs, of one to two years duration, could be divided into two or three shorter programs such as basic, intermediate, and advanced. If a student has completed four months of a five month basic course, he is more likely to find a way to hang on for one more month and get a certificate than he would if the program were of eighteen or twenty-four months duration. There is also a greater inducement to enter: "Come to school and take this program and you will have a salable skill and a certification in five months." This program takes into account the level of needs at which people are operating. [6] The disadvantaged are striving for satisfaction of basic physiological needs: hunger and safety (security). These needs are desperate; they are not to be met with a call for patience but with a promise of immediate reward.

The security of that basic certificate, and provision

for an interval of work before return to the next level of training should provide greater motivation to continue.

The idea of open end tracking should also provide for transfer from one level of program to the next higher one. For example, a student might move from radio repairing to electronics technician to electronics engineer. This scheme would call for close articulation between the area vocational-technical centers and the community junior college programs. This arrangement could prove beneficial to both of these institutions as well as to the student. It would allow the student to be placed in the track of his choice at a level appropriate to his demonstrated potential. The student could advance to the highest level of his ability without the frustrations inherent in the current system of dead-end tracking. The area VTE centers would thus provide a proving ground for the semi-professional and pre-professional programs normally offered at the community junior colleges. The area centers would thus benefit from being able to offer students higher potentials. The junior colleges would benefit from having a broader base of feeder institutions and by lowering their dropout rate by getting preseasoned, proven students. Everyone would benefit by having these institutions operate in a spirit of cooperation. The present situation in the various localities observed was, in the best cases, only tacit agreement. A schema for articulation is shown in Annex A.

### Conclusions

Barriers to enrollment can be found in the majority of vocational training institutions in the state. This is not to say that all barriers are harmful; some are constructive. For example, someone who is badly disfigured or has serious personality problems might have extremely limited

value as a nurse. Someone who has neurological defects affecting his coordination may endanger himself around heavy machinery. On the other hand, what is the relationship of plane geometry to dental hygiene? Or what is the effect of disfigurement or personality disorders on the productivity of a lathe operator or an automotive mechanic.

Some barriers are necessary for economic reasons. For example, referring to the tables in Jerry Butzer's report (Goal 3, Appendix A, page ) we note that 1,556 students were enrolled in Commercial Airline Pilots programs, but only 155 completed. Comparing that against an annual requirement for 318 pilots and considering the availability of military trained pilots, it would appear that these programs should be drastically curtailed and some appropriate method of selecting applicants should be devised.

A requirement may be very appropriate, but not necessary; for example, the cited example in which prerequisites were dropped from the nursing program. Assuming that there were some distinguishable differences, the question is, at what point would the cost difference be significant compared to the economic and social gains from the portion that did succeed? Apparently the schools are willing to risk a lot; we can compare with the losses accepted in college transfer programs. According to Annex B, the average attrition rate for all Florida junior colleges between the freshman and sophomore years is 45 per cent. This ranges from a low of 29 per cent (Chipola) to a high of 97 per cent (Hillsborough).

Again referring to Mr. Butzer's tables, we note that out of 2,047 students enrolled in two year nursing programs, 500 completed in the study year for an attrition rate of 50 per cent. Considering that the annual demand for this skill is shown as 1,254, or 250 per cent greater than the completions [This percentage will actually be low since not

all students completing are available for work. Private sector production will decrease the shortage, but it will still be substantial.] in this case, it would appear in the public interest to increase enrollment, modify or eliminate prerequisites and accept a higher attrition rate. Although, if the official who was quoted earlier was right, this gamble may produce a lower attrition rate. If Dr. McCabe is right, the result might be more effective floor nurses. There is considerable merit in this point since it is known that the economically disadvantaged suffer a much higher rate of sickness and disease, it follows that the disadvantaged would have greater sympathy for the patient and greater tolerance for the ugliness of disease and trauma. Dr. Phillip D. Bonnet has written: "Among other obstacles [to fulfilling manpower needs] are the emotional resistance of many people to work involving sick people. . . ." [4] Yet our recruitment practices continue to emphasize the elite, who are least conditioned.

Prerequisites in specific programs are not uniform throughout the State. It stands to reason that individuals living in one part of the state should have the same opportunities for education as people living in another part of the state. It was found that ten out of fifteen nursing programs are selective. It is possible for a resident of one county to be rejected from the nursing program at the local junior college while a neighbor with similar qualifications, but residing in the adjacent county, could be accepted in that college's program.

The most common barriers are accidental or incidental and result from lack of awareness or lack of understanding of the problems and issues at hand. In some instances, barriers arise as a result of non-professionals making educational decisions; advisory committees, for example, should be communicating manpower needs, not mandating who shall be

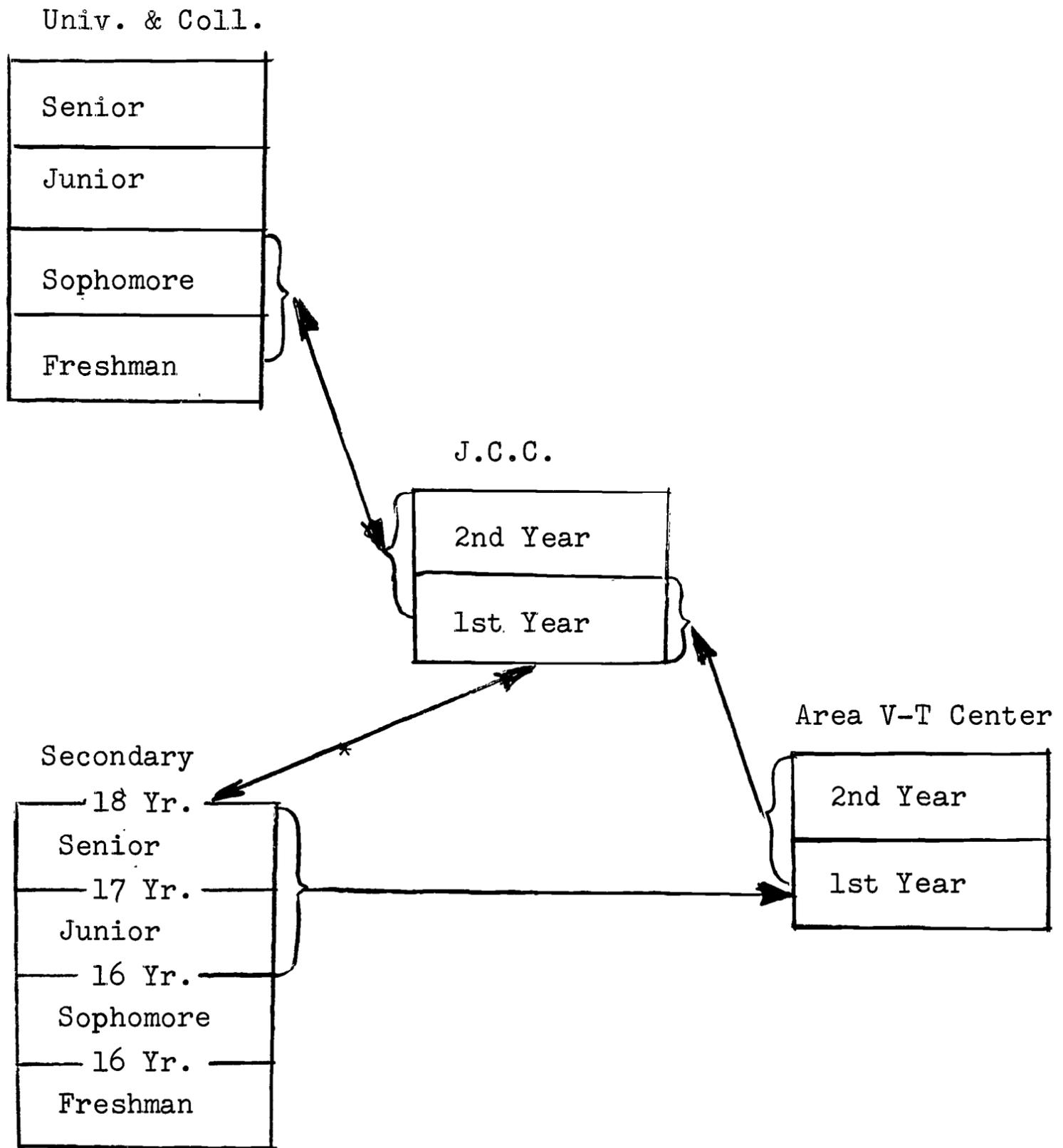
taught and how they shall be taught. This struggle cannot be undertaken at the local level because of the position of power of many professional organizations. The state and Federal governments will have to act in those areas affecting the general welfare.

Interviews with counselors and teachers indicate that there is a prevalent tendency to treat the symptoms and not the disease of disadvantage. The disadvantaged, for example, lack middle class communication skills, therefore, the disadvantaged must learn middle class communications skills, then they may learn their bread winning skills. That approach reflects middle class rationality; for the poverty classes, bread comes first; any other approach is frustrating and defeating. Other criteria for programs for the disadvantaged are outlined in Charles Russell's accompanying paper.

For proper perspective, the state system must be given its share of the credit for the low rate of unemployment attained in Florida. For example, in May, 1970, the state unemployment rate was 2.9 per cent compared to the national average which was 4.7 per cent, giving Florida one of the lowest rates in the nation. The recommendations of this paper are not to suggest that a good job needs to be done, but that there is still room for improvement. These statistics indicate that the state is doing a better than average job of meeting quantitative goals. The message of this paper focuses primarily on the qualitative goal of providing fair opportunity for employment to all sectors of the population.

ANNEX A

SCHEMA FOR ARTICULATION



\*MDTA provisions for dropouts apply.

ANNEX B  
ENROLLMENT: FALL, 1969  
FLORIDA PUBLIC JUNIOR COLLEGES

Junior College	Attri- tion % (3)	Freshman		Sophomore		Un- classi- fied	College Level		Adult and Vo- cational	TOTAL (2)	
		Full Time	Part Time	Full Time	Part Time		Enrollment No.	% (1)		Enrollment No.	% (1)
Santa Fe	75	1507	439	386	130	233	2695	29.32	1307	4002	31.86
Gulf Coast	44	798	463	452	159	272	2144	8.78	186	2330	.73
Brevard	68	1704	2403	540	721	391	5759	15.04	571	6237	11.87
Broward	57	2678	1010	1268	807	129	5892	20.81	23	5915	21.13
Lake City	50	476	294	226	96	194	1286	11.44	1026	2312	-14.56
Miami-Dade	33	9796	4417	6541	3223	2394	26,371	9.43	3026	29,375	11.67
Fla. JC at Jax	55	2046	2330	927	670	341	6314	16.71	8708	14,971	91.57
Pensacola	39	1777	1085	1088	667	400	5017	9.18	4599	9616	14.14
South Florida	40	167	62	105	26	16	376	-2.59	271	646	43.24
Hillsborough	97	972	2069	27	134	14	3216	97.91	-	3216	97.91
Chipola	29	591	113	424	56	53	1237	.08	548	1783	4.57
Lake-Sumter	35	376	163	207	52	138	936	-9.13	-	936	-9.13
Edison	43	603	164	347	79	149	1342	12.40	467	1805	29.30
Tallahassee	32	641	370	437	251	147	1846	8.33	-	1846	7.45
North Florida	44	618	44	345	39	162	1208	8.54	411	1619	33.63
Manatee	44	1035	385	579	155	167	2321	-2.27	390	2711	-7.03
Central Florida	42	594	75	348	61	228	1306	8.92	965 <sup>E</sup>	2271 <sup>E</sup>	-5.26
Florida Keys	67	207	391	78	71	117	864	25.04	36	900	30.25
Okaloosa-Walton	38	603	625	379	307	138	2052	5.77	1245	3274	.63
Valencia	56	1059	770	461	206	57	2553	44.97	-	2553	44.97
Palm Beach	46	2006	1085	1085	584	600	5360	1.53	393	5716	3.10
St. Petersburg	35	3883	1549	2535	869	445	9281	-.96	228	9509	-.29
Polk	44	1170	523	656	233	535	3117	5.20	443	3542	13.60
St. Johns River	59	599	195	247	39	110	1190	-6.00	-	1190	-17.82
Indian River	47	642	191	341	80	294	1548	27.20	1012	2560	18.57
Seminole	43	830	452	474	122	89	1967	11.44	10	1977	9.71
Daytona Beach	36	951	281	612	262	235	2341	.13	5516	7857	-2.75
TOTAL	45	38,329	21,948	21,115	10,099	8,048	99,539	11.03	31,381	130,669	15.74

(1)% is percent of increase or decrease over Fall, 1968 enrollment.

(2) Total enrollment less students enrolled in more than one category.

(E) Estimate.

(3) Full-time sophomore enrollment compared to full time freshman enrollment.

CJC - 11/69

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## GOAL 4

### APPENDIX B

#### VOCATIONAL EDUCATION FACILITIES IN FLORIDA

by

Marshall Harris

#### Introduction

The development of Florida vocational education is dependent on the provision of appropriate procedures for the planning, building and full utilization of scarce capital outlay dollars. This section of the report focuses on a segment of Florida's post-secondary institutions providing vocational education, namely, area vocational-technical education centers. It will pinpoint ways in which present procedures might conceivably be improved. Criteria for evaluation is based on several important legal documents, including the 1968 Amendments to the Vocational Education Act of 1963 and the Florida State Plan for Vocational Education.

The organization of this section will include descriptions of the current status of area center facilities and the process for constructing new facilities, an examination of the impact of new requirements built into the 1968 Vocational Act Amendments, proposals for fuller utilization of facilities, innovative techniques, a brief commentary on present evaluation methods, and future areas of investigation. The report will not emphasize statistical information readily available in other documents but will present overall judgmental conclusions about Florida's post-secondary facilities. These conclusions are based upon limited visitations to vocational facilities and interpretations of available data.

## Description of Present Situation

### Inventory of Operating Area Centers

The number of area vocational-technical centers now in operation in permanent facilities in Florida is nineteen. One additional center presently is under construction in St. Johns County. When the St. Johns Center is complete in January, 1971, it will then house programs which have been initiated in temporary facilities. The Collier County Center is now in the planning stage, and will probably be open for student use in September, 1972. The comprehensive high school in Pasco County is under construction and should begin operation in the Fall of 1970 [1].

Of the thirteen designated departments of junior colleges, nine are now in operation in permanent facilities. Of the remaining four, St. Lucie, Duval and Seminole Counties are expected to occupy their new facilities in the Fall of 1970. Alachua facilities should be available for use by September, 1972 [1].

Accumulation of comparable assignable square feet by either institutions or by occupational offerings was not available from secondary sources at the time of this writing. However, there are certain valuable data given in a study of Florida post-secondary vocational facilities done for the State Department of Education by Associated Consultants in Education [2]. Also, the following table lists the net assignable square feet by vocational centers and the seven major classifications of occupational education.

No analyses were performed using the following data because of an insufficient comparable data base from which to work. Thus, the data presented is for informational purposes only.

### Construction of Area Center Facilities in Phases

The construction of area vocational-technical education facilities in Florida has been characterized by a phase concept of construction. Although this concept is not new in the construction field, it does have several impacts when applied to the construction of area center facilities.

With the primary determining factor being the funds available, each site that qualifies for designation as an area vocational center is planned in phases. The major advantages of this technique of planning and construction are twofold. First, since funds usually are not available for one phase total center construction, careful analyses must be performed to determine high priority programs. Second, program and facility duplication is prevented in a given geographical area because once phase one construction on a designated site is commenced, all of the phases of that site must be completed before construction on a new site in the same geographical area begins.

Another effect of phase construction has been the comparatively higher priority being placed on instructional facilities. Support facilities such as libraries, student centers, food service areas and administrative spaces have been placed in lower priorities than actual instructional space. Therefore, in both new sites and expansion to existing sites, construction for support services has generally been delayed until future construction funds are made available. It is hoped these items (lower priority than instructional space) will receive attention during the 1970-71 fiscal year.

### Development of Area Schools

The development of the various thirty-five area vocational education schools from a chronological viewpoint has proceeded in the following pattern:

FY 1965-66--designation and initial funding (State and Federal Sources);

FY 1966-67--planning and construction of new facilities;

FY 1967-68--eight new centers and five new junior college departments began operation in new facilities, three centers were already in operation;

FY 1968-69--six centers and three junior college departments began operation in new facilities;

FY 1969-70--one center and two junior college departments;

FY 1970-71--one center, three junior college departments, and one comprehensive high school will begin operation in new facilities [1].

The State Department of Education reported that during the Fiscal Year 1969-70, construction contracts were awarded for area centers and junior college departments as follows: [1]

#### Area Centers

Citrus--additions to existing facilities (Phase II)

Lee--additions to existing facilities (Phase II)

Bay--additions to existing facilities (Phase II)

Pasco--(comprehensive high school)--New Institution  
(Phase I)

Orange--additions to existing facilities (Phase II)

St. Johns--New Institution (Phase I)

Polk--Additions to existing facilities (Phase II)

#### Junior College Departments

St. Lucie--new vocational facilities at existing  
junior college site

Alachua--new vocational facilities at existing  
junior college site

Okaloosa Walton--additions to existing facilities  
(Phase II)

A comparison of the contracts awarded in FY 69-70 with the existing facilities reveals that four new

vocational education schools were initiated during the year [3]. The schools and amounts of the contracts awarded were: St. Johns--\$733,028; Pasco--\$440,398; Alachua--\$237,762; and St. Lucie Junior College--\$1,015,235 [1]. A review of the economically depressed areas in the state shows that of the new schools only the St. Johns facility was constructed in an area designated by the State CAMPS Committee as characterized by having high rates of unemployment, low family incomes, and high student dropout rates[3].

#### Planning Process for Vocational- Technical Education Facilities

New vocational facilities in Florida are not planned in isolation. Plans for construction are based upon studies conducted in local districts based upon their perceptions of the role and scope of their educational system. Whenever local administrators desire assistance in the planning of facilities, such assistance can be requested from the state. The state level has specific responsibility for furnishing facilities consultative services in regard to vocational offerings. In addition, each field program representative of the VTAE division often renders services in his specific area of responsibility. Assistance to local districts by the State Department of Education has been given in the planning of every area center facility and is offered by the division for any contemplated projects. In this state-local relation, the state consultants function in the capacity of advisors and coordinators.

According to State officials the essential steps in planning a new area center in Florida include:

1. Designation request
2. State Board action on designation request
3. Program determination survey
4. Facilities survey
5. Allocation of State and Federal construction funds

6. Site survey and approval
7. Site acquisition
8. Architectural planning:
  - (a) campus plan
  - (b) schematic plan of initial proposed construction
  - (c) preliminary architectural plans
  - (d) final plans (working drawings)
9. Advertise for bids--receive bids
10. Award contract for construction
11. Local Board and State Department acceptance of completed project  
[Allocation of funds should occur at this point, but usually has occurred at any point from prior to step one to after step nine.]
12. Occupy new facilities and install movable equipment  
[Equipment funding and purchase has occurred between step eight and step twelve.]

The average elapsed time between initiating a new area center and occupation of that center is from two to three years. Additions to existing centers are accomplished in approximately one year from completion of program determination and facility survey (usually conducted concurrently.)

### Effects of 1968 Vocational Amendments

#### Vocational Education for the Disadvantaged

In the Vocational Amendments of 1968, Congress expressed its clear intent that top priority go to the disadvantaged. Disadvantaged is defined in the Amendments as "persons who have academic, socio-economic, cultural, or other handicaps that prevent them from succeeding in vocational education or consumer and homemaking programs designed for persons without such handicaps." While generalizations about such diverse groups are difficult, the following characteristics encompass the mainstream of their traits.

They come from substandard housing and broken homes. Their overcrowded home conditions do not permit privacy or personal development. Their struggle to live on a low income becomes a matter of survival in which long range planning is discarded for immediate gain. They tend to stay within their immediate environment and thus remain unfamiliar with areas outside their neighborhood [4].

Caught up in a complex interaction of problems relative to the family, community, health, education, transportation, the law and housing, the disadvantaged are victims of varying degrees of social and geographical immobility [8]. Therefore, it is incumbent upon both business and governmental leaders to penetrate that wall of immobility that entraps the disadvantaged person. Traditional "middle-class" oriented means will not do the job. What is needed is a concerted effort that reaches into the disadvantaged environment.

Vocational education facilities and opportunities must be made known to these people. Permanent neighborhood placement of facilities is a step in the right direction. Mobile instructional and counselling facilities are other techniques that should be incorporated. Transportation to facilities outside local neighborhoods is a must if disadvantaged programs are offered outside ghetto locales.

The consolidating effects of area centers is not always an optimally productive strategy in terms of attracting students from a total range of socio-economic background. For example, a neighborhood type vocational facility which is presently being considered for consolidation into a nearby area center (approximately three miles) will have the inevitable effect of a loss of enrollment [5].

In the Florida network of area vocational-technical centers, mobile counselling units are known to exist at some centers primarily on a "pilot" basis. However, no evidence

of mobile instructional units was found. Also, school bus transportation to area centers is limited almost entirely to regular high school students who utilize area facilities on a shared basis.

To move toward accomplishing the goal of making vocational education accessible to disadvantaged persons it is recommended that continued and expanded utilization of mobile counselling units directed towards disadvantaged persons be made. It is also recommended that use of mobile instructional units be implemented in order to provide facilities at the time and place such facilities are deemed necessary in order to attract segments of ghetto and disadvantaged neighborhoods which heretofore have been confined by their restricted local environment.

It is also suggested that the feasibility of "neighborhood" and "store-front" locations of vocational education be studied. In situations where feasible, these should be implemented. Where neighborhood facilities currently exist, efforts should be exerted to transport students to area center facilities when appropriate course offerings are not available in these neighborhood facilities.

#### Funding Problems Resulting from 1968 Vocational Educa- tion Amendments

The 1968 Vocational Education Amendments have created problems relative to the expenditure of funds for capital outlay purposes. The conditions of use of Federal funds under the 1963 Vocational Education Act simply stipulated that 33 per cent of the total funds allocated by this act could be used for construction while 67 per cent was prescribed for use in program operation, administration, and other current operating costs. The 1968 Amendments, however, contain a 40 per cent "set-aside" provision which restricts this amount of funds for special current

operations. Expressly prohibited is the use of 40 per cent of the total Federal funds for construction purposes. Any portion of the remaining 60 per cent of funds could be used for construction. However, current operating expenses have a first priority of this 60 per cent amount. Therefore, the only Federal funds available for construction from this source is the amount by which 60 per cent of the total funds available from this source exceeds the requirements for current operations.

The effect of the 40 per cent set-aside provision in the 1968 Amendments has been to reduce substantially the amount of Federal dollars available for construction. It is certain that unless additional state funds are made available to supplement the reduced Federal funds, vocational construction will have to be curtailed.

#### Fuller Utilization of Resources

##### Facility Utilization for Longer than Normal School Year

The majority of vocational-education programs at area centers function on a two eighteen-week semester plus a reduced offering during an eight-week summer session. Visitations to selected centers disclosed utilization rates for the eight-week summer terms ranged from approximately 25 per cent to about 50 per cent of the regular school terms. In many cases, however, a disproportionately larger number of faculty were retained for the summer term.

During recent visits to four area centers it was disappointing to see innumerable vocational-technical classrooms and laboratories standing silent and unused throughout many of the summer months. With the original purpose of a three month summer vacation receding into our agrarian past, and with industry pleading for larger numbers

of technically trained workers, the reasons advanced by some in opposition to the summer use of vocational-technical facilities seem now to be altogether shallow and empty [6].

Utilization of Area Center  
Facilities on a Longer  
Than Normal School Day

In a study of Florida vocational-technical facilities completed in September, 1969, it was stated that "approximately 60 per cent of the total student hours in the area schools were generated during the hours of the regular school day--6 a.m. to 6 p.m." Without distinguishing the nine designated departments of junior college from the vocational-technical programs of the remaining junior colleges, the report further stated that "approximately 75 per cent of the student contact hours in junior colleges were generated between the hours of 6 a.m. to 6 p.m. with the remainder during the outside of the regular school day." [2].

From this study one can see that in area vocational centers operated by local school boards, approximately 40 per cent of the total utilization is accomplished in the evening hours and on Saturdays. In junior college vocational settings the after normal school day hours are less with the amount set at about 25 per cent.

Since the logistical problem of area centers in terms of providing facilities during the high utilization of evening vocational programs is peculiar to most public educational offerings, the usual format for projecting full time enrollment as the key basis for capital outlay projections is deemed inappropriate. Instead of developing four quarter average enrollment statistics as is commonly done for universities and community colleges, area centers need to develop more accurate methods of measuring peak and slack loads in each type of instruction they offer. For more information on program utilization refer to Table 2

of Program Utilization in Manpower Demand Satisfaction, Goal 5, Appendix B.

#### Articulation Among Vocational Institutions

In some instances comparable programs are offered in the same district or city by several public vocational institutions. Often the distinction between these programs in terms of depth and breadth borders on a fine line couched in nebulous course descriptions and objectives.

Coordination and cooperation between institutions offering similar programs to corresponding target populations is a necessary prerequisite in order to effectively provide a wide range of occupational courses to varying target populations. However, unnecessary duplication of programs and replication of facilities must be avoided. The phenomena reported in this section is more prevalent in those districts containing a separate area vocational-technical center and a community junior college.

To encourage articulation and coordination between area vo-tech center programs and junior college vocational-technical programs which exist in the same district, local coordinating boards should be established. Representing both public and institutional interests such boards could play an effective role in precluding the duplication of similar facilities within commuting distance of each other [7].

#### A Comprehensive Vocational Facility Data System

Accumulation of data on the inventory of space currently in existence in Florida vocational education presents several problems. Data for the area centers and designated junior college departments are available from one source. Vocational facility data for nondesignated junior colleges is obtainable from another source. High school space can be obtained only from an examination of the construction plans of each of the more than 500 high schools offering

vocational programs. Data on other vocational facilities is only retrievable from primary sources. In sum, there does not exist a centralized information bank for the existing space available in public institutions in Florida for vocational education.

A research grant recently has been awarded to develop an automated information retrieval system for Florida's K-12 physical facilities in education. Reasons advanced in the proposal for the research for the need of an automated data system include: (1) the present system of school facility accounting is in narrative form and very cumbersome to handle when information is to be extracted from the two thousand (K-12) school descriptions on hand; (2) our present system of making surveys does not provide for a method of continuously updating to determine future needs and progress in providing adequate facilities for current and projected enrollments in the various counties [8].

The data assembled by a property accounting system for vocational education would permit updated compilations of total vocational facilities inventory, inventory by occupational offerings or by selected geographical areas. Data of this kind would greatly facilitate the optimal utilization of current facilities in addition to providing information vital to planning future construction of facilities.

It is suggested that an automated information system capable of maintaining on a continuous basis current inventories of public vocational-technical education facilities be developed and implemented at the State level. Such a system should include physical space and student stations currently in existence for each of the several occupational offerings as outlined in the Florida State Plan for Vocational Education. Information retrievable from the system should include: student stations by specific occupational offering for secondary students, post-secondary

schools, specialized high school, post-secondary vocational and/or technical school, community junior college, combination secondary and post-secondary school, area vocational-technical center and departments of junior colleges designated as vocational centers [same classification as Form VTAD 20].

Additionally, data relative to a current inventory of installed large equipment is valuable and necessary for determining training program capabilities. Thus, an obsolescence profile of equipment should also be integrated into the inventory system.

### Innovations

#### Technological Change and Flexibility of Buildings

Within the past decade technological change has progressed at an unprecedented rate. Projection of technological developments in the years ahead suggest even more change than occurred in the past. Just as technological change will greatly affect employment and job content, so will the training programs for these future developments be modified, updated, eliminated or new programs initiated.

Since society and education are changing at an increasing rate, one of the most important tasks for those involved in the planning of vocational education facilities will be to identify future changes of instructional programs which will require modifications to facilities. Predictions in education into the future are difficult and this places a greater importance on the need for facilities which can be modified easily and economically. The buildings must be designed to facilitate present, anticipated, as well as unanticipated program changes.

Evaluation of Florida's area vocational-technical education centers and designated departments of junior

colleges relative to their ability to adapt to future program changes disclosed many encouraging indications of the foresight given to the majority of these facilities. In the words of one vocational facility planner, "In Florida these facilities have been planned and constructed with as much flexibility as could be visualized at the time of design." Features such as moveable partitions, overhead electrical outlets, and moveability of large equipment into classrooms through removable door and window combinations intimate flexibilities of facilities.

Of course, once design has commenced, flexibility can only be attained within reasonable limits of economics and judgment. (In another section, flexibility is enhanced in the initial planning phase through the use of an "Educational Facilities Charette.")

One of the major difficulties confronting an evaluation of facilities relative to flexibility is the definitional meaning assigned to the term "flexibility." If the meaning of a flexible facility is interpreted as one which is adaptable to uses other than the initially planned use, with a minimum of conversion cost in terms of time and fund expenditure, then it would be fair to state that the area vocational facilities are flexible. In this sense of the meaning of flexibility, an auto mechanics shop would be flexible in respect to converting it to auto body, carpentry, welding, or any other similar use. However, it would be impractical to assume that the auto mechanic shop would have the same degree of convertibility for cosmetology, administrative offices, or the like.

### Planning for Facilities

The planning process for new area vocational-technical education center facilities has been affected by a distinct minority of individuals who projected their

personal biases upon the architecture, design, and layout of new edifices. As facility planning is important to meeting the needs of educational programs, these kinds of occurrences need to be eliminated. The effects of biased planning tend to reduce substantially the involvement of faculty members, community residents, and community leaders in the development of educational facilities, thereby failing to place planning in the context of total community needs.

To alleviate the problem of facilities planning and construction that is only partially representative of the total social, economic, and physical vitality of communities, it is recommended that "Educational Facility Charrettes" be initiated for the planning of new facilities. The "Charrette" is a technique for assessing, analyzing, and resolving educational expansion problems within the context of total community planning needs. Uniting persons who represent a cross-section of the community to study openly community problems in an intensive one or two week public forum is characteristic of this technique. Primary emphasis is given to the vocational education facility as the catalyst for revitalizing the total community. The principal purpose is to arrive at implementable plans and solutions to community problems in a compressed time period [9].

### Current Evaluation Procedures

#### Evaluation of Area Center Facilities

The State Plan for Vocational Education stipulated certain evaluation efforts that would be developed, implemented or continued during 1969-70. Of particular importance to the evaluation of area vocational facilities are the State Board standards contained in the document "Adult

Accreditation Standards for Area Voc-Tech Centers, Voc-Tech Schools, Voc-Tech and Adult High Schools in Florida."

While required accreditation for vocational-technical schools and adult high schools under the auspices of local school boards will be voluntary until September, 1971, subsequent to this date these vocational-technical schools and adult high schools will be required to complete the accreditation program described in the above document.

Although standards set forth in this document range from "over-all" standards in administration, personnel, instruction, school services, and plant and facilities to separate sets of specific standards for adult high schools and for area vocational-technical schools, only plant and facility standards will be discussed here.

Plant and facility standards are found under both over-all standards and as they specifically relate to the occupational offerings of area vocational-technical education centers. Being primarily input oriented, the over-all standards include evaluative criteria for the following: new buildings, utilization of rooms and spaces, school plant (safety to life), school plant (health and sanitation), school plant (educational requirements and environment), custodial services, maintenance service, and facilities for specific areas (student personnel and library).

For evaluation of area center facilities not associated with junior colleges, additional evaluative criteria for facilities are presented for the occupational educational offerings of: agriculture, business, distributive education, health occupations, home economics for occupational and employment in the home, and industrial and technical. Examples of criteria for facilities evaluation include minimum square footages, library resources area, various storage areas, furniture (student and teachers), reasonable proximity of off-campus shared facilities, appropriate materials and equipment, and environment conditions.

The document is valuable to the schools for several purposes including facilities study. As stated, "it is designed to accomplish three purposes, namely: (1) assist in school improvement, (2) measure compliance with a set of minimum criteria, and (3) provide information for leadership and administrative decisions."

The set of standards contained in this document are, as stated, primarily input oriented. Input standards, however, are not really the crux of performance assessment. Rather, output criteria is what is really needed to assess the performance of people, programs, and places.

#### Evaluation of Designated Departments of Junior Colleges

The division of VTAE of the Department of Education is a parallel administrative unit to the division of community colleges, and the philosophies of these two units as expressed by their operating procedures are not always harmonious. This situation is exemplified by the different strategies utilized in the evaluation of institutions (facility evaluation is one of several aspects of institutional evaluation). Junior colleges are evaluated by regional accreditation agencies while vocational institutions residing under the auspices of local boards are subject to state-wide criteria mandated by state board of education regulations (see previous section).

Neither the propriety nor efficacy of these strategies is the subject of question here. Rather, the coordination of evaluation by means of some set of related output criteria would appear to suggest a more logical basis for a comprehensive statewide evaluation of similar facilities.

Responsibility for Comprehensive Evaluations

Evaluation of vocational technical education facilities on a state-wide basis in terms of providing the requisite physical space and equipment to achieve the state goals of providing all citizens access to occupational education necessitates a comprehensive study of available facilities in both the public and private sectors, and from within and without the educational domain. The Select Council on Post-High School Education (SCOPE) report of March, 1969, conveys limited information on independent colleges and universities, selected industrial post-secondary educational programs, and other post-high school educational offerings by counties. While the intent of this report was not to specify in detail the facilities available at these private sector educational institutions, an inventory of these facilities when combined with the public facilities would provide a more real approximation of Florida's capabilities of providing vocational education.

As reported by the Chairman of the Special Vocational Education Subcommittee of the Florida House of Representatives, an Assistant Commissioner for Vocational Education has not yet been appointed. When this position is filled, it is suggested that responsibility for the total vocational education program in Florida be centered here. Contained in this responsibility should be the coordination and articulation between public agencies and their existing physical space and equipment available for vocational education in addition to an inventory of private enterprise space, equipment, capabilities and desired for vocational education training.

### Future Areas of Investigation

The areas of investigation and evaluation contained in the report on facilities are only a small aspect of that which will be required in order to effect a comprehensive evaluation of the vocational education facilities in Florida. In addition to a more detailed study of area centers, future evaluations will encompass the facilities of regular secondary schools, universities, and private schools. In a 1968 study the combined total of these listed institutions was placed at 632.

Specific concentration of studies and procedures to be included in future evaluations of facilities are as follows:

1. student surveys relative to the adequacy of vocational facilities;
2. assessment of employers needs and opinions relative to the adequacy and availability of vocational facilities;
3. evaluation of the physical condition and adequacy and availability of vocational facilities;
4. a detailed study of capital outlay funding methods;
5. the availability and accessibility of vocational education to select target population;
6. utilization studies of facilities relative to longer use than the normal school day and school year;
7. alternatives to on-site campus locations of facilities;
8. projected availability of facilities relative to projected demand by occupational classification;
9. sharing of private enterprise facilities relative to easing the demand on public facilities;
10. affects state legislation has had on vocational facilities.

TABLE 1  
AREA VOCATIONAL-TECHNICAL EDUCATION FACILITIES BUILT OR UNDER CONTRACT JUNE 30, 1969

County	Agricultural Education	Industrial Education	Home Ec. Education	Technical Education	Health Occupations Education	Business Education	Distributive Education	Total
Bay	-0-	4,476	1,702	-0-	1,998	3,484	1,494	1,494
Bradford-Union	3,860	9,104	-0-	1,373	-0-	2,720	1,150	18,207
Broward	-0-	24,035	6,440	-0-	4,955	5,724	-0-	41,154
Citrus	1,486	9,395	-0-	-0-	-0-	2,583	1,075	14,539
Collier	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Dade County	-0-	29,717	8,960	-0-	26,395	11,485	6,198	82,755
Escambia	1,633	29,967	-0-	-0-	896	6,536	1,430	40,462
Hillsborough	-0-	35,770	-0-	2,140	3,815	7,342	-0-	49,067
Lake	5,816	21,078	3,160	-0-	2,280	2,745	-0-	35,079
Lee	-0-	11,255	-0-	-0-	2,435	2,080	1,165	16,935
Leon	-0-	50,414	4,580	3,915	2,910	6,890	2,865	71,574
Manatee	5,580	41,039	3,005	-0-	5,813	4,608	-0-	60,045
Orange (Mid-Fla Tech)	3,564	53,654	2,421	3,843	-0-	5,451	945	69,878
Palm Beach	-0-	45,737	-0-	2,757	1,374	3,185	1,355	54,408
Pinellas	4,481	30,933	-0-	53,852	-0-	2,635	1,089	92,950
Polk	5,790	38,775	-0-	-0-	-0-	-0-	-0-	44,565
Sarasota	-0-	31,955	-0-	-0-	4,255	3,305	-0-	39,515
St. Johns	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Seminole	-0-	5,747	-0-	2,158	-0-	6,309	952	15,166
Suwannee-Hamilton	4,335	8,201	1,985	-0-	-0-	2,150	2,010	18,681
Taylor-Dixie	5,650	8,450	-0-	-0-	-0-	2,230	1,410	17,740
Washington-Holmes	4,701	14,545	-0-	-0-	-0-	1,148	1,366	21,760
<b>TOTALS</b>	<b>46,896</b>	<b>504,247</b>	<b>32,253</b>	<b>70,038</b>	<b>57,126</b>	<b>82,610</b>	<b>24,504</b>	<b>817,674</b>
<b>Net Assignable square feet</b>								

SOURCE: Analysis prepared by the State Department of Education, Division of VTAE, Tallahassee, Florida.

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## GOAL 4

### APPENDIX C

#### A COST/BENEFIT ANALYSIS OF ONE VOCATIONAL COURSE IN "A" COUNTY, FLORIDA

by

Arthur R. Fixel

"A" County, Florida, exemplifies perfectly the style of economy which flourished throughout the entire Old South until not too many years ago. The characteristics were: (1) large quantities of cheap land, (2) large quantities of cheap labor, (3) a paternalistic employer policy, (4) high transportation costs, (5) limited capital in other forms, and (6) limited educational facilities.

This economy existed because: (1) the land was available, (2) the labor was available, (3) the labor was uneducated, (4) transportation facilities were relatively poor and scarce, (5) capital was largely imported, often on a very capricious basis, and (6) education beyond the rudimentary stage was not the fashion; higher education stressed social rather than intellectual values [1]; there was under-education of both races [2].

In the modern South, except for a few cities, relatively cheap land still exists, transportation costs are still relatively high, and much capital is still important either from these cities or from other parts of the country. Educational facilities have been broadened and deepened, even in the most rural localities. But the large quantities of cheap and relatively competent labor have gone. Because there were no agricultural jobs for which they were trained or able to perform, and because paternalistic employers could no longer afford to take care of them, this labor has

moved to the cities to work in factories or to comprise the hard-core unemployed [3].

Until now, one exception has been "A" County, Florida, which has agricultural jobs. Production of the major crop is still largely a hand process of planting, cultivating, harvesting, curing, and grading. This has required an agricultural population and has absorbed the help of men, women, and children at peak harvest time. The population of "A" County is 45,000 [4] and as many as 15,000 have worked the major crop in peak harvest time, 4,400 of them throughout most of the year.

To quote from an unpublished paper:

It should be noted that in ["A"] County a major portion of the unemployed work in seasonal agriculture. . . . when the season starts in March or April . . . there are many jobs. . . . In ["A"] County agricultural employment consumes the most workers. These people form a large proportion of those who are living at the 'poverty' level of \$3,000 per year or below. These are the unskilled and for a large part the untransferrable because of their background. Without the major crop there would not be jobs for most of these employees, and results would be such as any traveler throughout the [rural] South can see; unoccupied farm dwellings whose inhabitants could no longer make a living from the land and are now inhabiting city slums [6].

In 1970, major crop production in "A" County has been reduced 40 per cent [7], and much unemployment will result. It is too late to help some of the agricultural workers, particularly the older ones, but vocational training for the rest and for the student population is more necessary now than before.

Table 1 shows population, labor force, unemployment and employment figures for March of 1965, 1966, 1967, 1968, and 1969. Reduction in agricultural labor (all of which substantially is in major crop farming) of 40 per cent also will bring about a substantial reduction in wholesale and retail trade because: (1) part of this group consists of warehouse processing workers all year round, (2) during the

TABLE 1

POPULATION LABOR FORCE, UNEMPLOYMENT AND EMPLOYMENT  
 FIGURES, "A" COUNTY, MARCH 1965 - 1969

Item	1965	1966	1967	1968	1969
1. Total Population	44,000	45,000	44,900	44,700	45,000
2. Civilian Labor Force	14,700	15,850	15,080	15,890	16,120
3. Total Unemployment	1,400	2,100	1,500	2,450	1,910
4. Total Employment	13,300	13,750	13,580	13,440	14,210
5. Non-Agricultural Employment	9,150	9,300	9,140	9,030	9,800
a. wage & salary workers	7,500	7,700	7,800	7,770	8,430
manufacturing	1,300	1,400	1,500	1,420	1,520
construction**	300	400	280	370	360
transportation and utilities	150	150	160	160	170
wholesale & retail trade*	1,550	1,450	1,500	1,480	1,940
finance, insurance, real estate	150	150	180	170	170
service	300	350	340	370	430
government**	3,600	3,650	3,720	3,800	3,840
other wage & salary	150	150	120	--	--
b. all other non-agricultural	1,650	1,600	1,340	1,260	1,370
6. Agricultural					
a. self-employed	500	500	480	450	450
b. wage & salary labor	3,650	3,950	3,960	3,960	3,960

\*Processing warehouse work is included here. In the fall some 50 per cent of agricultural employees transfer seasonally to this category.

\*\*The great bulk of employees in construction and government commute daily to jobs in other counties and are not included.

Source: Research and Statistics Department, Florida Industrial Commission, Tallahassee, Florida.

fall this number expands greatly when agricultural workers go into processing work, and (3) general level of trade drops as purchasing power of unemployed agricultural workers is subtracted from the economy.

The purpose of this paper is to discuss current vocational training in "A" County's "X" High School and to analyze costs and benefits of one course presently not available to the student population. To do this effectively, now that a brief examination has been made of a distressed portion of the economic structure, a look at the educational structure is indicated.

"A" County, like any in Florida, has a student population which, according to state law, remains until age sixteen [8]. Bills to raise this compulsory attendance to age eighteen are considered frequently by the Florida legislature. More recently, bills were passed by the United States Congress to lower the voting age to eighteen. These would seem to be complementary, placing on the school system the even greater responsibility of furnishing the economic and social bodies politic with well-trained, thinking citizens who can provide for themselves. There are obvious non-monetary as well as monetary benefits of education, but probably the real benefits of education are equal to the real costs of non-education [9] of those not educated.

According to a recent survey, "X" High School in "B" City is the most modern facility in the county. Enrollment March 10, 1970, was 99 boys and 94 girls in tenth grade, 96 boys and 75 girls in eleventh grade, and 58 boys and 47 girls in twelfth grade, a total of 469 [10]. The reason for the sharp twelfth grade decline is simple: integration is proceeding in the county, but since it was implemented on a large scale only in the 1969-70 school year, seniors were not required to move, and black seniors are not enrolled at "X" High School.

It was indicated in this survey that 60.1 per cent of "X" graduates go to college while in the remaining high schools in the county lesser percentages attend, ranging down to 21.4 per cent at "Y" High School [10]. Presumably, when all grades are integrated in "A" County, some of the present graduates at "T" school ("B" City) will be graduating from "X", reducing the percentage of graduates attending college.

It should be a reasonable objective of the school, therefore, to prepare the remainder of its graduates (and non-graduates as well) for the job world. In addition, many will need job skills to pay for their college education.

It might be fair to say that, except to one who plans to continue in school, a high school diploma does not have the importance it once had. Available statistics in Tallahassee, Florida, show that monetary benefits are almost non-existent to high school graduates--as opposed to non-graduates--in state jobs [11]. The State Personnel Board hires most state employees or establishes pay rates for them. Minimum wages are \$277 per month for most beginning classifications; this is comparable to the \$1.60 per hour federal minimum wage requirement. Some state job classifications require a high school diploma; but because it is a very real problem to find competent people who will begin at \$277 per month, in actuality possession of a diploma is waived provided the employee can pass qualifying tests [11].

In this geographic area high school graduation generally is not required for what usually is rather an informal apprenticeship in the skilled trades [12]. Apprenticeships, formal or informal, in trades such as plumbing, pipefitting, and automobile repair for boys, usually are more rigorous than anything offered at "X" High School. What should be accomplished in the school is sufficient

training in arithmetic, drafting, and the English language to allow an apprentice to learn and a journeyman to function [13]. What also could be accomplished in the high school is a foundation in a skilled craft and practice in that craft. Presently this foundation and practice must be done on the job because the courses do not exist at the school.

In many areas in Florida, high school students attend vocational-technical schools part time while earning a high school diploma [14]. Such enrollment of "X" High School students is almost invisible. The school will approve a student's attendance at another county's technical school, but the student must arrange his own transportation twenty miles to the school. The result is that at present only one student attends [13]. Unfortunately, from a population standpoint, "A" County does not qualify to have state help for its own vocational-technical center. And while present vocational offerings in "X" High School are a beginning, the need is even greater at other schools in "A" County where percentage of graduates going to college is lower, and vocational offerings are even poorer.

Vocational offerings to girls seem to be fairly adequate, however. Initially, girls are required to take one year of home economics, and some 90 sophomores, 80 juniors, and 55 seniors were enrolled for the 1969-70 school year. Additional courses in advanced home economics open and of interest to girls are: Personal, Social and Family Relations; Food and Nutrition; Clothing and Textiles; Family Economics; Child Development; and Housing and Home Furnishings.

Also offered are courses in typing, bookkeeping, shorthand, and business mathematics. New three-hour block courses in clerical skills cover bookkeeping, filing, typing, business English and the use of office machines.

Secretarial Vocational Office Education offers additional training in business machines, business English, filing and shorthand. All of these should enable the student to find a place in business [15].

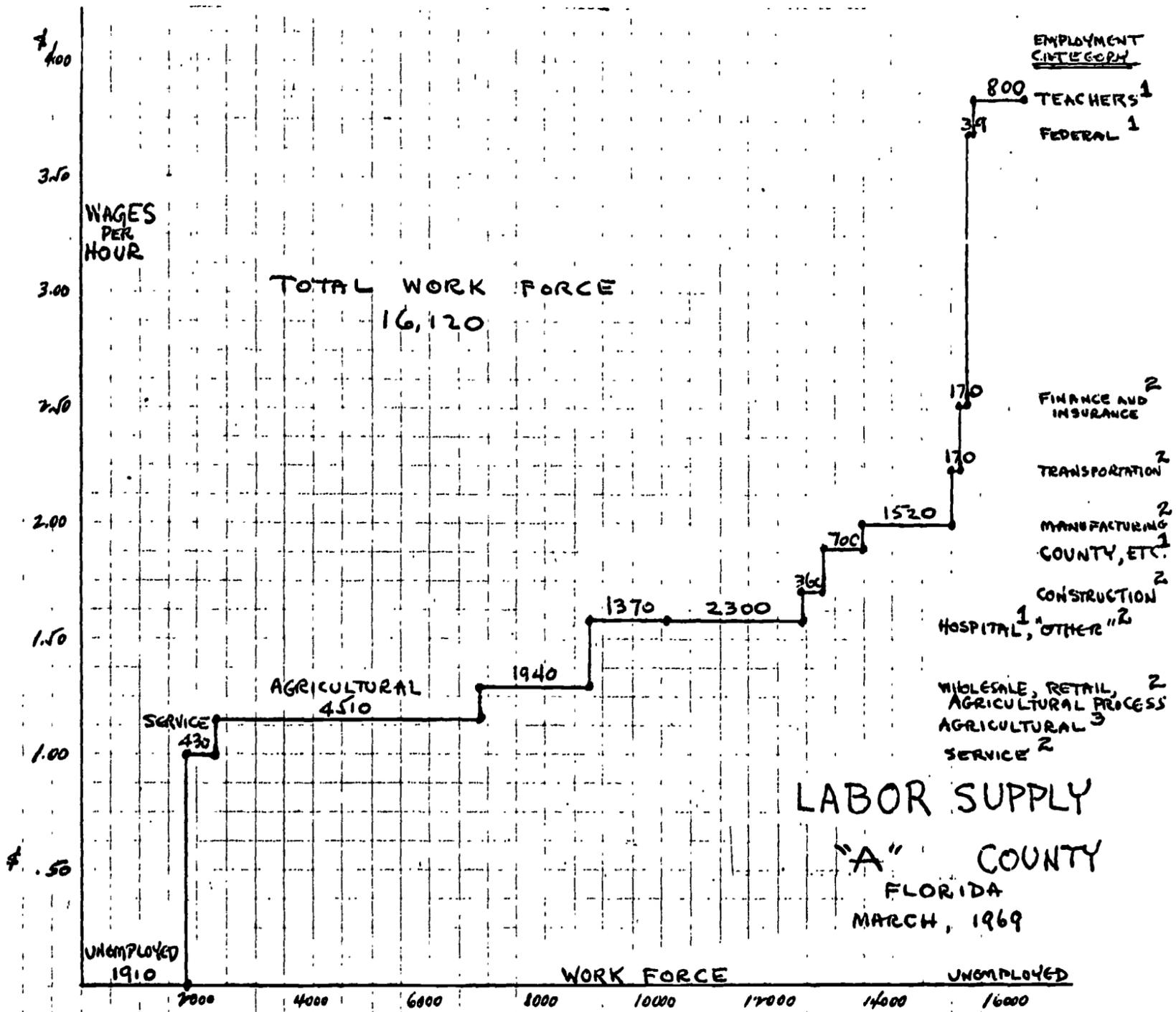
Less adequate offerings are made to boys, however. They may take courses in vocational agriculture--30 were enrolled in the 1969-70 school year--which offer instruction in plant and animal science, farm mechanics, and farm management. A shop program which can best be described as preparation for a vocational program is expanding. Course offerings at present are: General Shop I and II, Drafting I and II, and individual study in small engines. Total enrollment is 110, but 142 have applied for the 1970-71 year. Courses also are planned in electronics, electricity, small engine repair, and General Shop III [13].

There is little doubt that if general courses were offered in the eighth and ninth grades, more advanced courses could be offered at "X" High School. Additionally, if these courses were offered in the lower grades, boys might be motivated to learn reading and mathematics for, unfortunately, many of the male students are hindered by a lack of ability in these two areas [13].

An effective vocational program would direct students to industry and to vocational jobs. However, even if vocational offerings were more extensive, job opportunities in "A" County are limited, and will become more so, unless industries are attracted to the area. One attraction, of course, would be a supply of skilled vocational trainees. Meanwhile, job opportunities within commuting distance are unlimited [12]. Chart 1 shows a very rough labor supply curve for the area.

Some consideration should be given to additions to the vocational offerings at "X" High School, assuming that foundations to the offerings will consist of better programs

CHART 1  
LABOR SUPPLY CURVE FOR "A" COUNTY, FLORIDA



SOURCE: 1 BASIC LABOR MARKET INFORMATION, RESEARCH AND STATISTICS DEPARTMENT, FLORIDA INDUSTRIAL COMMISSION  
2 TOTAL HOURS, 1ST QTR 1969  
3 INDUSTRY SOURCE

in English and mathematics and a general shop program in the eighth and ninth grades. It is considered that "X" High School would need such a program least and, therefore, that all other schools in the district would benefit at an even greater rate than "X".

This paper deals with the analysis of one course in a vocational program called Vocational Cabinet Shop. The objective of this program is to provide a series of instruction in Vocational Cabinet Shop so that, upon completion of the series, a student would be ready to assume a job as an apprentice to a skilled cabinet maker at a pay scale of no less than \$2.25 per hour [12], and able, with a year's experience, to earn \$3.00 per hour in the construction industry twenty miles away. This objective is attainable.

The courses in this program should be four in number and should follow General Shop I, General Shop II, General Shop III, Drafting I, and Drafting II, which should be available and offered so that they can be completed in the tenth grade and serve as prerequisites to Vocational Cabinet Shop I. Other prerequisites to Vocational Cabinet Shop I must be a reasonable proficiency in arithmetic and in reading and writing the English language, this proficiency to be determined by tests designed by the instructor of Vocational Cabinet Shop I. During the years prior to enrollment in Vocational Cabinet Shop I, other members of the faculty should work with the instructor of this course and other vocational courses to prepare all students for such tests, so that students who need the courses most are not prepared the least.

This series of Vocational Cabinet Shop courses has been defined as a program; the program, prerequisites, and such remedial work as is required to make students eligible for the program shall be defined as a classification [16]. Within the program the next element is an activity which we

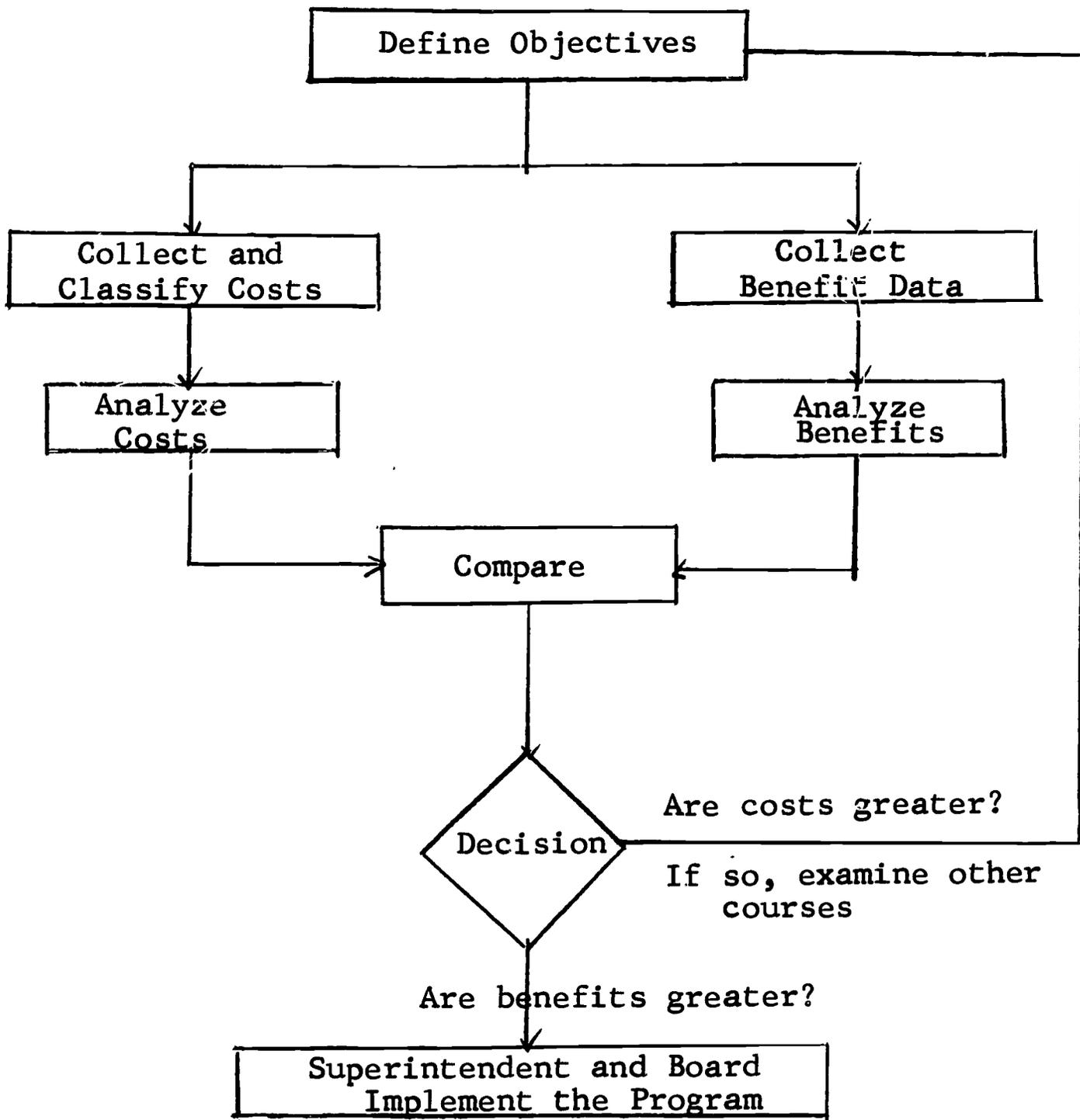


Figure 1.--Cost/Benefit Model of Vocational Course.

shall define as one course--Vocational Cabinet Shop I for twenty students. Elements of the activity shall be defined as portions of the course during which teaching is concentrated on the use of one tool (e.g., a table saw) and learning concentrated on practical use of that tool. The model would appear as shown in Figure 1.

Costs of an element can be calculated, but because the elements are so diverse in equipment costs and must be totaled in order to reach an activity cost, it seems wisest in this particular cost/benefit study to compute cost of what we have defined as an activity--Vocational Cabinet Shop I. Table 2 presents these activity costs; Table 3 presents itemized cost of equipment for this activity.

Costs would be changed by the remedial work required in English and arithmetic and by the number of those who drop out. For the latter contingency, explicit costs per student remaining would be proportionately higher except for cost items 3, 5, and 7, but income foregone would be the same per student regardless of how many remained.

The costs to the school and to the student for four such courses on this basis would then be \$76,388.07 [16]. Presumably, completion of this program would make the graduate eligible for a job at \$2.25 per hour. For one student this becomes \$3,819.40, or \$959.70 per course.

If there were too many variables, if the costs per student were to be changed whenever the number of students changed, if the course had a number of possible objectives which changed as the labor market in the area made rapid changes during the training period, then it would be necessary to use computer analysis to handle the calculations. Degrees of severity of the problem are outlined in Cost/Effectiveness Analysis of Vocational-Technical Programs [16].

Benefits of Vocational Cabinet Shop courses would include:

TABLE 2

## ACTIVITY (VOCATIONAL CABINET SHOP I) COSTS

Item	Cost
1. Building space 1500 square feet plus 10% for walls, etc.: 1650 x 16.40 [a] = \$27,060.00 20-year depreciation (high) at \$676.50 per semester. One-fifth of this figure could be used, assuming the other 4/5 for other classes [b].	\$ 135.30
2. Equipment cost--\$13,951.28 10-year depreciation per semester [c]	697.57
3. Maintenance cost--5% per year [d] or 2½% per semester	348.78
4. \$2,000 material beginning stock [d] depleted completely 5 years	200.00
5. Materials and supplies used per semester	500.00
6. Instructional salary estimated at \$7,000.00 1/5 each semester salary	700.00
7. Administration, overhead, auxiliary and fixed operating costs = 1/5 x \$1,399,687.08 x 20 students [e] 10,717 [f]	500.02
Explicit Costs Per Course (to the school)	\$3,081.67
Explicit Costs Per Course (per student)	154.08

Assuming that the student stayed in school because of this activity, then 100 per cent of his income is foregone. If part of his income is not foregone then this cost is reduced. This assumes a wage scale of \$1.30 per hour, which is appropriate in "A" County, Florida, for the untrained. Income foregone, then, for the entire class, equals 20 x \$1.30 x 8 hours x 80 work days - \$16,640.00 to the students, or \$832.00 per course per student.

TABLE 3

COST OF EQUIPMENT FOR ACTIVITY  
(VOCATIONAL CABINET SHOP I)

No.	Item	Cost Each*	Total
Power Tools			
2	Table Saw 10"	\$ 503.00	\$1,006.00
1	Radial Arm Saw 12"	353.00	353.00
1	Band Saw 20"	850.00	850.00
1	Lathe 6 x 36	635.00	635.00
1	Thickness Planer 24"	1,212.00	1,212.00
1	Thickness Planer 13"	800.00	800.00
1	Jointer 8" Long Bed	568.00	568.00
1	Drill Press	541.00	541.00
1	Mortising Machine	875.00	875.00
1	Bench Grinder	222.00	222.00
1	Shaper	500.00	500.00
1	Vacuum Cleaner	52.00	52.00
2	Belt Sander 3 x 24	109.95	219.90
2	Orbitan Sander	55.20	110.40
1	Router	157.77	157.77
2	Hand Drill 3/8"	45.43	90.86
1	Jig Saw	217.30	217.30
1	Sabre Saw	97.75	97.75
Hand Tools and Equipment			
1	Cabinet Shop Tool Cabinet	1,200.00	1,200.00
5	4-Vise Tables	200.00	200.00
1	Mitre Box Saw	75.00	75.00
	Drafting Tables and Tools		150.00
	Dust Collection System		1,000.00
	Glueing Tables and Clamps		250.00
	Racks, Tables, Miscellaneous		500.00
	Contingency 10%		1,268.30
TOTAL			\$13,951.28

\*Prices furnished by Teacher "C" from records or estimates.

1. Direct economic gains to the student;
2. Direct economic gains to society;
3. Greater flexibility for the student in job choice;
4. Option for the student to obtain further education;
5. Non-monetary returns to the student;
6. Non-monetary returns to society.

The current agricultural wage scale in "A" County for men is \$1.15 to \$1.30 per hour on the farm, and \$1.30 to \$1.40 per hour in the processing plants [7]. Current manufacturing wage scale in forty-three plants representing 992 workers varies from \$1.60 to \$3.37 per hour [17]. The lowest figure in cabinet work would be in the \$2.25 per hour range for trained personnel. But the crucial factors about "A" County agricultural and processing jobs are: (1) they do not exist fifty-two weeks a year, and (2) 40 per cent of the jobs do not exist at all for the 1970 crop.

Benefits in terms of anything beyond direct economic gain to the student and the society are large plus factors, but are not considered here. Benefits in terms of economic returns to the society are substantial, but are difficult to determine and beyond the scope of this study. Benefits in terms of economic returns to the student, however, are large in themselves.

Wage increment after completion of four courses in the Vocational Cabinet Shop Program would be \$.95 per hour (\$2.25 - \$1.30 - \$.95). Four courses would require 320 work days (320 x 8 x \$.95 = \$2,432.00 or \$1,824.00 per work year). If the base from which the increment rises is lowered by unemployment, the increment is greater. Fringe benefits add even more.

This represents an annual return to the student of \$1,824.00 at a cost of \$616.32 to the district and

\$3,328.00 in income foregone by the student. In less than two years the student would recover his income loss, and he would have subsequent additional income.

Economic returns to the district for its \$616.32 would include such items as retail sales and tax increments; reduction in the general expenses of city and county hospitals, law enforcement agencies, and welfare facilities; reduction in loan losses; as well as the emergency of a better educated, more productive citizen.

The benefits of the program are very considerable and actually will be equal to the cost of not making the program available [9]. "A" County will benefit from putting this program and programs like it into every secondary school in the county; the young people of "A" County will experience a rapid pay-off as a result of the school system's investment. The investment should be made.

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  - d. Telephone conversation with Dr. Ralph Gallington, The Florida State University Vocational Education Department, March 10, 1970.
  - e. 1969-70 Budget, ["A"] County School Board. Current operating expenses less total instruction series of 2200 accounts.
  - f. Average Daily Attendance, 1968-69, Florida Department of Education, Tallahassee, Florida.

## GOAL 4

### APPENDIX D

#### AN APPROACH TO COST ANALYSIS FOR FLORIDA VOCATIONAL TECHNICAL SCHOOLS

by

David Morris

Cost accounting in public education has been given great impetus in recent years. This impetus arises from the expanded public interest triggered by Sputnik and sustained by such issues as racial integration, teacher strikes, private education, and heavy competition for state and local tax dollars. Public education must meet attacks on its legitimacy at a time when even greater tax funds are desperately needed. The fate of school bond issues testifies to the current state of affairs. School administrators are besieged with questions from legislators, school board members, newspapers, and taxpayers about the cost of various programs.

It is difficult to provide answers to these cost questions promptly. Most of the nation's school districts use the United States Office of Education prescribed receipt and expenditure accounts. This system provides for budgeting and accounting on a mixed function and object basis. Functions used are administration, instruction, auxiliary services, operation of plant, maintenance of plant, fixed charges, debt service, and capital outlay. Objects within these categories include such items as salaries, expenses, contracted services, buildings, equipment, payment of bonds, etc. Costs associated with particular programs are, in fact, "lost" until an analysis is performed. Legal budgets in this form may be constructed from program budgets. If

this is the case, at least budget estimates are available in program form.

Vocational education is a particularly vexing problem in this regard since it tends to stand out in the public's eye from the "academic" program. The USOE system makes only one concession to an accounting differentiation for vocational education. It provides separate accounts for professional salaries of vocational personnel.

Vocational educators need cost data for their programs because course costs vary widely. The 1970 Florida Legislature passed a bill which will provide differential funding for vocational education courses. Cost data facilitates better decision making and is essential to budgeting. It is the basis for cost-benefit or cost effectiveness analysis. These tools are valuable in defending vocational education from charges of obsolescence or of being too expensive.

In his study of cost effectiveness, Richard H. P. Kraft takes note of the lack of cost data for vocational education:

It must be emphasized that vocational-technical area schools must begin keeping cost data and pertinent information which relates to productivity in education. The data should be kept at the school level. Only then can comparisons between alternative vocational-technical programs or courses become routine procedures. [1]

Program budgeting and the more inclusive Planning, Programming, Budgeting System (PPBS) are definitely on the horizon and will probably be adopted in some form by most of the state's school districts within the decade. The delay in instituting what is seemingly such a logical method results from several factors. First, the nation's educational statistics reporting system has not been revised for these concepts. This revision is currently underway. second, after the Office of Education releases its revised

system, time will be needed for educating the prospective users. The system will provide for implementation at several levels of complexity and decisions will have to be reached locally. Considerable additional administrative expense is involved. Third, additional personnel with special competencies and new equipment will be necessary.

While the necessary concepts and methodology generally are available, the time span from general acceptance to general implementation must be long under our system of shared responsibility for education.

The purpose of this project is to propose a relatively simple manual program cost system which can be implemented immediately as an adjunct to the regular accounting system of the school district. This supplementary system will meet the requirements of theory but not require additional personnel or equipment expense. For validation and illustrative purposes, one course at an area vocational technical center has been costed by the proposed system (see Appendix A). This center has provided the writer with the data needed for the illustrated case and otherwise served as a laboratory for the project.

### Program Structure

The purpose of a program approach to budgeting and accounting is to identify the use of resources in terms of objectives to be accomplished. Programs are the groupings of activities intended to accomplish the various objectives. "The program structure of a governmental entity is hierarchical and ranges from the program category at the top downward to the lowest discrete identifiable undertaking: subcategory, element, subelement, component, subcomponent, and task." [2] For purposes of this project, subject areas such as Adult General Education shall be designated

subcategories and courses such as Algebra I shall be designated elements. With this criteria, the following program structure was devised for the subject area vocational technical center:

### Instruction

- Adult General Education
  - Algebra I
  - Algebra II
  - American History
  - Basic Math
  - Data Processing Math
  - Reading
  - (31 additional courses not listed)
- Agriculture Education
  - (no courses currently offered)
- Distributive Education
  - Advertising
  - Business Psychology
  - Hotel and Motel Management
  - Real Estate Appraising
  - Sales Promotion
  - Waiter-Waitress Training
  - (30 additional courses not listed)
- Health Occupations
  - Nurse Aide
  - Practical Nursing
  - Ward Clerk
- Home Economics
  - Sewing
  - Day Child Care
- Industrial Education
  - Architectural Drafting
  - Automotive Mechanics
  - Cabinet Making
  - Electricity
  - Graphic Arts
  - (15 additional courses not listed)
- Office Occupations
  - Bookkeeping and Accounting
  - Business Law
  - Legal Secretary
  - Shorthand
  - Typewriting
  - (10 additional courses not listed)
- Technical Education
  - Data Processing

## Instructional Support

Library  
Guidance  
Placement Service and Follow-up Activities  
In Service Training

## General Support

Center Administration

Subelements are the standard Florida account classifications which are derived from the USOE system.

### Data Collection

Two documents have been designed for data collection: Form 1, Cost Summary (Exhibit 1), and Form 2, Capital Items Summary (Exhibit 2). Each of these forms is intended as an annual summary, although each could be used at anytime during the year as long as the depreciation amounts were multiplied by the fraction of the expired year.

Vocational technical school expenditures generally are handled by a combination of three methods. Salaries, matching retirement costs, employer paid insurance, utilities, maintenance, custodial costs, and similar items usually are paid through the district finance office without record creation by the vocational technical center. Equipment and supplies which are purchased through the district purchasing and finance offices are requested on a requisition or purchase order form. Internal funds derived from sales made by the school are a source of funds for the purchase of supplies, equipment, and equipment maintenance.

To determine the costs of a vocational program it is necessary to capture costs from these three channels. While different procedures are used in the various districts in which area vocational centers are located, the methods used in the illustrative costing generally may be applied.

Form 1 Vocational Technical School  
Cost Summary

Account Number	Course	Description	Internal Funds Expenditures	District Requisitions	Costs Handled Solely by Central Office	Explanation of Prorated Items
2216		Instruction Teachers salaries	\$ _____	\$ _____	\$ _____	
2216		Non-MFP salaries	_____	_____	_____	
2241		A-V Supplies - Consumable	_____	_____	_____	
2250		Teaching supplies	_____	_____	_____	
2260		Other Expenses	_____	_____	_____	
2310		Operation of Plant Salaries for Operation	_____	_____	_____	
2330		Heat and Cooling of Building	_____	_____	_____	
2340		Utilities except Heat & Cooling	_____	_____	_____	
2350		Supplies for Operation	_____	_____	_____	
2410		Maintenance of Plant Salaries for Maintenance	_____	_____	_____	
2420		Contracted Services	_____	_____	_____	
2430		Other expense for Maintenance	_____	_____	_____	
2661		Fixed Charges Contributions to Emp. Retirement	_____	_____	_____	
		*	_____	_____	_____	
		TOTALS	\$ _____	\$ _____	\$ _____	

TOTAL OF THREE SOURCES \$ \_\_\_\_\_  
DEPRECIATION OF EQUIPMENT AND BUILDING (From Form 2) \_\_\_\_\_  
TOTAL COST \$ \_\_\_\_\_

Student-contact hours (actual attendance) \_\_\_\_\_ divided by 810 equals \_\_\_\_\_ F.T.E.

F.T.E. divided into total cost equals \$ \_\_\_\_\_ per F.T.E.

\* Space provided for account not normally used

Form 1A

Vocational Technical School  
Cost Summary

Account Number	Description	Internal Funds Expenditures	District Requisitions	Costs Handled Solely by Central Office	Explanation of Prorated Items
<del>2213</del>	<u>Instruction</u> Principal's salary	\$ _____	\$ _____	\$ _____	
2214.1	Librarian's salary	_____	_____	_____	
2214.3	Guidance salary	_____	_____	_____	
2241	A-V Supplies - consumable	_____	_____	_____	
2242	Periodicals and newspapers	_____	_____	_____	
2243	Other library expense	_____	_____	_____	
2260	Other expense	_____	_____	_____	
2310	<u>Operation of Plant</u> Salaries for Operation	_____	_____	_____	
2330	Heat and Cooling of Building	_____	_____	_____	
2340	Utilities except Heat and Cooling	_____	_____	_____	
2350	Supplies for Operation	_____	_____	_____	
2410	<u>Maintenance of Plant</u> Salaries for Maintenance	_____	_____	_____	
2420	Contracted Services	_____	_____	_____	
2430	Other expense for Maintenance	_____	_____	_____	
2661	<u>Fixed Charges</u> Contributions to Emp. Retirement	_____	_____	_____	
*		_____	_____	_____	
	TOTALS	\$ _____	\$ _____	\$ _____	
	TOTAL OF THREE SOURCES			\$ _____	
	DEPRECIATION OF EQUIPMENT AND BUILDING (From Form 2)			_____	
	TOTAL COST			\$ _____	

### District Offices

#### Salaries, Matching Retirement, Other Benefits

This data must be obtained from the payroll office. If an employee serves in more than one element as shown on the Program Structure, these items should be prorated based on time devoted to each element.

#### Utilities, Heat and Cooling, Telephone

Payment of these types of items generally is assigned to one person in the district finance office. It may be advisable to set up a procedure for monthly accumulation of these expenditures since a district of any size will pay a large number of such invoices each month. Utilities should be prorated based on usage. In shops having a heavy concentration of equipment, it would be desirable to request an estimate of each shop's usage from the utility company. If equipment usage is negligible, utility bills may be prorated on a square footage basis. Heating and cooling costs may be prorated on a space basis. Telephone bills should be prorated on a usage basis.

#### Maintenance of Buildings

In some districts maintenance performed by the district's maintenance crews is costed out to each school. This makes the allocation of such costs relatively easy. In other districts, estimates of the work performed during the year are necessary.

### Requisitions and Purchase Orders

#### Supplies, Contractual Services, Equipment

If requisitions or purchase orders are issued by the

school, it is relatively easy to mark or file the school's copy by element. Requisitions or purchase orders should be marked with the invoice price after receipt of the goods.

### Internal Funds

Each school is required to keep a complete set of records of its internal funds. These records should be organized by program element.

### Conceptual Problem Areas

Three areas present severe cost comparison problems: teacher salaries, equipment costs, and building cost. Since teacher salary schedules are built on the factors of academic preparation, experience, and tenure in the district, two otherwise identical courses could vary in cost by up to \$3,000 annually. Kraft met this problem in his cost effectiveness project by using an average of the salary range. In a cost analysis, the actual salaries should be included and the user of the data must be aware of this variable.

The equipment used in auto mechanics could vary greatly in quantity, quality, and condition. If the shop equipment is ignored in the cost analysis, an important dimension is lost. If new equipment is entirely charged to a course in one year, the cost analysis is distorted. Depreciation is a necessary costing procedure. Straight-line depreciation is a simple method commonly in use; however, it is too cumbersome for extensive cost analysis. Composite depreciation provides for the calculation of a depreciation rate, which is applied to the changing total of depreciable items in following years. The Internal Revenue Service describes this method as follows:

In the case of classified or composite accounts, the classified or composite rate generally is computed by

determining the amount of one year's depreciation for each item or each group of similar items, and by dividing the total depreciation thus obtained by the total cost or other basis of the assets. The average rate so obtained is to be used as long as subsequent additions, retirements, or replacements do not substantially alter the relative proportion of different types of assets in the account. [3]

According to the Accountants' Handbook, "A composite rate is one based on the average life of a number of assets." [4] This method is used to avoid computing depreciation on a large number of individual items. Its principal drawback for commercial application is that it precludes determination of gain or loss on retirement of an item. This is of no consequence in a governmental setting.

Form 2 provides the framework for setting up a depreciation rate for each shop. The rate established is then applied to the value of the equipment inventory each year after adding current year acquisitions and subtracting current year retirements (retirements are only those items which are taken off the inventory records). For the purpose of comparability only four expected lifetimes will be recognized for depreciation purposes: three, six, nine, and twelve years. A guide to appropriate equipment lifetimes of standard auto mechanics equipment is provided (Exhibit 4). It is necessary to determine the acquisition cost of all items in each of the four lifetime classifications.

Depreciation of buildings can be accomplished by applying the straight-line method to the cost of the portion of a building used by an element. Those wishing to make comparisons must again be wary of the variables involved. Equal function may be obtained from buildings varying greatly in cost. The recently constructed area vocational schools show considerable variation in the size of auto mechanics space. Two teacher suites vary from 5,422 to 7,182 square feet. One teacher suite varies from 3,497 to 5,316 square feet. [5]

Form 2 outlines the computation of straight-line depreciation of building space. The same amount would be used each year until the building is completely depreciated unless additions, renovation, or remodeling occurs. These actions will increase the cost base and may increase the expected life of the building. In such event, it is necessary to recompute depreciation by dividing the remaining years into the sum of the undepreciated amount of the original cost plus the amount currently expended on the building.

#### Instructional and General Support

Form 1A (Exhibit 3) is a modification of Form 1 which substitutes accounts more likely to be used in Instructional Support and General Support activities. All costs of an area vocational technical center can be accounted for on Forms 1, 1A, and 2. Worksheets should be prepared if extensive prorations of operating costs are necessary.

#### Unit Analysis

The differential funding bill passed by the Legislature calls for cost variations to be expressed in terms of specified full-time equivalent students. A full-time equivalent student, according to the bill, is to be defined as not less than 810 student contact hours. In other words, a ten per cent absence rate in a 900 hour course.

In many vocational education courses attendance is not comparable to the general academic program. Students may be beyond the compulsory attendance age, many will already be employed, and arbitrary class completion dates will not be applicable to all students.

Form 1 provides for the computation of cost per full-time equivalent student. To provide the basic

VOCATIONAL TECHNICAL SCHOOL  
CAPITAL ITEMS SUMMARY

COURSE \_\_\_\_\_

EQUIPMENT

A. Basic Computation to Determine Annual Depreciation Rate. Composite Depreciation Method.

Inventory value at date of first costing (Date \_\_\_\_\_) \$ \_\_\_\_\_ \*

	Column 1	Column 2	Column 3
Equipment	Years of Expected Life	Cost	Depreciation Per Year
Class A	3	\$ _____	\$ _____
Class B	6		
Class C	9		
Class D	12		
Totals		\$ _____ *	\$ _____

Annual rate determined by dividing Column 3 total by Column 2 total.

B. Application of annual rate computed in A. above.

	Previous Year's Inventory Amt.	Less Current Year Retirements *	Plus Current Year Acquisitions	Current Year Depreciable Equip.	Multiply By Annual Rate %	Current Year's Depreciation
19__	\$ _____	\$ _____	\$ _____	\$ _____	%	\$ _____
19__	\$ _____	\$ _____	\$ _____	\$ _____	%	\$ _____
19__	\$ _____	\$ _____	\$ _____	\$ _____	%	\$ _____
19__	\$ _____	\$ _____	\$ _____	\$ _____	%	\$ _____
19__	\$ _____	\$ _____	\$ _____	\$ _____	%	\$ _____

The same amount should appear at the three spaces marked by astericks.

BUILDINGS

1. Cost of Building \$ \_\_\_\_\_
2. Expected Life of Building (from year built) \_\_\_\_\_
3. Annual Depreciation (1 divided by 2) \_\_\_\_\_
4. Total Square Feet of Building Area \_\_\_\_\_
5. Square Feet Devoted to This Course \_\_\_\_\_
6. Fraction of Building Devoted to This Course \_\_\_\_\_
7. Amount of Annual Depreciation Charged to This Course (2 multiplied by 6) \$ \_\_\_\_\_

attendance data for this computation, an hourly class attendance record such as that shown in Exhibit 5 must be maintained accurately.

### Summary

The procedures described and the forms presented provide a means to direct cost analysis for vocational technical schools. While these are admittedly crude, stop-gap tools, results can be obtained if a school's administration takes the extra effort necessary. More sophisticated methods are years away for most of our school districts.

## ANNEX A

The following completed forms illustrate the application of the suggested cost analysis to the auto mechanics course of an area vocational technical center. As indicated on Form 1, data were secured from review of the internal funds records, purchase order files were analyzed, and data were obtained from attendance records.

These efforts, however, did not result in an actual cost analysis. Two important factors were not measured. Utilities are supplied through a combined billing to two schools on adjoining campuses. Rather than request an electrical engineering survey, an estimate based on billings for an auto mechanics course at another school was used. More importantly, fictitious amounts were inserted in the depreciation computation, since these amounts are not currently available. A physical inventory is scheduled and this data will soon be ready.

Although the completed forms are not valid for the stated reasons, the data gathering exercise verified the approach suggested.

VOCATIONAL TECHNICAL SCHOOL  
CAPITAL ITEMS SUMMARY

COURSE AUTO MECHANICS

EQUIPMENT

A. Basic Computation to Determine Annual Depreciation Rate. Composite Depreciation Method.

Inventory value at date of first costing (Date 6-30-69) \$ 30,000.00 \*

	Column 1	Column 2	Column 3
Equipment	Years of Expected Life	Cost	Depreciation Per Year
Class A	3	\$ 9,000.00	\$ 3,000.00
Class B	6	3,000.00	500.00
Class C	9	6,000.00	666.67
Class D	12	12,000.00	1,000.00
Totals		\$30,000.00 *	\$ 5,166.67

Annual rate determined by dividing Column 3 total by Column 2 total.

B. Application of annual rate computed in A. above.

	Previous Year's Inventory Amt.	Less Current Year Retirements	Plus Current Year Acquisitions	Current Year Depreciable Equip.	Multiply By Annual Rate	Current Year's Depreciation
1969-70	\$ 30,000.00 *	\$ 500.00	\$ 1,000.00	\$ 30,500.00	17.22%	\$ 5,252.10
19						
19						
19						
19						

The same amount should appear at the three spaces marked by astericks.

BUILDINGS

1. Cost of Building	\$ 336,796
2. Expected Life of Building (from year built)	50
3. Annual Depreciation (1 divided by 2)	6,736
4. Total Square Feet of Building Area	25,800
5. Square Feet Devoted to This Course	8,764
6. Fraction of Building Devoted to This Course	34%
7. Amount of Annual Depreciation Charged to This Course (2 multiplied by 6)	\$ 2,290

Form 1  
Vocational Technical School  
Cost Summary

Course	AUTO MECHANICS	Account Number	Description	Internal Funds Expenditures	District Requisitions	Costs Handled Solely by Central Office	Explanation of Prorated Items
2216		152 2216	Teachers salaries	\$	\$	\$ 11,876.06	
2241			Non-MFP salaries				
2250			A-V Supplies - Consumable				
2260			Teaching supplies	428.20	382.40		
2310			Other Expenses			938.00	Custodial salary, Building C, \$2,760 Auto mechanics shop is 34% of space
2330			Operation of Plant				
2340			Salaries for Operation			611.00	Several schools on same meter, did not obtain estimate, used actual cost at another auto shop
2350			Heat and Cooling of Building				
2410			Utilities except Heat & Cooling				
2420			Supplies for Operation				
2430			Maintenance of Plant				
2661			Salaries for Maintenance		6.25		
			Contracted Services		27.13		
			Other expense for Maintenance	9.27			
			Fixed Charges			825.05	Instructors, \$742.47; Custodian, \$82.58
			Contributions to Emp. Retirement				
			*				
			TOTALS	\$ 437.47	\$ 415.78	\$ 14,250.11	
			TOTAL OF THREE SOURCES			\$ 15,103.36	
			DEPRECIATION OF EQUIPMENT AND BUILDING (From Form 2)			7,542.10	
			TOTAL COST			\$ 22,645.46	

Student-contact hours (actual attendance) 19,501 divided by 810 equals 24 F.T.E.

F.T.E. divided into total cost equals \$ 943.56 per F.T.E.

\* Space provided for account not normally used

ANNEX C

GUIDE TO APPROPRIATE EQUIPMENT LIFETIMES

Suggested List of Machines

No.	Description	Est. Cost	Est. Yrs. of Use
1	Aligning station, front end, complete	\$3,250.00	12
1	Aiming machine, head light*	17.50	6
1	Lathe, for turning starter and generator armatures*	120.00	12
1	Compressor, air, 5 h.p., 26 cu. ft. displacement capacity, operating pressure 150 psi.	985.00	12
1	Arbor Press, hydraulic, 25-ton cap.*	325.00	12
2	Chargers, battery, selenium rectifier type, complete with automatic charge control*	390.00	
1	Grinder, brake lining	255.00	12
1	Lathe, brake drum, with brake drum micrometer*	875.00	12
1	Relining machine, brake, complete with combination reviter and grinder*	200.00	12
1	Drill press, chuck capacity 1/2"*	450.00	12
1	Honing machine, electric, complete with attachments for honing up to 25/8" I.D. hone*	1,129.00	12
2	Meters, generator and regulator testing*	240.00	3
1	Lathe, bench type, 9" swing, back geared with 1/2 h.p. motor*	550.00	12
1	Distributor tester, portable type complete for static and dynamic tests*	735.00	6
1	Tester, motor analyzer, complete with accessories*	1,360.00	6
1	Cleaner and tester, spark plug	67.00	6
1	Refacer, valve, complete	537.00	12
1	Grinder, valve seat, complete*	247.00	12
7	Benches, work-metal 6' x 30"	630.00	12

No.	Description	Cost	Use
1	Dispenser, hydraulic brake fluid, with controls for pressurizing system*	60.00	6
1	Charging station, complete with pump for charging air conditioners*	198.00	6
1	Jig, aligning, connecting rod	150.00	12
1	Bonder and remover, brake lining	42.00	12
1	Welding unit, oxyacetylene, complete with hand truck, pressure regulators 25' of hose, welding torch and 8 tips, cutting attachment, welding goggles, and igniter*	175.00	3
4	Extinguisher, fire, approved by local code	200.00	12
2	Cabinets, steel, 36" x 18" x 72"	300.00	12
10	Lockers, personnel, steel, double compartment, 6' high, 18" deep, 2' long	400.00	12
1	Hoists, chain, 3-ton capacity, complete with overhead monorail system	370.00	12
1	Cleaner, steam	584.00	6
1	Degreaser, complete with drum, filter, and circulating pump	240.00	9
4	Jacks, hydraulic, floor	740.00	3
1	Jack, transmission, mechanical	185.00	6
1	Ammeter, 30 ampere capacity, fused to protect movement*	22.00	3
12	Voltmeters, 16-volt scale, fused to protect movement*	22.00	3
12	Stands, automobile, 2-ton capacity*	180.00	6
2	Stands, engine rebuilding, supported to swing through 360° *	240.00	12
1	Tester, coil and capacitor*	130.00	3
2	Indicators, dial	45.00	3
1	Gauge, compression	15.00	6
1	Dispenser, chassis grease*	185.00	6
1	Dispenser, differential grease*	75.00	6
1	Desk, instructor's 30" x 60" top, 5 drawers	120.00	12
2	Cabinets, file, 4-drawer, legal size	140.00	12
1	Chair, office	60.00	12
1	Table, demonstration 30" x 62" top	60.00	12
20	Chairs, folding tablet arm	280.00	12

No.	Description	Cost	Use
1	Projector, motion picture, 16mm. sound	280.00	9
1	Projector, still, for slides	135.00	9
1	Projector, overhead	120.00	9
1	Screen, movie, 6' x 8' size	56.00	6
1	Stand, tripod, for showing charts	27.00	6
20	Chests, mechanics', 6-drawer, with top opening	700.00	12
20	Cabinets, roller, with 3 drawers and storage compartment heavy duty casters, cylinder lock	900.00	12

---

Suggested List of Tools (Inventory Items)

---

Leak detector	6
Voltmeters	3
Pullers, bearing and gear	6
Tool kit, carburetor	6
Tap and die set	6
Gauge, brake shoe and drum	6
Micrometer	12
Metric wrench set	3
Drills, portable, electric, $\frac{1}{4}$ "*	3
Drills, portable, electric, $\frac{1}{2}$ "*	6
Lights, timing	3
Individual hand tool sets (to be checked out)	3

---

\*Portable machines.

Lifetime estimates provided by Equipment Consultant, MOT, Florida Department of Education. Equipment list adapted from Automotive Mechanic, Entry, A Suggested Guide for a Training Course, Manpower Development and Training Program, Office of Education, HEW.



## REFERENCES

1. Kraft, Richard H. P. Cost/Effectiveness Analysis of Vocational Technical Education Programs. Tallahassee, Florida: Florida Department of Education, 1969.
2. Crowe, Eugene B., and Delmas D. Ray. "Planning-Programming-Budgeting System." Economic Leaflets, XXVII (May, 1969).
3. U.S., Treasury Department, Internal Revenue Service Publication 311, Regulations Relating to Depreciation, Treasury Decision No. 6182, Internal Revenue Code of 1954, p. 13 (also see Publication 534, Depreciation, Investment Credit Amortization, Depletion, 1969).
4. Wixon, Rufus. Ed. Accountants' Handbook. Fourth Edition. New York: Ronald Press, 1961.
5. Data supplied by the Florida Department of Education, Division of Vocational Education.

GOAL 5

To evaluate the employment opportunities within the State and the vocational education services provided to meet those opportunities.

APPENDIX A.	Regional and Area Manpower Needs and Vocational Education . . . . .	262
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REGIONAL AND AREA MANPOWER NEEDS  
AND VOCATIONAL EDUCATION

by

Richard H. P. Kraft

Relating regional and area manpower needs and vocational education requires an investigation in depth into current educational and economic thought. Following is a treatment of manpower needs as they exist in the United States and an intensive appraisal of economics and vocational education in Florida.

The Occupational Education Equation

Normally, the educator states educational objectives in terms of the individuals served. The occupational education equation, shown in Figure 1, takes a different perspective and states the objective in terms of an expanding national economy. Briefly stated, if we regard the three processes by which occupational skills are developed as a total system, then the primary objective of the system is to convert undeveloped manpower resources to skilled manpower resources in both number and kind so that there is a balance between output and the skilled manpower requirements in the region served. The objective is an ideal one. In practice, it will never be realized perfectly. It would mean that for every person with a newly developed occupational skill, there would be an available job, and for every available job requiring such a person, there would be a qualified applicant.

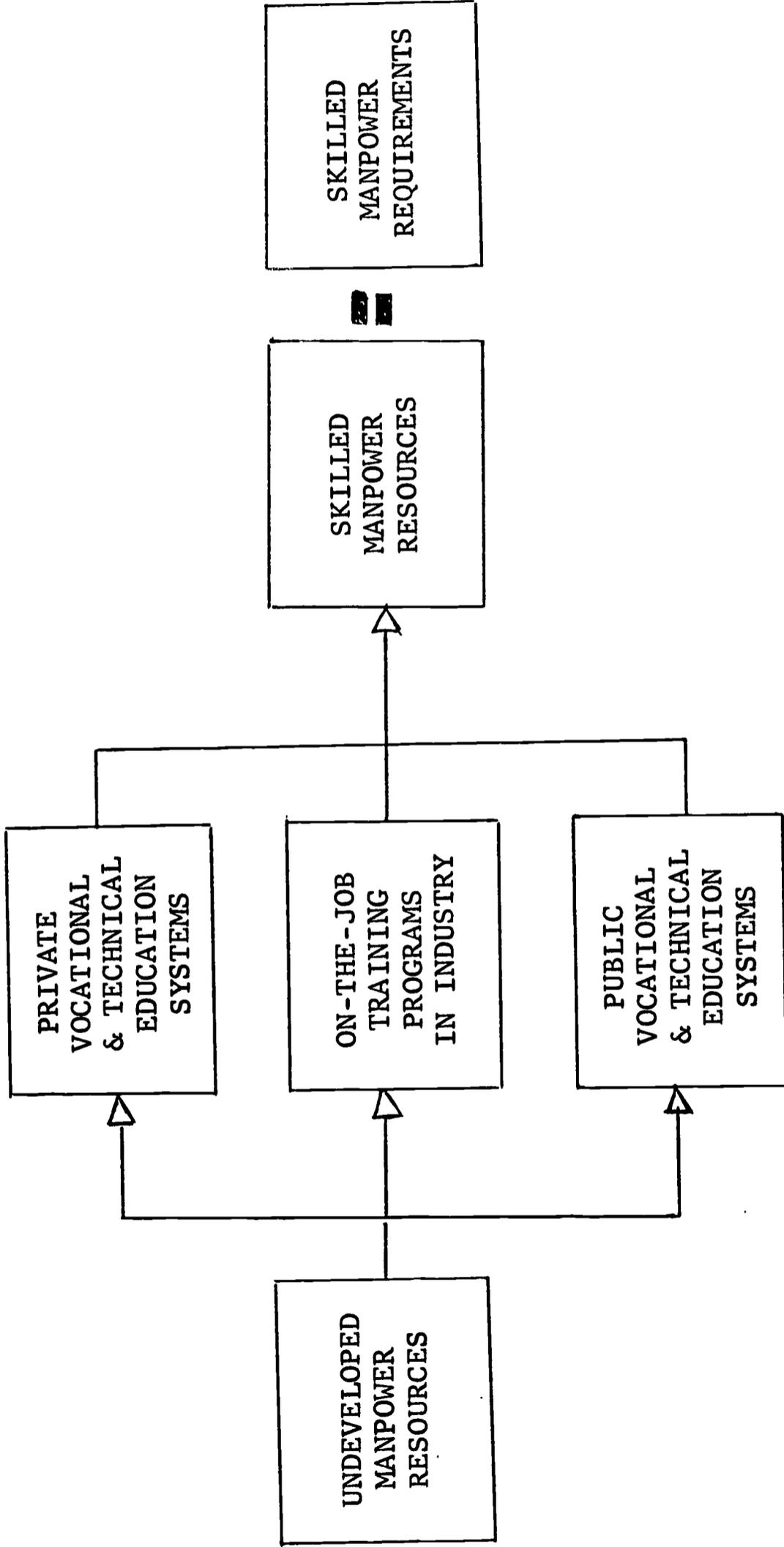


Figure 1.--The Vocational Education and Training Equation

The primary objective of the collective system is to convert undeveloped manpower resources in sufficient quantity and kind so that the output will be in balance with the skilled manpower requirements of the expanding economy.

In an expanding economy, where the growth emphasis is on skilled manpower resources, there are three major sources of ineffectiveness in the system diagrammed in Figure 1. These are:

1. the failure to increase the numbers of undeveloped manpower resources enrolled in the public and private occupational skill development programs to match the increased numbers of required skilled manpower. If there is no input growth, there can be no output growth of a sustained nature. Not only will the economy suffer the consequences, but so will the individuals who remain in the status of undeveloped or underdeveloped manpower resource.

2. the possibility of low holding power. The more individuals who leave such programs as dropouts rather than completers, the less likely will the system meet the skilled manpower requirements, and the more ineffective and inefficient will be the system. Moreover, unless they get back into the system for another try, the dropouts will remain a costly core of undeveloped or underdeveloped manpower resource, the first to fall prey to economic downturns or technological change.

3. the problem of not placing graduates into the fields for which trained. The greater the percentage of graduates who fail to enter the occupational field for which trained, the more ineffective and inefficient is the system. This is detrimental to the economy requirements for skilled manpower, and it is also detrimental to the individual. Recent evidence shows that those who enter the field for which trained experience higher earnings, greater job satisfaction, greater employment security, and greater earnings increases. Thus, maximum placement of graduates works to the advantage of individuals as well as the economy.

To summarize, three major objectives of public occupational education must be:

1. Expanded enrollments to meet the expanding needs for skilled manpower.
2. Continual improvement in holding power to control output of skilled manpower.
3. Continuous improvement in placement of graduates into the occupational field studied.

### Manpower Needs On A National Scale

Business and industry will undergo unprecedented growth in almost all areas of manufacturing and technology. Data from the Bureau of Statistics, U.S. Government of Labor, predict increases in various manufacturing and service areas including chemical, rubber, plastics, electric power, instruments, and electrical appliances.

### Resident Labor Force

The resident labor force of the United States is expected to increase by fifteen million persons through 1970, and again by a similar amount from 1970 to 1980, rising to just over one hundred million by 1980. This projected growth will vary considerably by geographic location. Regional variations are attributable in large part to the expected continuation of differences in economic opportunity which affect the flow of population.

### The Present Decade

Between 1960 and 1970, the U.S. labor force is expected to grow by 22 per cent from 69.9 million to 85.3 million. This increase of 15.4 million persons is very likely to be unevenly distributed both by region and age for two reasons: (1) the continuation of past economic advantages of some regions, and (2) the rapid increase in the number of young persons of working age.

### Future Decades

Figure 4 illustrates the projected increase in the population and work force through 1980 for the U.S. An examination of the labor force figures for the 14-24 years age group shows an overall increase of 66.0 per cent through 1970, and an increase of 18.6 per cent through 1980. This represents an increase from 12,009,000 in 1960 to 23,652,000 persons in 1980 for the resident labor force. This substantiates earlier reported predictions by the Department of Labor.

The non-white labor force increase probably is the most impressive on this table. In the 14-24 age group we see an increase from 1,311,000 in 1960 to 3,335,000 in 1980, an average increase of 77 per cent per decade.

Thousands of young workers will be entering the labor force over the next twelve years. Will any of these youngsters have the same opportunities for employment? It is not likely. Academic achievement and skill training will be prerequisites needed to secure employment in the booming seventies.

### Growth Potential

A recent Bureau of Labor Statistics report, "America's Industrial Manpower Requirements, 1964-1965," disclosed that manpower requirements in manufacture, support, and technical services are expected to increase by more than 75 per cent over the 1963-1965 period, rising from 845,000 technicians employed in 1963 to nearly 1,500,000 required in 1975 (see Figure 7). This projection is based on several assumptions, namely, high levels of economic growth, a continuation of scientific and technological advances, continued increases in the complexity of industrial products and processes, and an increased growth of research and development expenditures.

<u>AGE GROUP:</u>	<u>15-19</u>	<u>20-24</u>	<u>24-34</u>	<u>35-44</u>	<u>45-54</u>
1965	16.9	13.6	22.3	24.5	22.1
1966	18.9	17.1	25.2	22.9	23.4
1975	20.5	19.1	31.1	22.5	23.5
<u>Percent of Change:</u>	+21%	+40%	+40%	-9%	+7%

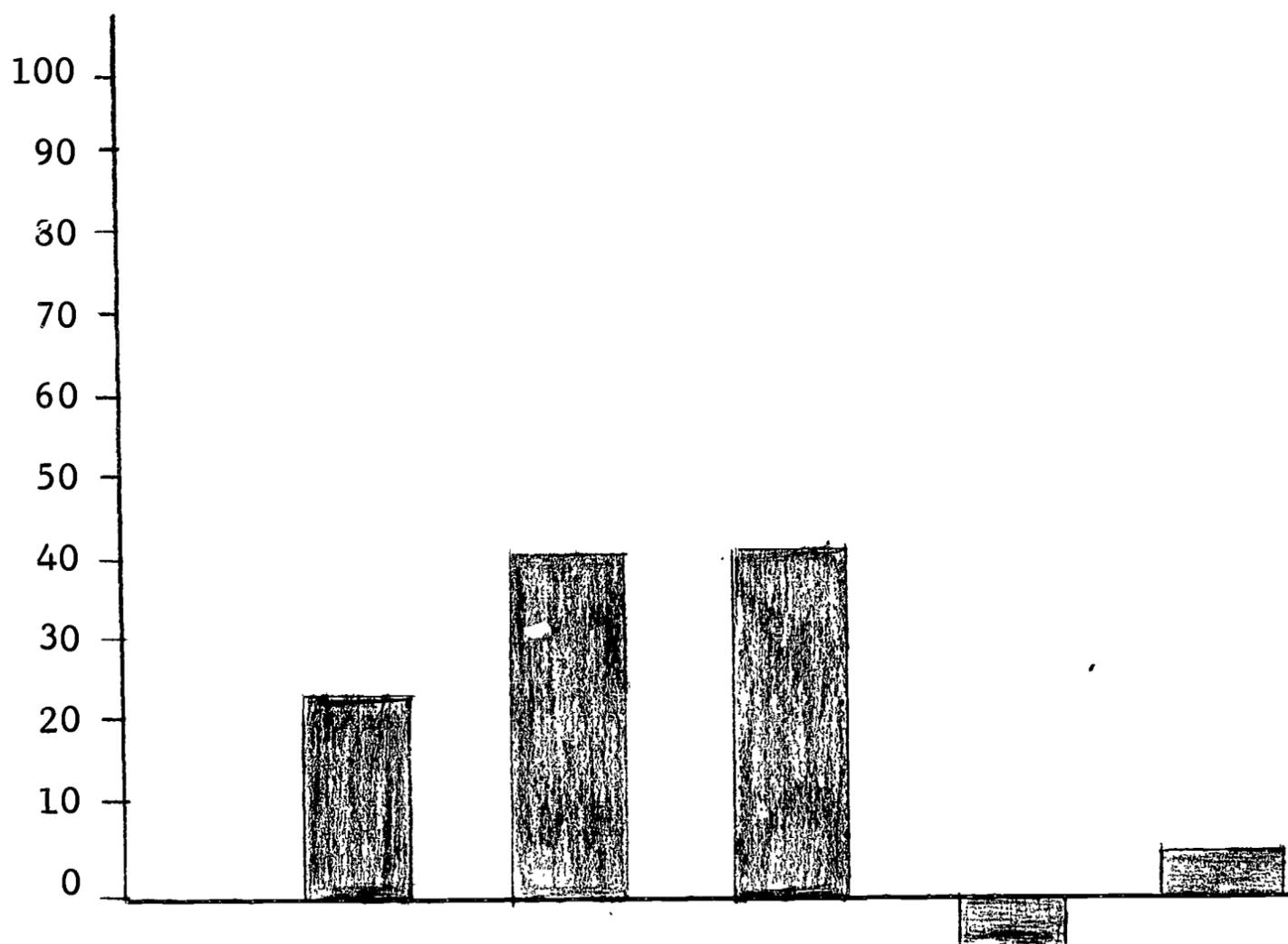


Figure 2.--Population Projection to 1975.

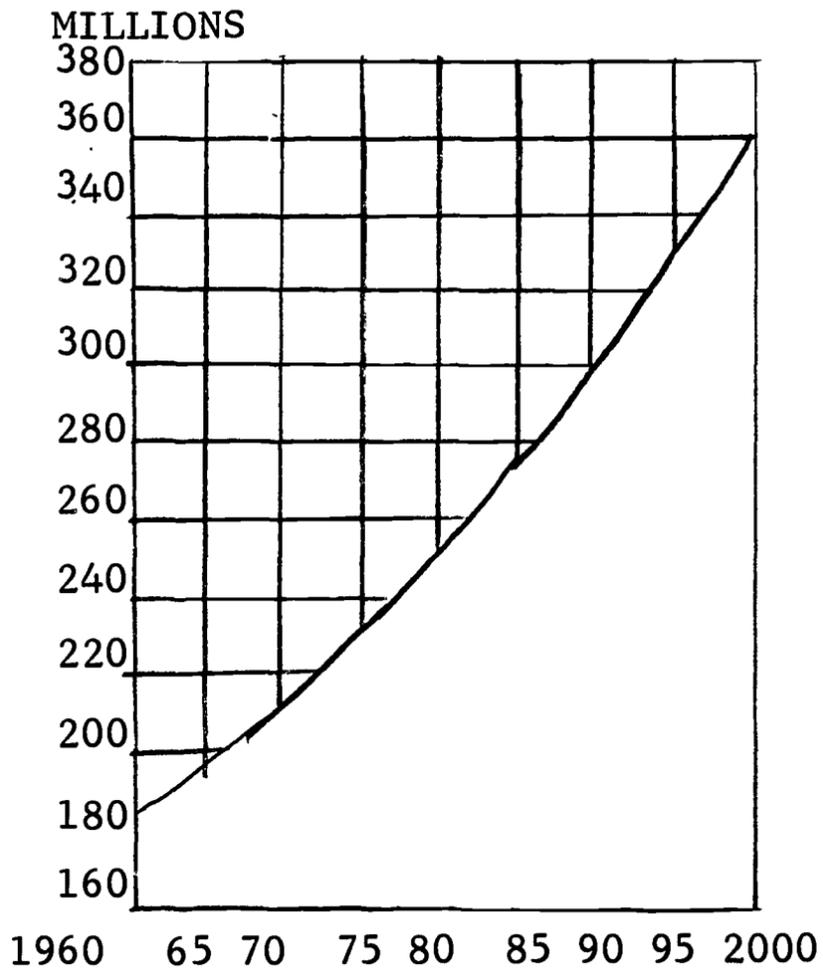


Figure 3.--Population Projections to 2000

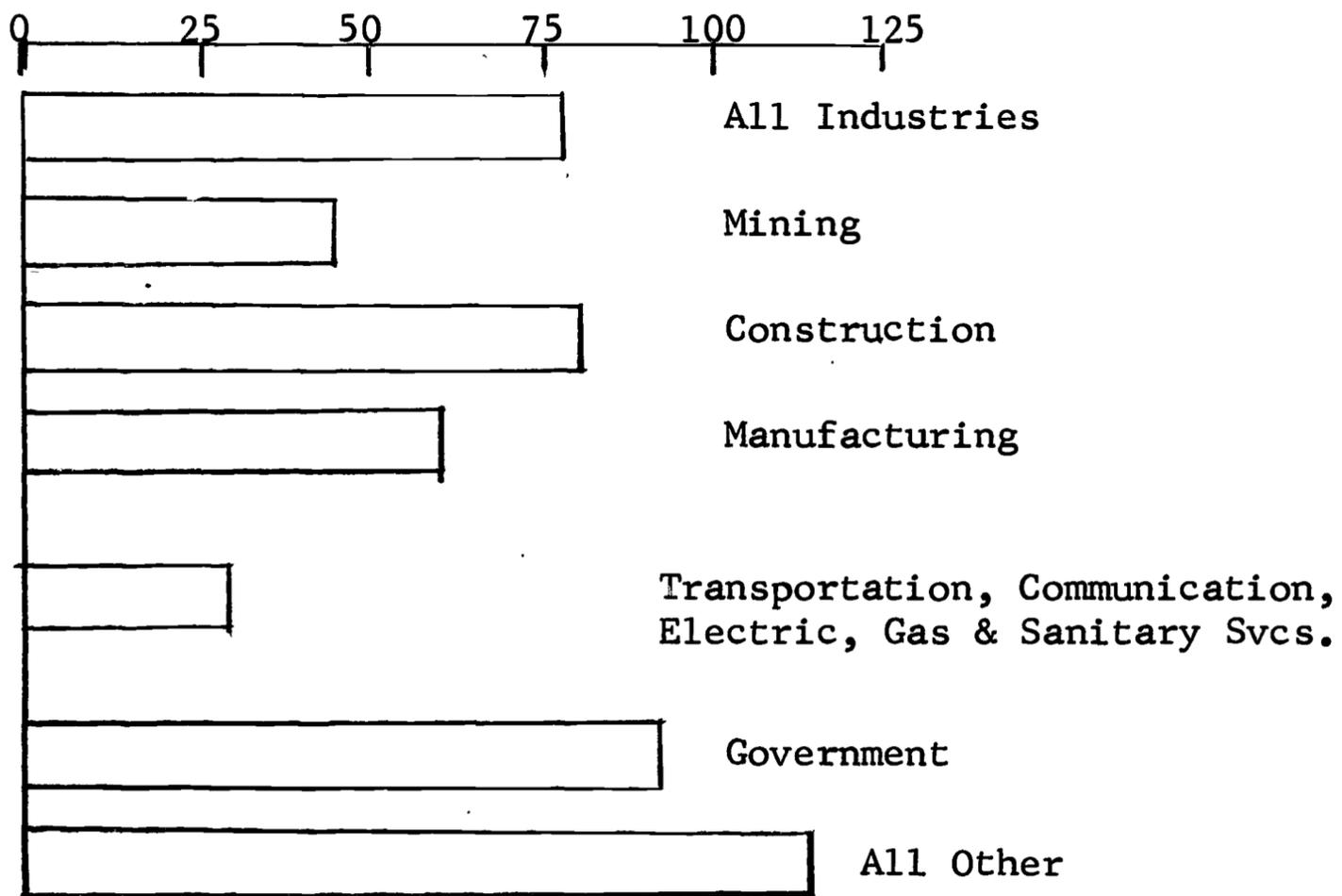


Figure 4.--Estimated Percent Increase in Requirements for Technicians by Broad Industry Groups, 1963-75

TABLE 1

LABOR FORCE (EXCLUDING ARMED FORCES OVERSEAS) BY AGE AND  
COLOR, UNITED STATES, 1960 AND PROJECTED 1970 & 1980

Color and Age	Labor Force <sup>a</sup>			Percent Change	
	1960 <sup>b</sup>	1970	1980	1960-70	1970-80
All Classes Total, United States					
14 Yrs. and over	69,877	85,257	100,670	22.0	18.1
14 to 24 years	12,009	19,934	23,652	66.0	18.6
25 to 24 years	45,573	50,472	60,062	10.7	19.0
55 Yrs. and over	12,295	14,582	16,956	20.8	14.2
Nonwhite Total, United States					
14 Yrs. and over	7,399	9,671	12,219	30.7	26.3
14 to 24 years	1,311	2,493	3,335	90.2	33.8
25 to 54 years	5,008	5,837	7,337	16.6	25.7
55 years and over	1,080	1,341	1,547	24.2	15.4

<sup>a</sup>Annual average.

<sup>b</sup>April

TABLE 2

PERCENT INCREASE IN PROJECTED LABOR FORCE OF STATES,  
1960-70 AND 1970-80, IN RANK ORDER

1960-70			1970-80	
Rank Order	State	% Inc.	State	% Inc.
1	Nevada	71.6	Arizona	36.3
2	Arizona	57.2	New Mexico	35.6
3	Utah	44.8	Florida	33.5
4	Florida	41.6	Utah	29.2
5	California	38.7	California	27.8
6	Colorado	37.1	Colorado	24.5
7	New Mexico	32.1	Louisiana	24.4
8	Maryland	28.5	Delaware	22.7
9	Idaho	27.1	Idaho	21.4
10	Georgia	26.9	Texas	20.8
11	Arkansas	26.1	Maryland	20.4
12	Delaware	26.0	Minnesota	19.2
13	Mississippi	25.9	Indiana	19.1
14	Louisiana	25.9	Wyoming	19.1
15	Virginia	25.8	Alabama	19.1
16	Texas	25.2	Washington	19.0
17	Hawaii	24.4	Wisconsin	18.8
18	South Carolina	23.7	New Hampshire	18.5
19	Tennessee	23.1	Alaska	18.5
20	Connecticut	22.7	Ohio	18.2
21	Alabama	22.7	Virginia	18.1
22	Wyoming	22.4	Mississippi	18.0
23	New Hampshire	22.3	Michigan	18.0
24	North Carolina	22.2	Distr. of Columbia	17.4
25	New Jersey	22.0	Montana	17.2
26	Washington	21.6	Vermont	17.0
27	Montana	21.4	New Jersey	16.8
28	Oregon	20.7	Connecticut	16.8
29	Vermont	20.5	Illinois	16.3
30	Ohio	19.8	Arkansas	16.3
31	Indiana	19.6	Kentucky	16.0
32	Oklahoma	19.0	Georgia	15.8
33	Wisconsin	18.9	Tennessee	15.0
34	South Dakota	18.8	Oregon	14.7
35	Minnesota	18.4	South Carolina	14.6
36	Michigan	18.1	Oklahoma	14.1
37	Kentucky	17.8	North Carolina	14.0
38	Nebraska	17.2	Kansas	14.0
39	North Dakota	16.6	Iowa	13.8
40	New York	16.1	North Dakota	13.7
41	Kansas	15.6	Massachusetts	13.5
42	Massachusetts	14.3	Maine	13.4
43	Alaska	14.3	Missouri	13.4
44	Illinois	14.2	South Dakota	13.2
45	West Virginia	14.1	Nebraska	12.6
46	Iowa	12.7	Hawaii	12.6
47	Maine	11.5	Nevada	11.2
48	Pennsylvania	11.2	Pennsylvania	10.9
49	Rhode Island	10.2	New York	10.4
50	Missouri	9.8	West Virginia	8.9
51	District of Col.	9.4	Rhode Island	7.4

U.S. Avg. 22.0

U.S. Avg. 18.1

TABLE 3  
 POPULATION AND LABOR FORCE (EXCLUDING ARMED FORCES OVERSEAS),  
 BY AGE AND SEX, FOR THE 1960 AND PROJECTED 1970 AND 1980

(Numbers in thousands)

Age and Sex	Population (July 1)		Labor force (annual average)		Labor force participation rates (percent)			Percent change					
	1960 (April 1)	1970	1980	1960 (April 1)	1970	1980	1960	1970	1980	1960-70 Popu- lation	1970-80 Popu- lation	1960-70 Labor force	1970-80 Labor force
<b>All Classes</b>													
Both sexes, 14 and over	3,740	4,150	4,683	2,129	2,434	2,763	56.9	58.6	59.0	11.0	12.8	14.3	13.5
<b>Male</b>													
Total, 14 and over	1,768	1,961	2,227	1,376	1,531	1,778	77.8	78.1	79.8	11.0	13.5	11.3	16.1
14-24 years	361	512	586	205	327	407	56.8	63.8	69.4	41.9	44.4	59.3	24.6
25-54 years	941	949	1,095	895	914	1,059	95.1	96.3	96.7	7.4	15.3	2.1	15.8
55 years and over	465	499	545	275	290	312	59.1	58.1	57.2	7.4	9.2	5.4	7.5
<b>Female</b>													
Total, 14 and over	1,972	2,189	2,456	754	903	985	38.2	41.2	40.1	11.0	12.2	19.8	9.2
14-24 years	368	520	591	150	236	260	40.6	45.4	44.0	41.2	43.7	57.6	10.1
25-54 years	1,004	997	1,123	451	478	511	44.9	48.0	45.5	-7.7	12.7	6.1	6.9
55 years and over	600	672	742	153	189	215	25.5	26.1	28.9	12.0	10.4	23.2	13.8

### The Expanding Industrial Technology

The day-to-day technical and scientific advancements and the broadening scope of all industry and services necessitates the existence of a labor force that can support industry's goals. Trained men or women are in demand right now. Some can even name their own wages.

### Regional and Area Needs for Vocational-Technical Education in Florida: An Appraisal

#### The Economics of Area Development

In recent years an aggregative approach has been taken to many questions in economics, especially because statisticians have made commonplace such aggregative measures as state income, and state total employment and unemployment. It has always been recognized, however, that this overall view must be supplemented heavily by detailed examination of component items if it is not to be misleading for some types of problems. Analysis of the economics of geographic areas smaller than the state is becoming increasingly recognized as being of importance. While an entire state is a useful entity for many economic purposes--especially where its boundaries are strictly relevant to actions such as taxation and expenditure by the state government--a state invariably encompasses sub-areas of great diversity from the point of view of most of the important educational and economic variables.

For purposes of analysis, the state was subdivided into five sectors:

Sector I: Southwest Florida

Counties comprising Southwest Florida:

Lee, Pinellas, Hernando, Sumter, Manatee, Hardee, DeSoto, Hillsborough, Pasco, Citrus, Polk, Sarasota, Highlands, and Charlotte.

Sector II: Southeast Florida

Counties comprising Southeast Florida:

Dade, Palm Beach, Collier, Glades, Martin, Indian River, Broward, Monroe, Hendry, Okeechobee, and St. Lucie

Sector III: Central Florida

Counties comprising Central Florida:

Orange, Brevard, Lake, Volusia, Seminole, Osceola, Marion, and Flagler.

Sector IV: Northeast Florida

Counties comprising Northeast Florida:

Duval, St. Johns, Putnam, Bradford, Baker, Gilchrist, Dixie, Suwannee, Nassau, Clay, Alachua, Union, Columbia, Levy, Lafayette, and Hamilton.

Sector V: Northwest Florida

Counties comprising Northwest Florida:

Leon, Madison, Wakulla, Liberty, Gulf, Jackson, Santa Rosa, Walton, Washington, Taylor, Jefferson, Gadsden, Franklin, Calhoun, Escambia, Okaloosa, Holmes, and Bay.

This is a somewhat arbitrary division, but any other pattern would demonstrate much the same thing. The basis of organization was groups of counties clustered around centers of population. In most instances the counties on the periphery

of the sectors do not have unusually large populations and hence the shifting of these to or from given sectors would not significantly alter the conclusions.

For analytical purposes, and especially for educational forecasting, it is mandatory to distinguish between "developed" and "underdeveloped" counties. An examination of statistics related to population, employment, education, and income show quite a sharp difference between counties that are doing well and those that are not. At the same time, it is important not to equate "industrialization" and "development" because it is possible to make great economic progress through improved agriculture, expansion of livestock production, mining, wholesaling, and service activities.

Economic development in Florida as a whole has been impressive, especially in the Southern and Central portions. The population increase of more than three million from 1950 to 1969 has stimulated, and in turn has been stimulated by, this development. More than most states, however, Florida has areas with extremely diverse economic resources, both human and material. In addition, the proximity to markets and the types of markets show unusual diversity. Because of these forces on the demand and costs sides--both of which have been influenced strongly by the federal and state governments--striking contrasts in economic development appear throughout the state. Consequently, diverse educational policy measures may be appropriate in the different areas of the state.

Now the largest of the twelve southeastern states, Florida has a population of 6.3 million--the ninth largest of all the states of the Union. It is the fastest growing of every state except sparsely populated Arizona. Florida's current population position compares with a rank of 27th in 1940, 16th in 1950, and tenth in 1960. This tremendous

surge in population is being matched by the economic factors upon which its citizens depend. Projections in some segments of these factors indicate growth of 600 to 900 per cent in the next ten years. However, an analysis of the economic activity in Florida shows that all parts of the state are not growing at the same rate. A similar situation is noted with respect to public school, college, and university enrollments.

### Florida's Growth Today and Tomorrow

#### Population

If present growth trends continue with only slight changes, Florida's population will reach 8,499,000 by 1978. This is an increase of 2,288,000 persons or 36.9 per cent. Three main factors will account for this increase in population: (1) new family formations; (2) new residents moving into the state; and (3) a lower death rate. All sections of the state are growing faster than the national average, and all will share in the growth anticipated in the coming decade. Here is how they will rank:

<u>Sector</u>	<u>Per Cent Change 1968-78</u>
Central Florida	36.9
Southeast Florida	66.7
Southwest Florida	35.9
Northeast Florida	22.6
Northwest Florida	19.7

Although central Florida will show the most dramatic growth of any area of the state in the coming decade--a gain of 66.7 per cent--southeast Florida will remain the most

populous with a total anticipated 1978 population of 2,949,000. Next in rank will be the Southwest section, with a total 1978 population of 2,152,000. Growth in Middle Florida and South Florida was particularly significant in the 1950's, each having doubled in urban population. In the 60's population growth continued at a high but decreasing rate in these two areas. Most of this growth is attributed to rapid development in the East sub-regions. At the same time, North Florida continued to increase at a slower rate.

For the period 1970 to 1975, projected population growth indicates a significant increase for Middle Florida while South Florida is expected to grow at a rate comparable to that in the 1960's. North Florida is expected to continue its low, steady rate of increase.

Florida will continue to experience high levels of net migration--the influx of new residents--during the coming decade. These newcomers will be drawn by the wide range of natural advantages that Florida offers, principally climate, plus another rarely noted resource, space, which is becoming increasingly important. As the northeastern and midwestern states become more and more crowded, Florida, with its undeveloped land areas, looks increasingly attractive.

Other major causes of in-migration to Florida are retirement, tourism, employment, and political asylum. These are partially a function of the State's location, natural resources, and economic structure. Demographic and economic factors are interrelated, such that the high rate of in-migration is causally associated with levels of industrial growth, expansion of tourist and banking facilities, and the growth of the service sector of the economy.

In an interesting sort of chain reaction, Florida's booming population growth will act as a stimulus to even more regional growth in the years ahead. By 1988, forecasters

see Florida with a population of more than eleven million people, Georgia with more than six million, Alabama nearly five million, North Carolina close to six million, and South Carolina with nearly three and one-half million.

Of importance in a review of state population growth is the distinction between the gains that come from the natural increase of the state's resident population, and the gains that come from net migration, that is, from the interstate movement of population from one state to another. The reason for distinguishing these two sources of population growth is that states of rapid growth, such as Florida, achieve their high rates by adding large net migration gains to their natural increase. State planners should keep the following in mind: Florida's past and present growth has been the direct and immediate result of the attraction the state has for citizens of other states; the State's future growth will depend very largely on maintaining and expanding these attractive features; and there are other states which are growing rapidly because they are, and will continue to be, highly attractive to the mobile citizen as well as to labor-intensive industry.

The record of the past five years does not provide any assurance that manufacturing, for example, will be an adequate source of new employment opportunities and income which Florida needs for continued growth. Support for the State's future growth will be found in the area that has been responsible primarily for Florida's growth over the last two decades--the services area. The recognition of this finding has deep and far-reaching implications for educational planning.

#### Economic Overview

Other changes are taking place within the five regions of the state. The central region, which is predicted

to show the fastest rate of population growth in the coming decade, is not expected to match that rate of growth in the category of personal income. The northwest section of the state has the fastest rate of increase in personal income, and is expected to hold this lead through the next ten years. In every area of the state, personal income is on the rise; and in the next decade, the total personal income received by Floridians will more than double, increasing to \$36.7 billion by 1978 compared with \$17.8 billion in 1969.

In this same period, the per capita income of Florida residents also will climb sharply--from \$2,876 annually to \$4,327. The rate at which total personal income in Florida will increase during the next ten years--106 per cent--is one of the highest rates of any state in the nation.

Floridians now get a larger total amount of income from manufacturing than residents of any of the other southeastern states, with the exception of Georgia and South Carolina. What is more important, however, is that the rate of increase in the amount of income from manufacturing is greater in Florida than in any of the other southeastern states; from 1959 to 1967, income from manufacturing in Florida more than doubled.

Of the two big categories of personal income in Florida--retail and wholesale trade, and service trades and professions--the former is declining on a percentage basis while the latter is advancing. Some comparative figures bear this out. In 1959, these two categories accounted for almost 39 per cent of the state's total production income, that is, earned income. The amounts were 23.2 per cent for wholesale and retail trade, and 15.6 per cent for the service trades. By 1967, the percentage of income received by Floridians from wholesale and retail trade has declined to 20.6 per cent, while that from the service trades had increased to 19 per cent.

Value added by manufacturing, incidentally, is regarded as a much better indicator of manufacturing activity than total sales by manufacturing plants. This is because total sales do not reflect the amount of work actually done. For example, in a plant where the main work is assembling components, the value of raw materials and supplies may equal as much as 90 per cent of the sale of that plant. In another plant, the cost of raw materials and supplies may be equal to only 20 per cent of sales, or even less. Obviously, the economic impact on an area of the second plant will be greater.

While Florida is not the leading southeastern state in the dollar volume of value added by manufacturing, it does rank at the top in one important category--the rate of growth in manufacturing. In the decade from 1958 to 1968, manufacturing activity in Florida rose from \$1.4 billion to \$3.7 billion--an increase of 165.7 per cent.

Two regions of the state, the southeast and the southwest, shared first place in the dollar amount of value added by manufacturing in 1968. The total in each region was just over \$1 billion. By 1978, however, the southeast region will have edged up to first place, with a total manufacturing volume of \$2.9 billion compared with the southwest's \$2.8 billion.

Based on rate of growth in manufacturing, the central region will rank first by 1978, just as it did in 1968. Manufacturing in the central section of the state rose from \$181 million in 1958 to \$750 million by 1968, an increase of 314.4 per cent. The total for this region is expected to more than double in the coming ten years, reaching 2.5 billion by 1978 for a gain of 234.6 per cent. This phenomenal increase in manufacturing activity is due primarily to the location in the central region of a large number of space related industries. This has been spurred by the activity

at nearby Cape Kennedy. It should be kept in mind, however, that these industries are subject to the fortunes of the political arena rather than normal economic demand. Therefore, they are unreliable factors on which to base long range predictions.

Ranking next after the central region in percentage growth of manufacturing activity is the southeast region, with a gain of 183.5 per cent, followed by the southwest with 169.2 per cent, the northwest with 133.3 per cent, and the northeast region with a gain of 114.3 per cent.

While not every section of the state will equal the percentage gains in manufacturing in the next ten years that it achieved in the last decade, the state as a whole will. Florida's total volume in value added by manufacturing rose 165.7 per cent from 1959 to 1968, is expected to grow even faster (174.7%) in the coming ten years, and by 1978, in terms of dollars, Florida will be turning out manufactured goods valued at \$10.3 billion compared with \$3.7 billion in 1968, and only \$1.4 billion in 1958.

#### Southwest Florida

Southwest Florida will continue to maintain its position as a center of manufacturing in the state through the coming decade, registering an increase of nearly 170 per cent in manufacturing activity in this period. Manufacturing growth has been rapid and steady through this part of Florida. In 1958, the value added by manufacturing was \$413 million, by 1963, the total had risen to \$671 million, and five years later had topped the billion-dollar mark.

The gain in manufacturing in the period from 1958 to 1968 was nearly 152 per cent and even greater growth is seen in the coming ten years. The southwest will be turning out manufactured products valued at \$2.8 billion in

1979, an increase of 169.2 per cent over the present rate. Only one section of Florida--the southeast--tops the southwest section in manufacturing activity. Together, these two areas account for more than half the value of the state's manufactured output, and both are growing as manufacturing centers. The rate of growth in both these sections, as a matter of fact, will exceed the state average of 150 per cent in the coming decade.

Because of continued growth in all sectors of its economy, the southwestern section of the state will show some remarkable gains in personal income during the years ahead. In 1959, total personal income amounted to \$2.2 billion; by 1968, the total had risen to \$4.2 billion, a gain of 87.9 per cent. This increase, though sizable, will be exceeded by that projected for the coming decade when personal income should reach \$8.6 billion by 1978 for an increase of 102.5 per cent. The change in the twenty-year period from 1959 to 1978 is 280.7 per cent.

Per capita income in the southwest should rise and by 1978 reach \$4,640 for a gain of 49 per cent. In the span from 1959 to 1978, per capita incomes in the southwest are slated to double.

Population in the southwest section of Florida has risen dramatically in the decade just ended and this growth rate is due to accelerate in the decade that lies ahead. According to recent research studies, the southwest section will have 2.1 million people by 1978, an increase of 35 per cent compared with its present population.

### Southeast Florida

Although climate and its attendant phenomena, tourists, form the backbone of the economy of southeast Florida, new economic forces are at work that will outweigh the

impact of tourism in the future. These forces will bring sharp changes in the southeast Florida business picture in the next ten years.

Over the last few years, the service trades have been expanding steadily in southeast Florida at the expense of the wholesale-retail trade category. In 1959, wholesale-retail trade was responsible for 25.8 per cent of the personal income of workers compared with 18 per cent for the service trades. It is estimated that the service trades now account for \$1.2 billion of the personal income of those in this region of the state and by 1979 will account for \$2.5 billion--an increase of 109 per cent.

The value added by manufacturing in the southeast section last year was \$1.04 billion, an increase of 180 per cent from 1958. A projection of the value added figure for this section in 1978 is \$2.95 billion, an increase of 184 per cent over the current rate. This will mean that this section of Florida will have the highest level of manufacturing activity of any of the state's five areas in 1978. The southwest will run a close second.

### Central Florida

While each of Florida's five market areas is due for dynamic growth in the coming decade, the most dramatic changes will take place in the central section. The rate of change is greater here perhaps than anywhere else in the United States. In four major aspects of its economy--population, manufacturing activity, personal income, and receipts for the service trades--the central section will top all other areas of the state in the next ten years in rate of growth.

In population, the central section will grow by 66.7 per cent compared with a state-wide average of 36.9 per cent.

Its output of manufactured goods will increase by 234.6 per cent, personal income by 149 per cent, and receipts from the service trades by 240.9 per cent.

A number of factors lie behind the mushrooming growth of this section of the state and its bright prospects for the future. One is the fact that the recent successful moon flights from Cape Kennedy have given the space effort a needed impetus and since the space effort is concentrated largely in the central section of the state, space spending has a big impact on its economy.

Manufacturing activity in the central section should more than double in the coming decade, but even so, the rate of increase will be below that of the last ten years. In 1958, value added by manufacturing in the central section amounted to \$181 million. This had risen to \$398 million by 1963 and to \$750 million by 1968, for a ten-year rise of 314.4 per cent. By 1978, the value added by manufacturing in the area is expected to reach \$2.5 billion--an increase of 234.6 per cent.

It is estimated that by 1980, 16 per cent or 84,500 of the projected 515,000 persons employed in the region will be working at industrial jobs. No other area of the state comes anywhere near matching the percentage rise in total personal income of the central section. The next-ranking area, the southeast, will have a gain of 291.3 per cent in personal income in the coming decade. The central section's 1968 total of \$2.8 billion in personal income represented 16 per cent of the state total of \$17.8 billion that year.

#### Northeast Florida

A single metropolitan area--Jacksonville [Duval County]--dominates the economy of the northeast area, in contrast to some areas of the state that have two or three

cities of comparable size. Duval County comprises almost 63 per cent of the northeast section of the state.

Despite the presence of this large metropolitan area, the northeast section is next to last in population among the five regions in the state, ranking just ahead of the northwest section. And although its population will increase at a faster rate in the coming ten years than it has in the last ten, the northeast still will be fourth in the state in population in 1978, since other areas also will be growing proportionately. In 1958, this section had a population of 712,000. This increased to 782,000 by 1963, and by 1968 was up to 823,000 for a gain of 15.6 per cent in the ten-year period. However, even this substantial gain should be exceeded by other areas in the next ten years, according to present projections. By 1978, the population of the northeast section will exceed one million--an increase of 22.6 per cent.

In 1958, value added by manufacturing, i.e., manufacturing activity, amounted to \$258 million in the northeast section. By 1963 this had increased to \$383 million and by 1968 was up to \$560 million, for a gain during the decade of 116.9 per cent. Manufacturing output in the area, measured in dollars, will double again during the coming decade reaching \$1.2 billion in 1978 for a gain of 114.3 per cent.

### Northwest Florida

One category in which accelerated growth can be expected in the northwest section is population. In the period from 1958 to 1968, its population rose from 582,000 to 668,000, a gain of 14.7 per cent. During the coming ten years, the area's population is projected to rise to 800,000 for an increase of nearly 20 per cent. The twenty-year growth rate, 1958 to 1978, will be 37.5 per cent. While

considerable, this rate of growth is below the average of the rest of the state which has grown 29.5 per cent in population from 1958 to 1968 and will grow 37 per cent in the coming decade. The state's twenty-year growth rate is 77.3 per cent. In addition, about 55 per cent of the region's total population is located in three major counties in the northwest section of the state--Escambia, Leon, and Okaloosa.

Manufacturing activity, which has increased sharply in the northwest section in the last ten years, is expected to grow even more rapidly in the next ten. This also is a major reason for the substantial growth in the area's population in the last decade. In 1958, value added by manufacturing in the northwest section amounted to \$187 million. Five years later this had risen to \$258 million, and by 1968 stood at \$360 million for a ten-year gain of 92.5 per cent. This sharp rise is due to continue in the ten years that lie ahead and by 1978, the northwest section will be turning out manufactured goods valued at \$840 million. This will represent an increase of 133.3 per cent in the period from 1968 to 1978.

In total personal income from all sources, the northwest recorded \$897 million in 1959 and just over \$1 billion in 1963. By 1968, the total was up to \$1.6 billion for a gain of 85.3 per cent during the decade. Further and more rapid growth in total personal income is forecast for the northwest section in the coming ten years and by 1978, personal income from services will exceed \$3 billion, for a gain of 87.8 per cent during the ten-year period. The gain from 1958 to 1978 will be 248 per cent.

During the decade ahead, per capita income in the northwest will continue to increase, reaching \$3,820 by 1978 for a growth rate of 56.5 per cent. This, too, will exceed the state average of 46.7 per cent in that period, as well as the national average. In a twenty-year period

(1958 to 1978), the rate of increase in per capita income will be 152.9 per cent. This is well ahead of all the other areas of Florida.

### Summary

Entering into the productivity estimate, one consideration with important implications for education is that several of the most rapidly growing sectors of Florida's economy, e.g., the service sector, are characterized by slow growth in productivity. Another consideration is that agriculture is becoming a rapidly diminishing share of total economic activity in Florida. The agricultural sector has been dominated by high rates of productivity increase which have served to pull up the state's average productivity.

These sharp changes in Florida's economy will be accompanied by important shifts in the sources of income of its residents. As the state's economy comes of age, the proportion of income Floridians receive from some categories--notably agriculture and construction--will decline, while others--the service trades--will rise.

### The Role of Vocational-Technical Education in Florida's Economic Development

#### Population, Manpower Development and School Enrollments

The purpose of this section will be to prove one area of influence, namely, the impact of public vocational-technical education on Florida's economy. Although emphasis will be on the economic aspects only, it is not intended to imply that it is the only or most important contribution of education and training to society. To achieve the general purpose indicated, the public post-secondary vocational-technical school segment of Florida--

junior colleges and area vocational-technical centers--will be examined as:

1. Formally organized units to which the people of Florida allocate specific economic resources to attain certain objectives.
2. Contributors to the stream of income and purchasing power within the state.
3. A means of increasing the state's supply of capital which can be used to encourage further economic growth in Florida by raising the productive skills characteristic of an educated population as well as by minimizing the social costs and ills of ignorance and poverty.

In order to verify past trends and potential educational requirements for the active and inactive population, the data on educational attainment were examined. There is a certain circularity of "feed back" between present and projected educational attainments. This examination of the educational attainment levels of Florida's population, present vs. future, provides information as to what minimal "output" or effort of the educational system is required to meet the needs of this continuous upgrading of the educational process.

The overall bearing of recent manpower projections is to suggest that, whatever the particular combinations of priorities the State adopts in the next ten years, planning for manpower needs in the 1980's must reckon with the impact of pursuit of our priorities as a dynamic influence for manpower requirements. The growth in demand in the next ten years for engineers and technicians, or for physicians, nurses, and hospital attendants, for example, is very likely to reflect the vigor with which Florida pursues its goals. Increasing the supply of manpower in these areas can be expected to involve a massive expansion in facilities and enrollments in vocational-technical education.

The largest percentage increases in enrollments and degrees in vocational fields are expected in area vocational-technical schools. However, some of the most rapid growth in manpower needs for Florida in the next decade is likely to take place in the new technical occupations, i.e., in fields such as electrical and electronic technicians, programmers, or for medical and dental technicians.

Preparation for these rapidly expanding new occupations can be expected to involve a shift in emphasis in vocational education from non-theoretical skill training offered in area vocational-technical schools to two-year post-high-school institutions offering programs combining basic education with technical studies.

The full-time-equivalent student enrollment in county-based post-high-school occupational education programs increased by slightly more than 60 per cent in the six-year period 1963-64 through 1969-70, as shown in Table 4.

TABLE 4  
POST-HIGH-SCHOOL FTE STUDENT ENROLLMENTS\* IN  
OCCUPATIONAL EDUCATION FOR COUNTY-BASED AND  
COMMUNITY JUNIOR COLLEGE PROGRAMS

Year	County-Based Programs		Community Junior Colleges		Total	
	FTE	%	FTE	%	FTE	%
1963-64	9,612	78.2	2,684	21.8	12,296	100.0
1969-70	15,510	44.3	19,508	55.7	35,018	100.0
1979-80	33,534	41.7	46,923	58.3	80,457	100.0

\*Figures for 1963-64 and 1969-70 are actual; figures for 1979-80 are projected.

The county-based share of the total occupational enrollment decreased from more than three-fourths to less than one-half. During this same period, occupational enrollments in the community junior colleges increased more than six times from a relative share of less than one-fourth to more than one-half.

Projections for such occupational enrollments to 1979-80 have been prepared by the division of vocational education and the division of community colleges of the Florida Department of Education. Such projections as shown in the table, indicate the increase in total occupational enrollments more than doubled with the community junior colleges accounting for an even greater percentage of the total.

Much of the increase in manpower needs, especially in urban areas, stemming from the interrelated forces of economic growth and pursuit of the state's goals in the next decade will represent requirements for blue collar and service workers, and for white collar employees in occupations for which college attendance is not necessarily the prerequisite.

Somehow, the system of vocational training and technical education must provide a continuous educational spectrum to match the continuous occupational spectrum. For example, in many engineering colleges a trend has developed in which extreme specialization is avoided since many of these colleges regard the vast array of jobs at the technical level as consisting of clusters of jobs. Curricula in these institutions are usually planned for one or more of those clusters. Also, in intermediate technical education, surveys have found technical jobs which range across a wide spectrum: those jobs where technicians work at a highly sophisticated level in research; and those occupations demanding a great deal of manipulative skill and ingenuity with tools and equipment, but only a modest background in science, mathematics, and engineering theory.

The important point of this finding is that there are all kinds of technical jobs between these extremes. The gap between the professions and skilled trades cannot be filled by one kind or level of qualified personnel. It is at this point that many educational planners and junior college administrators in charge of curriculum commit a grave error. In their determination to be "academically respectable," they plan programs only for engineering technicians, raising the level to a point where it barely differs from that of an engineering program in a college of engineering. Many administrators tend to defend this curriculum by arguing that the public image of American technical education is one in which occupational training hardly belongs to the educational world at all. It is seen, instead, as a minor ancillary of the world of industry.

Regarding occupational and educational relationships, three points should be stressed:

First, if the educational planner-administrator wants to adjust the curricula in response to technological changes, planning strategies and activities not only must throw new light on the efficiency of firms with regard to their personnel policies, but also must take a comprehensive look at educational qualifications, the cost of education, and the problem of poor utilization of educated labor in various segments of industry.

Secondly, to be realistic, educational planning which involves the use of detailed occupational and educational data must review its outdated approach in terms of rigid educational requirements for technical occupations. Research shows, for example, that in engineering jobs no single educational qualification or educational "avenue" stands out as the "optimum" education for that particular occupation.

Finally, the administrator in charge of curriculum

revisions must realize that firms invest in their educated labor in much the same way as in their physical capital. Inquiries showed that large manufacturing firms in Florida, for instance, plan the use of highly qualified personnel overtime in the same way as they plan the use of capital. These companies have recognized that it is of the utmost importance to predict the rate of progress of automation and the accompanying changes in skill input. Within the framework of what sometimes is called "active labor planning" these firms already have worked out plans to predict the employment at various skill levels that will be required in the future.

Confronted with sometimes conflicting calculations regarding the future occupational structure of the labor force, the educational planner-administrator will have to solve the problem of translating the labor requirements by occupational categories into requirements by educational qualification. Undoubtedly, this constitutes a major difficulty since there seems to be no stable relationship between the occupation a person has and the schooling he has received.

As the more rapid pace of industrial development since 1960 continues and possibly accelerates in the 1970's, the federally aided programs can be expected to play an increasingly important role. They can be especially significant in increasing and upgrading employment opportunities for non-whites in urban areas.

Data indicate that although employment is growing faster than population throughout Florida, the relative rates of increase for development activities in North Florida and South Florida are greater than that for Middle Florida. This phenomenon probably is due to an earlier start in regional planning for the Middle Florida region than for North and South Florida.

Data on the relative distribution of this growth among the functional categories is not readily available. It is logical to anticipate that growth will be greatest in areas which are already large, but rates of growth are likely to be higher for those functions which presently are not being performed adequately. According to this rationale, it is likely that employment growth in absolute numbers will be most significant in the transportation category but that rates of employment growth will be relatively high in the areas of mental health, welfare, protection, community planning, and conservation.

A population projection prepared with the assistance of the Bureau of the Census predicted that the 1975 Florida population would be 7,552,000 or 52.5 per cent higher than in 1960. This projection estimates that the Florida school age population will increase by 52.3 per cent or at almost the same rate as the population as a whole. The public elementary and secondary school age group can be defined as those between the ages of five and seventeen. This should not obscure the fact that the secondary school age group (ages 14 - 17) will grow at a faster rate (79.9%) than the population as a whole during the present decade. This same source predicted public school enrollments in Florida of from 1,504,600 to 1,652,062 by 1969-70. Likewise, it is estimated that the pre-school age group in Florida (under 5) will be approximately 61.9 per cent greater in 1970 than it was in 1960. The most spectacular gain will occur in the college age group, ages 18 - 21. It is estimated that the number of Florida's eighteen to twenty-one year olds in 1970 will be 96.3 per cent larger than the number in 1960.

It can be concluded that public elementary and secondary school enrollments in Florida will continue to increase at about the same rate as the population during the present decade. This would be similar to that increase rate noted

in the 1920 to 1930 decade. It is cautioned that this is a conservative estimate and that Florida's growth pattern has been noted for exceeding conservative estimates in past years. The high school enrollments will grow at a rate faster than the population as a whole and the elementary enrollments will increase somewhat slower. Looking ahead even further, there is a great probability that the enrollment growth in the 1970's will eclipse that for the 1960's. Clearly, then, on the basis of sheer numbers of students who will present themselves for schooling, the resources allocated to public education from whatever governmental agency must continue to increase.

#### Facilities

At present there are 27 public junior colleges in Florida with a 1968-69 school year FTE enrollment of 87,020 compared to an FTE enrollment of 1,143 in the two private junior colleges. The comparison is even more lopsided when two more facts are considered: (1) some of the existing Florida public junior colleges have, or are constructing, two or more major campuses, and there is at least one new junior college planned for construction within the next few years; and (2) the continuing status of the private institutions as junior colleges is in doubt.

A recent study of education and training facilities found that there is excess capacity available at practically all community colleges. It can be shown that in 1967 there were 1,112 classrooms in Florida public junior colleges and 17 classrooms in private junior colleges. The classrooms in the public institutions were used on the average of 22.7 hours per week, with 829 (approximately 75%) of the classrooms in use at any one time. The hours that classrooms were used and the actual number of rooms used at any one time varied among the institutions. The average classroom

use per week among the schools of less than 1,000 enrollment was 11.2 to 41.8 hours. The range for schools with enrollments of 1,000 to 1,999 was 11.6 to 58.1 hours per week.

Teaching laboratories in Florida public junior colleges in 1969 were used an average of 14 hours per week. Only 355 (an average of 53.2%) of the laboratories were in use at any one time. The average number of hours of laboratory use per week among the colleges of less than 1,000 enrollment was 1.6 to 39.7, excluding two colleges reporting no laboratories. Colleges with an enrollment of 1,000 to 1,999 had a range of 3.3 to 49.5 hours of laboratory use per week and those with enrollments of 2,000 and above had a range of 5.5 to 37.7 hours of lab use per week.

There has been a wide variation in classroom utilization among the private institutions. The average number of hours utilized varied between 10.6 and 39.4 hours. Laboratories were used at less than the rate indicated for classroom use.

These data clearly show that classroom and laboratory utilization is low in Florida's junior colleges. It also has been shown that the facilities of public institutions are more thoroughly utilized than are the comparable private facilities. However, it is readily apparent that there exists considerable non-utilized space in both categories. No vocational-technical institution can expect to fill all classrooms and laboratories to capacity every hour of the day. It is apparent, however, that higher rates of utilization are attainable without jeopardy to either the quality of instruction or the availability of learning opportunities for students.

Contributions of Vocational-  
Technical Education to  
Florida's Economy

Short-run Effects

The short-run impact of education and training on the economy can be measured in terms of the total expenditures for education in a given period. The salaries paid to teachers and other school employees are a part of the stream of income and purchasing power in the state. It should be pointed out that in 1968-69 the total payments for the services of public elementary and secondary school teachers alone were in the neighborhood of \$468 million. In many counties of Florida the public school payroll is the largest single payroll. Adding the amounts paid to junior college and area vocational-technical center personnel to this would bring the total in excess of half a billion dollars entering the stream of income and purchasing power in the state of Florida.

There are other short-run phenomena which indicate the close relationship between vocational-technical education and the state's economy. To begin with, the prices the school system must pay for the goods and services it needs to operate are set in the private sector of the economy. Likewise, the effect of inflation in the private economy has an impact upon the public school system as well. Teachers' salaries are regulated to some degree at least by alternative employment opportunities in both the public and the private sector. The public's attitude toward the state of the economy and subsequent willingness to provide additional resources to public schools may be affected by a successful or a poor citrus crop and a booming or a slow tourist season. In other words, what happens in the private sector of the economy subsequently will influence events in the public sector.

There is an additional short-run impact from withdrawing resources from the private sector of the economy to support public education. Taxes reduce the purchasing power of an individual. Taxes which support public institutions may reduce the immediate consumption of specified goods and services or reduce the propensity to invest. But this is an individual phenomenon. The lion's share of these taxes are used to pay salaries and, therefore, give buying power to instructional and non-instructional personnel. In other words, reducing the power of consumption for some through taxation increases that power for others.

It is argued on occasion that there is a loss in productivity by allocating to public education labor which might be utilized otherwise. It was pointed out, however, that less than 3 per cent of the total labor force in Florida was involved in public educational activities. This is indeed a small loss in productivity in "other-than-education" activities as a result of allocating human labor resources to public education.

Of no less significance is the fact that education improves productive skills. If education improves productive capacity, then an individual's temporary removal from the mainstream of production may be more than offset. Total lifetime output at a high skill level even for a shorter period (not unusually long in terms of the life span of a person) can be greater than total output at a low skill level for a longer period. Therefore, it is questionable whether withdrawing secondary and collegiate level students from the labor market for further education can be looked upon as an input reduction in the economy in the long run or under all conditions of employment.

The effects of technological change for employment generally are measured by the rate at which productivity increases. Concern with the impact of technological change

has been responsible for much of the discussion of "the manpower revolution" or "automation" in recent years. Many persons including a number of economists, who have observed the rapid advances in computer technology and in cybernetics, have become apprehensive that productivity will grow so rapidly in the next decade that a far smaller volume of employment would be needed to produce the trillion dollar GNP anticipated in the mid-1970's. Most of the persons displaced would be unskilled operatives and laborers, although technical advances in such fields as inventory control could reduce employment for white collar workers as well.

There are several factors which can be expected to influence employment opportunities in the next decade; these would include the influence of more widespread educational opportunity and attainment, the impact of rising family incomes and greater leisure, and the manpower needs generated by pursuit of our nation's priorities. All of these factors interact with one another to produce Florida's occupational pattern.

#### Long-run Effects

It is unlikely that technological change, and especially the computer oriented technologies, will alter the broad trends in the distribution of employment in Florida. Some of the changes in manpower requirements probably will be due to the greater importance attached to education. The educational level in Florida has been increasing rapidly in the past two decades and this increase is likely to continue.

The significance of rising levels of educational attainment can be summarized in the expression that "supply creates its own demand." As the supply of well-educated, or better-educated persons increases in virtually all occupational fields, the greater availability of these persons to employers becomes an important factor in raising entrance

requirements for many types of jobs. The college degree supplants the high school diploma which was regarded as the entrance requirement for the more responsible white collar positions a generation earlier. Graduation from high school becomes a prerequisite for advancement to foremen's jobs or for most types of work dealing with the public. It is difficult to determine the extent to which these higher educational qualifications represent functional requirements for performing a job, but insofar as they become prerequisites for employment, they serve to increase the penalties for lack of formal schooling.

The largest percentage increases in enrollments and degrees in higher education are expected in graduate and professional schools, and also in community colleges. Rapid growth in professional and managerial occupations is the basic reason for the anticipated increase in graduate and professional enrollment. However, some of the most rapid growth in manpower needs in the next decade is likely to take place in the new technical occupations, i.e., electrical and electronic technicians, programmers, and medical and dental technicians. Preparation for these rapidly expanding new occupations can be expected to involve a shift in emphasis in vocational education from non-theoretical skill training offered in high schools to two-year post-high school institutions offering programs combining basic education with technical studies. Community colleges and, to a lesser extent, area vocational technical schools, have concentrated on preparing individuals in the technician occupations, and in related semi-professional fields such as engineers' aides, or careers in the graphic arts. Coping with the growth in demand for persons trained to enter these occupations is likely to involve many further developments in the caliber of the post-high school institutions.

Enrollment in Florida community colleges will

increase from less than 22,000 in 1962 to almost 150,000 in 1980. To prepare young people for technical occupations, and also to provide two years of low-cost general education to many students, enrollments in community colleges are projected to reach half a million in the year 2000. Past and present data on expenditures for public junior colleges seem to verify this trend.

One of the considerations entering into productivity estimations is that several of the most rapidly growing sectors of the economy, e.g., the services sector, are characterized by slow growth in productivity. Another consideration is that in Florida, agriculture's share of total economic activity is rapidly diminishing. The agricultural sector has been dominated by high rates of productivity increase which have served to pull up the state's average. However, the persons who look forward to the productivity increases of 4 or 5 per cent a year tend to overlook the time lag between the initial establishment of the technical feasibility of an invention and its diffusion into everyday industrial use. To cite an instance, it took some thirty years for the diesel locomotive to generally supplant the steam locomotive. If we were attempting to estimate manpower needs thirty or forty years from now, the role of productivity increases would loom considerably larger in our calculations. For the next decade it is unlikely that technological change, and especially the computer oriented technologies, will change the broad trends in the distribution of employment in our state.

Much of the increase in manpower needs stemming from the inter-related forces of economic growth and pursuit of our goals in the next decade will represent requirements for blue collar and service workers, and for white collar employees in occupations for which college attendance is seldom the prerequisite. In the past, sources of training for

these occupations have been formal apprenticeship, vocational education in the high schools, on-the-job training in industry and, more recently, the retraining programs sponsored by the Federal Government.

Programs for conserving natural resources, developing an adequate mass transit system, or reducing the prevalence of poverty serve social values; they also will contribute to economic growth and the demand for labor. In the next ten years the growth in demand for scientists, engineers, and technicians, for physicians, nurses, and hospital attendants, or for electricians, plumbers, and laborers is very likely to reflect the vigor with which Florida pursues its goals. But whatever the particular combinations of priorities the state of Florida adopts in the next ten years, program planning for meeting manpower needs in the 1970's and 1980's must reckon with the impact of pursuit of our priorities as a dynamic influence for manpower requirements.

#### Education and Economic Growth

The consumption aspect of education is viewed as a means of satisfying the needs of the consumer. Where resources are limited (and, hence, there are limited budgets), education is an alternative to other types of current consumption, with the selection made on the basis of the value attached by persons to education. This type of consumption is weighed against other kinds of private and public consumption (individual desires or social services). The interests of the individual as a consumer are closely related to his desire to be a more productive person.

Education influences the individual in his choice of other kinds of consumption besides those devoted to education. In this sense it has a direct effect on the way he lives as well as his standard of living. Affluence with

ignorance or a lack of tastes and perspective all too often results in vulgarity and inability to use wealth to gain enduring satisfaction. This begins to move one from the purely economic impact of education to its broader social contributions. Therefore, the value attached to future growth of consumption generally will be higher if children are better educated. There have been illustrations both in this nation and abroad where a sudden affluence of consumer goods, occurring before knowledge of how to choose and use it has been developed, has raised serious social problems and often caused wasteful consumption.

The economic effects of an educated populace becomes more significant with extension of life span. As total consumption rises and there is satisfaction of the basic wants for food, shelter, and clothing, society--both individually and collectively--will call for greater allocations to education. For this reason, the income elasticity of demand for education is greater among the middle as opposed to low income groups. There have been many shifts in the types of skills demanded in the labor market. Individuals with a higher educational level can be shifted more easily from an occupational pursuit with shrinking employment opportunities or productive capacities to one with growing production possibilities requiring specialized skills than can those with lesser amounts of education. In this age of automation, computers, etc., the demands for specially trained and skilled people is greater than ever before. But all such skills ultimately must be based on the fundamental skills backed in vocational programs.

Skilled labor requirements are high where there is a rapid economic growth based on improved technology. The real, long-term solution to the problem of chronic unemployment is a comprehensive system of public education from kindergarten level through adult education. This implies

that the usual approach of advertising an abundant supply of cheap but unskilled labor as a means of attracting new industries is becoming more questionable each year. The need or demand for abundant but fundamentally ignorant or unskilled workers is declining rapidly. An educated populace and a supply of informed and skilled personnel may be the key to the future economic growth through the attraction of new industries. This places new and growing importance on our system of vocational-technical education.

In recent years a significant number of economists have looked upon education as an important key to economic growth. It is a key which helps to explain previously "unexplained gains" when economic growth was analyzed solely in terms of increases in labor and the stock of physical capital.

It has been argued that expenditures for educational purposes represent consumption rather than investment. The working hypothesis of the economics of education is just the opposite. It is true that schooling enhances current satisfaction, and in this respect it can be considered as consumption. However, one cannot disregard the fact that schooling also increases the future earning capacity of the individual, thus representing investment. Professor T. W. Schultz reported that in the first half of this century, resources committed to education in the United States rose about three and one-half times relative to consumer income and relative to gross investment in physical capital. Thus, one can view education either as a luxury consumption good with a high income elasticity of demand, or as an investment good that has a higher rate of return than investment in physical capital. And in view of the above-mentioned future earnings capability that is enhanced by education, consideration of expenditures incurred for educational purposes as investment is much more useful analytically.

The direction of causation between educational expenditures and increases in earnings also has occupied some space in the literature. To what extent do increases in earnings represent the result or the cause of higher educational attainments? It seems that the solution to this problem is the specification of simultaneous equation systems where education enters as the causal factor as well as the effect of higher incomes.

There have been several studies which concluded that a very substantial increase in life time earnings of men is associated with additional years of schooling. One of the most recent of these was by Miller. Using census figures on income and education of men, Miller indicated that a male high school graduate can expect to earn \$257,557 or \$75,862 more than the male elementary school graduate over the life span (ranging from age 18 to death). Likewise, the male college graduate has an average lifetime earning of \$435,242 or \$177,885 more than the high school graduate. These data substantiate the belief that for the average male there is a considerable economic advantage, as testified by monetary returns, to individuals who invest in education. The underlying theory is that the individual would invest in schooling years until he equates the rate of return from additional schooling to the rate of return on alternative investment opportunities. On the other hand, estimates of the social rates of return on investment in education can be used for educational planning purposes. For example, if a particular field shows a very high rate of return, expansion of this field should be desirable. Let us bypass at this point the fundamental question as to why the market itself would not react to this high rate of return and produce the necessary graduates. It is sufficient to mention that individuals may not realize certain externalities, and thus produces a sub-optimum schooling mix.

Therefore, every estimated set of rates of return on different educational levels suggests some policy implications beyond its descriptive function. However, the rate of return estimates alone cannot be used for educational planning. This is because the rate of return indicates only the direction of change of the educational output. It says nothing on the required amount of change in order to equalize the rates of return on alternative forms of investment.

Benefits derived from education and training do not accrue only to the individual who is receiving this education; people working in his environment also will benefit from his education. In this case, one should qualify that rates of return, as ordinarily calculated, represent underestimates, and may cause decision makers to stop short of investing in education. Certainly the individual does not capture these spillover effects, except in a possible third round feedback where his marginal product is raised because his environment has been more efficient. Such spillover effects can materialize not only in the immediate environment of a well-educated person, but geographically as well.

Vocational-technical education is a long-term investment from which society reaps economic benefits. There is evidence to indicate that, within a given state, changing economic conditions alter individual choices insofar as education is concerned. Thus, as personal income rises in a given state, young people and their parents are able to provide and afford more education. One of the several reasons for a greater propensity of high school youths in Florida to continue education in vocational-technical centers has been the improved economic conditions of their parents.

In spending or allocating resources to education we show a willingness to sacrifice some goods (or short-run productive capacity) today in order to live better tomorrow. The resources allocated to education can improve the economy

by increasing in quantity or quality other resources by developing a higher level of technology and by refinement of tastes so that the given level of output yields the greatest satisfaction.

There are social benefits of vocational-technical education which can be looked upon in economic terms. These are: raising productivity by improving the human component of production, strengthening national defense, and removing the social costs of illness and poverty. As Horace Mann stated, "jails and prisons are the complement of schools; so many less you have of the latter, so many more must you have of the former."

The problem of productivity in education is one of concern to economists. The index of productivity is essentially the ratio of the quantity of goods produced to the input of production factors. It has not been difficult to determine the quantity of inputs or production factors in education. These can be measured as instructional salaries, instructional equipment, and other services and materials used in the education process. Implicit in the productivity indices is that the general quality of the input and output has remained unchanged over the years during which the measurement takes place. An assumption of this order is difficult to justify and, hence, the case for productivity increase may be overstated or understated if quality levels are not known and controlled.

#### Summary

Perhaps the most significant conclusion that can be drawn concerning education and economic growth is that present empirical evidence and the weight of expert opinion places expenditures for public education as an investment in people. The evidence points to the fact that a relatively

small percentage of Florida's wealth presently is devoted to the support of a comprehensive system of public education which starts at the kindergarten level and proceeds into adult education and graduate levels. Expenditures for education, even though presently totaling in excess of one billion dollars, have not resulted in a serious reduction in consumption in the private sector of the economy. Nor have investment opportunities been curtailed to any significant extent because tax funds were utilized to support Florida's public schools.

Whether the people of Florida will allocate an increased percentage of its personal income to support vocational-technical schools is another question. The point is that it is more than likely that Florida will have the wealth to support public elementary schools, public secondary schools, and a vocational-technical system at quality levels. The question of willingness to do so is of a different order. Willingness is related to the value or preference for education. In terms of economics, the optimum solution is where the marginal educational, social, and/or economic benefits (in terms of consumption preferences and production growth) equal the marginal expenditures for public education.

In other words, although we lack the tools to determine precisely the "marginal educational, social, or economic benefits" of a public school system, the best available estimate is that we have not reached optimum operation levels that enable us to maximize benefits. Greater expenditures for vocational-technical education from an economic point of view could be sustained on the grounds that without such expenditures the continued economic development could be inhibited.

### Conclusions

The major findings and recommendations are as follows:

1. Occupational preparation and training profiles are needed.

Industrial management in Florida is dissatisfied with the work preparation students are receiving in high school vocational programs. The president of a large firm, in defining what he expects from the public schools of Pinellas County, put it this way: "Schools should challenge students to excel; the high school curriculum simply is not sufficient to produce an educated labor force in the light of technological changes." A more specific criticism was that youth enter industry with underdeveloped skills in mathematics and human relations. Students must be prepared to adjust to at least three occupational changes in a lifetime; thus, the public school curriculum should respond to the nature of rapid technological change and the high mobility of contemporary American students.

It was stated forcefully by the management of several large firms that they invest in their educated and trained personnel in much the same way as they invest in their physical capital. They indicated clearly that the companies plan the use of highly qualified labor overtime in the same way they plan the use of capital. More than 40 per cent of the manufacturing firms contacted realize that it is of utmost importance to predict the rate of technological change and the accompanying changes in skill input.

Within the framework of what management called "active labor planning," the firms have already worked out plans to predict the employment at various skill levels that

will be required in the future. In order to predict employment due to technological changes in future years, management of those firms investigated the following areas:

1. The present technological methods used for the production of the complete line of products made.
2. What new processes and methods are on the way.
3. How fast each new technological development will spread and how large the percentage replacement of each currently used method by a new one will be.
4. What new skill inputs will be needed, and what the "skill input profile" will look like.

In view of the anticipated inter-occupational shifts, vocational education must lose its single-job-oriented character. It is recommended that occupational preparation and training profiles be developed.

2. Special programs in new fields are needed.

The heavy demands of industry for more skilled employees, and the accompanying impact of this phenomenon on the public schools, will not require a complete reversal of emphasis from the academic to the vocational, but it will require some sharp changes. Especially, training for general service skills such as clerical, and special preparation in highly developed new fields such as chemical technology, computer programming, and electronics, should be accelerated.

3. A complete guidance program is needed.

Occupational guidance was cited by many as requiring "drastic" improvement. Thirty-two officials in one county expressed their views about this area in some detail, and many other comments implied criticism of vocational guidance practice.

A complete vocational guidance program, as outlined, would include: (1) testing, (2) complete job information, and (3) complete orientation on the economic values of various educational achievements and degrees.

It should be stressed that opinions expressed by this group of men deserve the close attention of educational administrators, for several reasons:

1. The industries these men manage (manufacturing, service, wholesale and retail, contract construction, transportation, communication, and public utilities) are responsible in large measure for the flow of durable and nondurable goods on which, at least partially, the economic growth of this county is built. Personnel problems which impair productivity in this industries have grave implications for the future. Such problems exist today, and are related to the posture of secondary education.

2. These men manage industries which offer some of the best employment opportunities, from the career development point of view, for properly qualified high school graduates.

3. These men are prominent and influential citizens whose appraisal of public secondary education reflects on professional educators in many ways.

4. Computerized vocational-technical data bank is needed.

If the guidance and counseling in public high schools is to be improved, counselors must clearly understand that in Florida:

1. agricultural occupations will continue to decline;
2. there will be a moderate growth in the service occupations (including blue-collar occupations); and,
3. There will be an overproportionate interest in the white-collar occupations.

Thus, occupational guidance should be radically revised and improved in light of employment requirements. The use of computerized job-supply-and-demand listings could erase the inefficiency and wasted job potentials that created a "skills gap."

5. Work-oriented programs for all students are needed.

In view of the fact that half of Florida's youth does not continue on to higher education, the secondary schools in combination with the junior colleges should offer more work-oriented education.

It is further suggested that such occupational education be offered to all secondary school students, either through new technical education centers or in collaboration with junior college programs.

Many employers spoke at length on the subject of deficiencies in secondary education. Over 80 per cent of the respondents held the strong opinion that most students leave high school today with "serious" deficiencies which restrict their potential for career development in industry. These deficiencies were described as the underdevelopment of the traits of ambition, initiative, responsibility, self-discipline, and planning. This syndrome of character weakness was said to lead to a behavior pattern in which the young employees seek routine jobs where the break-in period is short and a fairly high pay is soon achieved.

6. Improvement of communications is needed.

Twenty-one per cent of the manufacturing firms in Florida advertise in local newspapers to make adjustments for the shortage of qualified personnel. However, only 17 per cent contact the local school system and ask school officials to establish specific training programs.

It is recommended that a continuing assessment be made of the extent and efficiency of pertinent communications among the three principal components of the education-labor network, namely, industry, the employment service, and the various education units.

7. "Educational Parks" instead of single isolated schools are needed.

It is recommended that programs of vocational instruction, especially, be enriched and expanded to afford a wide choice of educational opportunity for the students. These new programs (with heavy emphasis on vocational preparation) must be developed as an integral part of the total educational program. Thus, attention should be given not so much to the establishment of "isolated" additional junior high and senior high schools, but rather to the establishment of Educational Parks in strategic areas with sufficient school population to accomplish the above mentioned purposes. Parallel arrangements should be made for consolidating some existing vocational-technical programs on an area basis to serve students in isolated areas.

8. A longitudinal manpower study is needed.

The non-professional work force consists of a great variety of skills and it was to be expected that individual firms would show different educational and training requirements for specific skills.

The data examined indicate that one serious bottleneck in the development of work skills in Florida is the high dropout rate in grades ten, eleven, and twelve. It was found that over one-fourth (28.8%) of those entering grade nine in 1965 failed to finish high school in 1969, compared

compared to the national dropout rate of 21.2 per cent for the same period.

We recommend a longitudinal study in order to assess, through the application of systems analysis techniques, the extent to which a given group of educational units are, or are not, fulfilling their obligations in meeting both the local requirements for trained manpower and their expected contribution to the state of Florida supply of workers.

9. Cost-effectiveness studies are needed.

There is no doubt that a county that fails to consider local education as one of the most important community factors, may continue to do so only at the cost of regarding the county's economic growth and development.

By 1970, approximately 50 per cent of the population will be under thirty years of age. Given the even higher number of young people in the total population during the next decade, only a sound educational system will be able to prepare the school-age population for the transition from a production-oriented economy to an idea-oriented, or knowledge-based system. Labor-oriented industry is especially aware of this shift.

It is strongly recommended that cost-effectiveness studies be made to organize and to finance the total program for the most effective instruction in all phases of education in the state.

10. Technical curriculum with high academic standards is needed.

Besides the consistent criticism of the vocational content of the secondary school curriculum, based upon experience in the hiring, training, supervising, and promoting of its output, many of the interviewed officials had

constructive proposals for the remedying of many of the reported deficiencies.

There were numerous ideas on how industry could contribute to the high school guidance effort. Many interviewees favored an academic high school program for all youth, while only a few spoke in favor of vocational high school programs as preparation for some jobs. Moreover, those who favored a universal academic preparation represented the plants in which the majority of jobs of all types exist, in which the majority of technician jobs exist, and in which the majority of research and development assignments exist. [The statistical analysis supports the generalizability of these trends to the population sampled.] Although most of the respondents who discussed the desirable educational preparation of craftsmen, technicians, and foremen specified that the college preparation curriculum with mathematics and science emphasis should be taken, even if barely passing grades are the best the individual's abilities allow him to achieve, we feel that this specification was more an indication of a dangerous gap in the high school panel of curricula than a true description of what management wants these groups to take. We are convinced that what management sees is a need for a special technical curriculum with high academic standards and heavy mathematics and science content, and that the general absence of such programs leaves a vacuum in which the college preparation curriculum looms as the best alternative.

What subject matter does management want these middle-ability students to master, whether in the college preparatory or in the proposed technical curriculum? First and foremost, they want mathematics, a full four years of it, including two years of algebra, plane and solid geometry, and trigonometry. They want young men to know these subjects, to be able to apply them on their own initiative in their

work, and to be comfortable with them, so that quantitative thinking comes naturally. Secondly, they want physics and chemistry, a year of each. Third, they want full programs in English and social studies, with students being taught to maximize communications' skill and to understand human relations. Fourth, they want familiarization with blueprints of all sorts as a basic language of fabricators. These are the required elements.

This is going to be hard work for the middle-ability student, harder than the more capable and more ambitious college preparatory student now performs. If the attitudes of youth are as poor as the managers think they are, how are young people to be persuaded to undertake such a difficult program? The interviewees indicated a number of factors which would contribute to selling this technical curriculum to youth. First, it would be necessary to upgrade drastically the requirements in the college preparatory curriculum, so that the middle-abled students best fitted for this new program could not survive in the top curriculum. College prep math should include a year of calculus, for example. Second, an expanded vocational guidance program would be needed to inform students of the advantages of the technical curriculum as a preparation for careers in industry and business. Third, industry would have to help by requiring graduation from this program for many of the best employment, training, and promotion opportunities in the craft, technician, and foreman areas. Fourth, state and local government and private contributors would have to increase the opportunities for post-high school technical education in day and night school for the graduates of this curriculum. Fifth, unions and management would have to cooperate in bringing about wage policies which increase the margin between unskilled and semiskilled jobs on the one hand, and skilled, technician, and supervisory jobs on the

other hand, so that the wage incentive for such arduous educational effort would be adequate. Sixth, it would be a task for general education<sup>1</sup> to develop in all an appreciation of the satisfactions to be gained from achieving the highest education and skill training possible to the individual, and to communicate the grim understanding that advancing technology is rapidly destroying the market for unskilled and semiskilled labor, so that it is possible to see the emergence of an era in which there will be no work for clumsy hands and unskilled minds. It is even possible that more people could be brought to see that it is a matter of good citizenship to educate and train oneself as highly as one can.

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<sup>1</sup>General Education.--The functions of general education are far broader than the provision of skills for industrial development. But all advanced industrial skills require some level of general attainment in the use of language, reasoning, and mathematics, such as is taught at general schools. Furthermore, ability to adapt from one type of work to another is enhanced by a relatively high level of properly oriented general education. This is important when industrialization involves fast technological change. It is also important because precise forecasts of skill requirements are impossible, so that trained personnel must be adaptable.

## ANNEX A

### POSSIBLE EFFECTS OF THE INTRODUCTION OF IPI UPON THE LABOR MARKET FOR YOUTHS [5]

The 1968 Manpower Report of the President includes a chapter on "Bridging the Gap From School to Work." Many of the problems raised in that chapter could be solved by the adoption of IPI [Individually Prescribed Instruction] in public schools. Although the report suggests possible changes in school graduation schedules, as in the following quotation, it does not consider the problems raised by such changes as are suggested.

Also needed is an examination of the extent to which youth unemployment rates could be reduced by spreading high school graduations over the year. At the present time 97 per cent of high school graduates in the United States leave school within the same 2 or 3 weeks in June. The heavy load that this puts upon public and private employment offices and upon the personnel of offices of companies might well be diminished, and greater inroads made into youth unemployment rates, if the load were spread throughout the year. There has been little realization or awareness of the extent to which the adjustment of high school schedules over the last few generations has resulted, more and more, in uniform graduation times and has perhaps contributed to the youth unemployment problem. There has been no exploration of the practical possibilities of reversing the process nor of the extent to which such reversal might help in alleviating youth unemployment.

Putting the nation's secondary schools on a year-round basis, and having these graduates enter the job market in three or four groups rather than all at once, would make the process of absorption much easier.

The adoption of IPI offers a variation of the above suggestion and goes beyond the recommendation for graduating three or four groups each year. As noted earlier, a continuous twelve-month school program is superior to any program with discontinuous periods of study.

Effects of Present School Schedules  
on Employment and Unemployment

Under the current school-year system, considerable numbers of young workers participate in the labor force during the summer months, raising both the level of employment and the level of unemployment. The introduction of IPI, with a year-round continuous school program, can provide more flexibility in the labor force participation of young workers. The likely effects of such a change upon the labor market depends upon the assumption one makes.

The monthly data used here cover the period 1963 through 1967, and are taken primarily from Employment and Earnings and Monthly Report of the Labor Force and the Monthly Labor Review, U.S. Department of Labor. A five-year average of monthly data for the 16-19 year old age group in the civilian labor force and in employment and unemployment is the basic data used in this analysis. These data are given in Table 1. Figure 1 on the following page shows graphically the variations in the data.

As is seen in Table 1 and Figure 1, changes in employment more or less parallel changes in the size of the labor force. However, the increase in employment during the summer months is not sufficient to absorb the large increase in unemployed youth. A study by A. M. Ross points out the importance of summer work to young workers and calls for intensified planning of the work program by private and public employers so as to employ more youth in the summer. The widespread adoption of IPI might have more effective results than a public appeal; some of the possible effects of IPI's adoption on the employment of youth are shown below.

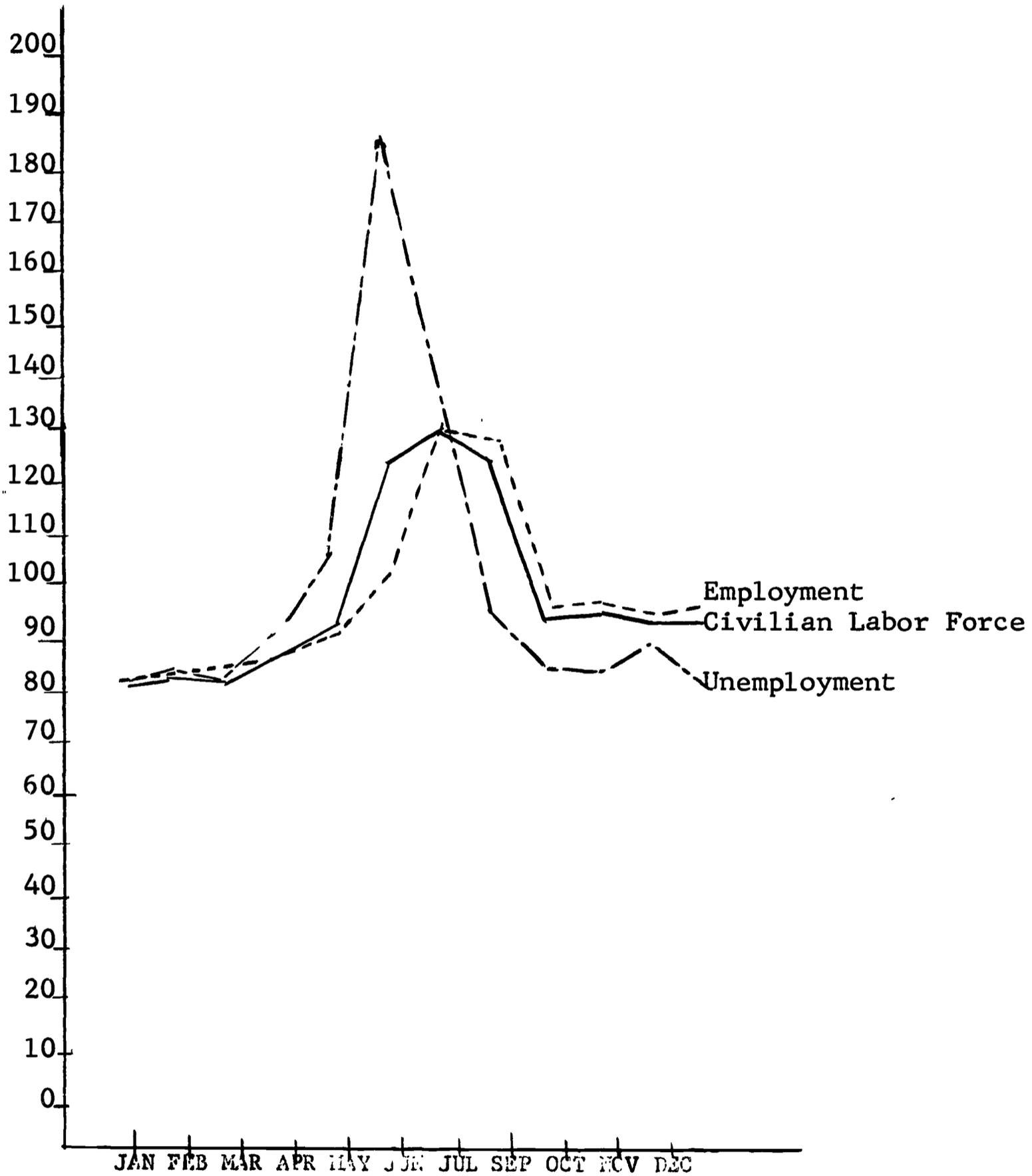


Fig. 1.--Changes in the indexes of employment, unemployment and civilian labor force 16-19 Year Old Age Group

TABLE 1  
 FIVE-YEAR AVERAGES OF MONTHLY DATA OF THE 16-19 YEAR  
 OLD AGE GROUP IN THE CIVILIAN LABOR FORCE (C.L.F.)  
 AND EMPLOYMENT STATUS, 1963-1968 (THOUSANDS)  
 (FIVE YEAR ANNUAL AVERAGE = 100)

Month	C.L.F.	Emp.	Unemp.	Index: C.L.F.	Index: Emp.	Index: Un.
Jan.	4903	4198	705	83.1	83.3	81.9
Feb.	4969	4241	720	84.2	84.1	84.6
March	5006	4288	717	84.8	85.0	83.3
April	5259	4480	779	89.1	88.9	90.5
May	5562	4655	907	94.2	92.3	105.3
June	7330	5751	1579	124.2	114.1	183.4
July	7832	6682	1145	132.7	132.5	133.0
Aug.	7393	6568	825	125.3	130.3	95.8
Sept.	5631	4898	733	95.4	97.1	85.1
Oct.	5679	4955	724	96.2	98.3	84.1
Nov.	5627	4852	776	95.3	96.2	90.1
Dec.	5638	4930	709	95.5	97.8	82.3

Possible Effects of IPI on  
 Employment and Unemployment

It is questionable to what extent employment adjusts itself to the size of the labor force. Although some forms of employment may be held over until summer in order to take advantage of the large influx of cheap labor, normally the size of the labor force will tend to adjust in the same direction as changes in employment. When there is an increase in employment, more people enter the labor force hoping to get work. When employment declines, people leave the labor force because looking for work becomes a hopeless endeavor. This is, of course, not true with students who are thrown on the labor market not because of its requirements but because school turns out for the summer, though perhaps even greater numbers of youth would enter the summer labor market if more jobs were available.

In the absence of adequate job vacancy data, we will use the number actually employed as an indication of the demand for or the capacity to employ young workers. This is valid, since the percentage of unemployed youth, based on a five-year monthly average never fell below 11 per cent for any month, and if the capacity to employ youth had been greater, the rate of unemployment would probably have been less. Therefore, the capacity to employ youth is here treated as given, and the pattern of monthly changes in the level of this capacity is assumed to be generally unresponsive to changes in the availability of labor.

The total average yearly size of the labor force and the average total yearly unemployment are also given. The monthly distribution of these totals, shown in Figure 2, could be assumed to change, however, in accord with certain changes in school programs. For instance, we can assume that the number of youth entering the labor force during any month would be affected by the adoption of IPI, since students progressing at their own pace would graduate at different times during the high. With IPI, one might expect the number graduating from high school and the number entering the labor market each month to be fairly evenly distributed throughout the year. Also, since a student under IPI would be able to take breaks in his studies or cut down on the study load at any time convenient for him, he probably would seek work at times when the market offered him the greatest opportunities. The following three cases present (1) observed labor market conditions, (2) the situation if students entered the market evenly throughout the year, and (3) the situation if students responded to actual labor market conditions.

Case I.--This is simply the observed labor market conditions. The unemployment rate shown in Table 2 and summarized in Table 3, following, is calculated for each month

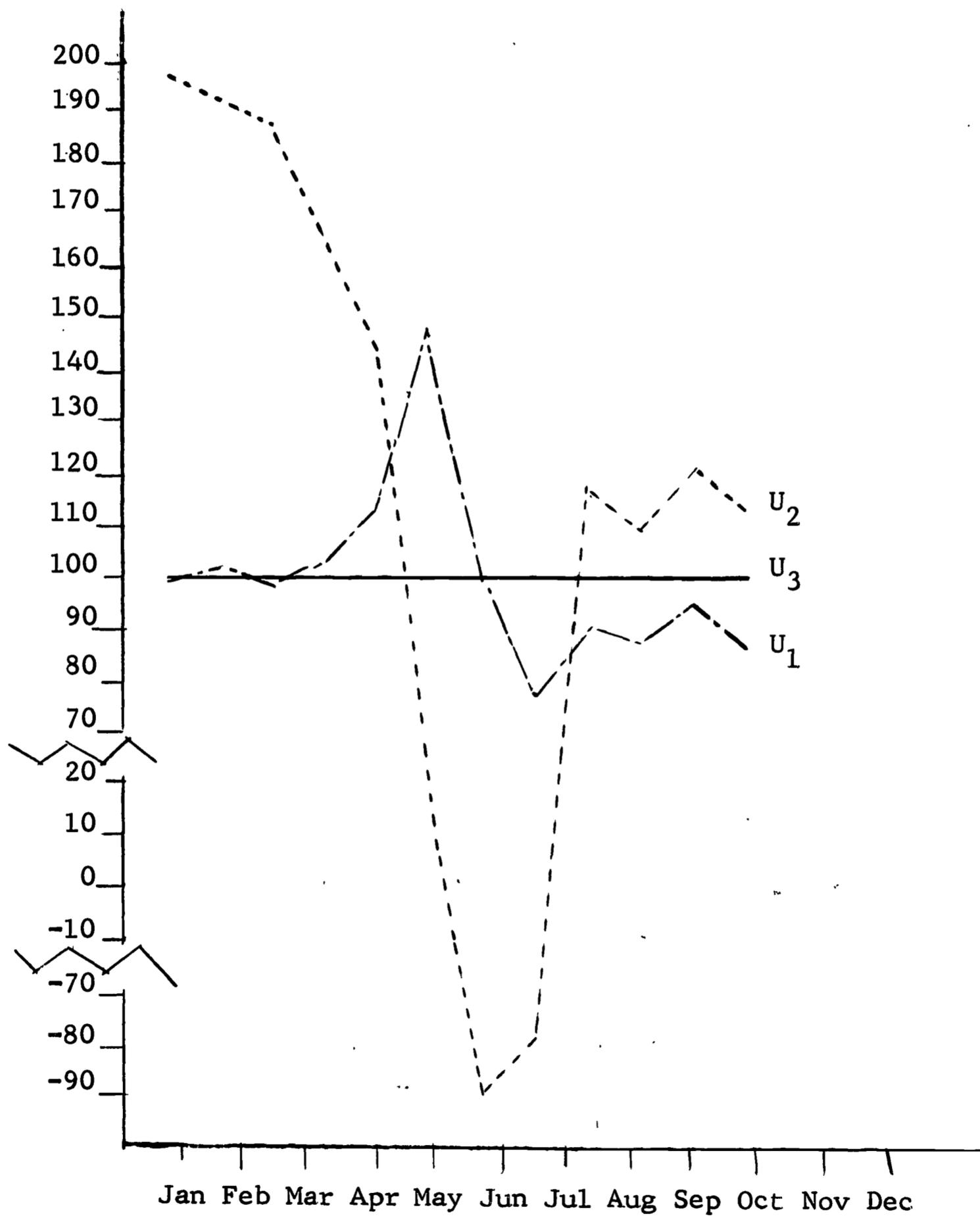


Fig. 2.--Monthly variation of unemployment rates.

TABLE 2  
MONTHLY VARIATION OF UNEMPLOYMENT RATE  
UNDER DIFFERENT ASSUMPTIONS

	Jan.	Feb.	Mar.	Apr.	May	June
U <sub>1</sub>	99.3	101.4	98.6	102.1	113.1	148.3
U <sub>2</sub>	197.6	192.3	187.0	165.1	144.5	17.8
U <sub>3</sub>	100.0	100.0	100.0	100.0	100.0	100.0
	July	Aug.	Sept.	Oct.	Nov.	Dec.
U <sub>1</sub>	100.7	77.2	90.0	87.6	95.2	86.9
U <sub>2</sub>	-90.4	-77.4	117.1	109.6	121.9	113.0
U <sub>3</sub>	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 3  
AVERAGE MONTHLY SIZE OF CIVILIAN LABOR FORCE  
AGED 16-19 UNDER DIFFERENT ASSUMPTIONS

	Jan.	Feb.	Mar.	Apr.	May	June
L <sub>1</sub>	4903	4969	5006	5259	5562	7330
L <sub>2</sub>	5902	5902	5902	5902	5902	5902
L <sub>3</sub>	4899	4958	5017	5253	5430	6728
	July	Aug.	Sept.	Oct.	Nov.	Dec.
L <sub>1</sub>	7832	7393	5631	5679	5627	5628
L <sub>2</sub>	5902	5902	5902	5902	5902	5902
L <sub>3</sub>	7850	7673	5725	5784	5666	5784

by taking the five year average of data for each month for the civilian labor force and unemployed persons. The rate of unemployment is the number of unemployed persons as a percentage of the civilian labor force. These monthly rates of unemployment are shown in Table 4. The arithmetic mean

of the monthly unemployment rates is equal to 100 in calculating the monthly variation in the unemployment rate ( $U_1$ ). The greatest change in the rate of unemployment occurs in June, but this is preceded by a sharp rise in May, when students start looking for employment in anticipation of the summer break. By August, the rate of unemployment falls to the lowest point for the year. During August the rate of employment remains much the same as in July but the number in the labor force falls; therefore, unemployment is less.

TABLE 4  
THE UNEMPLOYMENT RATES WHICH FORM THE BASIS  
FOR THE FOUR INDEXES

	Jan.	Feb.	Mar.	April	May	June
$U_1$	14.4	14.7	14.3	14.8	16.4	21.5
$U_2$	28.9	23.1	27.3	24.1	21.1	2.6
$U_3$	14.3	14.5	14.6	14.7	14.3	14.5
	July	Aug.	Sept.	Oct.	Nov.	Dec.
$U_1$	14.6	11.2	13.0	12.7	13.8	12.6
$U_2$	-12.3	-11.3	17.1	16.0	17.8	16.5
$U_3$	14.9	14.4	14.4	14.3	14.4	14.8

Case II. With students proceeding at their own pace, it might be assumed that they would enter the labor force with the times of entrance distributed randomly throughout the year. This would mean that the number entering the labor force would be the same for each month. The rate of employment is assumed as fixed.

Under these conditions the variations in the rate of unemployment would be as shown in Table 2,  $U_2$ . These conditions give extreme variations in the rate of unemployment with far too many entering the labor market in the winter

months and far too few in the summer months. This situation would be less desirable than that observed under existing conditions.

Case III. It is assumed here that students enter or leave the labor force in response to changes in employment opportunity. Thus the labor force would have a monthly distribution in fixed proportion to the number of employed persons. Here again the demand for labor or rate of employment is assumed to be fixed. If the labor force varies in direct proportion to changes in employment, the rate of unemployment will be constant (Table 2,  $U_3$ ). Of the three situations this latter one would seem to be the most desirable. With unemployment spread evenly throughout the year, it would be much easier to plan for additional employment to reduce it.

In the above situation there has been no reduction in the total amount of annual unemployment. We have only redistributed the total unemployment in different ways throughout the year. The major fluctuation in the rate of unemployment is due at present to the entrance of out-of-school and graduating students onto the labor market in the summer, creating a labor supply in excess of demand. With a year-round school program, and with individual rates of progress, it would be reasonable to assume that there would be no such excess of labor forced onto the market every summer, in which case the total annual unemployment would be lowered by the amount of this summer excess. Thus, the situation assumed in Case III would probably lead to an actual lowering of total annual unemployment.

With IPI, students would be more likely to remain enrolled in school until a job was available, rather than, as at present, entering the labor force as an "unemployed" while he seeks work. There would be no advantage for the student in not doing so. A student enrolled full-time cannot be seeking employment. If a job ends, the student will reenter

school and thus not be unemployed. In this way unemployment of students would be virtually eliminated.

In the preceding, certain labor market variables were manipulated so as to simulate possible effects on the labor market resulting from different hypothetical situations. No attempt was made to estimate the amount of unemployment that could be avoided if IPI were adopted generally, although it was suggested that the annual summer increase in unemployment is due almost entirely to the influx of students onto the labor market.

The age group of 16 to 19 years in the labor force can be classified as enrolled in school or not enrolled. One critical assumption made for the following analysis is that the labor force participation rate for the non-enrolled is constant throughout the year; i.e., they are always in the labor force, therefore, any major change in the monthly average size of the labor force would be caused by changes in the labor force participation rate for enrolled workers. There is no reason to assume that the not-enrolled workers will seek employment more in the summer months than in other months. To do so would mean competing with enrolled workers for temporary summer jobs, as there is no reason to believe that there would be more permanent job openings in the summer months than in other months.

The data for those enrolled or not enrolled in school are for the month of October each year. As noted, the proportions of enrolled and not-enrolled are assumed to be relatively fixed during the school year and the number of not enrolled is assumed not to increase appreciably during the three summer months. Our estimate is that the proportions of enrolled students in the labor force increased from 49 per cent during the regular school year to 63 per cent during the summers.

TABLE 5  
 AVERAGE CIVILIAN LABOR FORCE AGED 16-19 BY SCHOOL  
 ENROLLMENT FOR OCTOBER 1964-1966 (thousands)

	C.L.F.
Total	5750
Enrolled	2814
Not-enrolled	2936
% Enrolled	49%
% Not enrolled	51%

It was noted that there is an average monthly 16-19 year old labor force of 5,363,000 for the nine-month period of September through May. The three-month average size of the labor force for June, July, August is 7,518,000. The difference between the nine-month average and the summer average is 2,155,000 or the average increase in the labor force during the three summer months due to the entrance of students on the labor market. Some of these were employed in the increased number of temporary summer jobs, but the average monthly unemployment was 1,179,000. Although not all of the unemployed were students, we may still assume that the unemployment was due to the excess of students on the market, since many of the jobs held by the students might otherwise have been filled by the non-enrolled. Thus, the excess labor force during the summer due to students seeking summer employment was a monthly average of 1,179,000. Hence, if schools were open during the summer, and if students entered the labor market only to the extent that jobs were available, there would be no unemployment for this age group during the summer. To put this in more realistic terms, the unemployment would not have exceeded the level for the

regular school year. We have already suggested that a simple change in definitions, so that a student enrolled full-time in school is not classified as unemployed, would reduce further the rate of unemployment throughout the year.

The foregoing should only be taken as a very crude estimate of the employment effects of a universal IPI program. The data given are only to illustrate the nature of possible effects.

Vocational Education: the  
Transition from School to Work

One of the major concerns expressed in the President's Manpower Report was the transition from school to work. This transition is usually rough and haphazard, with no systematic program for smoothing the way. For most of the youth, there is considerable shopping around, shifting from job to job until a suitable job is found to the liking of the individual or until the person becomes a casual worker and virtually unemployable.

Youth leaving directly from high school to work are usually unprepared and unqualified to enter into specific job situations. There is discrimination against youth in employment just as there is against the aged. The youth coming out of high school and wishing to work is usually unable to step into a job of any significance and must go through a long period of preliminary training before he can earn an adequate income. Moreover, today's early retirement or early redundancy caused by technological change, requires that the worker reach full earning capacity as early as possible, in order to maximize his life-time earnings. It has often been suggested that there should be better coordination between industry, business and schools, so that the student will be better trained vocationally before he goes to

work. Each state has its own vocational education program for preparing students who do not intend to seek a higher education, but these programs are criticized as inadequate by everyone concerned. The employer complains that the type of vocational education which the student receives is completely unsatisfactory or insufficient. The educator complains that the vocational programs are too narrow for students whose formal education will probably end with high school.

The President's Report noted various experiences with vocational education. These experiences

. . . suggest that substantial improvements in educational curriculums and more linkages to the reality of the work world will help substantially to improve the preparation of youth. While advocates of general or college-bound preparation still argue with those who want to see more content introduced throughout the school curriculum, there is growing agreement on several points: (1) that curriculums can generally be enriched by material drawn from real work situations; (2) that all students should be given much more information concerning career paths and opportunities, and much earlier than is now usual; and (3) that the vocational school program should offer opportunities for students with a far wider range of interests and abilities to try out vocationally oriented curriculums and go on not only to jobs but also, increasingly, to higher education--either directly or after periods of employment. In any case, the secondary education system in this country must strive to reach the point at which all youth who receive a high school diploma but do not go on to further education are adequately equipped to find and keep a meaningful job.

Perhaps a more extensive program of part-time jobs for youth who are in school but who do not plan to pursue higher education would be fruitful. . . .

Even before entry into the job market the student should have maximum opportunity to explore his abilities and preferences in the real world. The tryout period should take place during school years rather than afterward. There should be a vast expansion of cooperative work opportunities that will open new horizons. Work experience, in fact, should become a meaningful part of preparation for career development and life at several stages of youth--not only at the final professional

internship stage. The interaction of classroom instruction and practical exposure should be planned to develop the highest level of capacity possible for each young person at the time of his entry into the job market, whenever that occurs.

There are many practical problems involved in trying to improve vocational education under the present type of instructional program existing in most schools. The facilities in the schools for training in most types of vocational education are inadequate, and where adequate they are unrealistic in terms of the actual working situation which the student will face. If a student works part-time as part of the training program, it is likely to interfere with the regular programs of the school. In addition, even where the student is able to work part-time, it is usually unsatisfactory as a learning experience involving late hours of the day after school, rather than a lengthy period during the day when there can be continuity of activity.

#### IPI and Vocational Education: Advantages

IPI seems to have marked potential for easing the transition from school to work. First, as noted throughout this report, the nature of IPI permits the student to take a break in his regular academic programs in order to work, take a vacation, or to participate in other desirable activities. This flexibility makes it possible for the student to participate in a vocational program in such a way that he can work when necessary with an employer and study when necessary or desirable, blending the two together so he may obtain the benefit from the combination of activities. This would permit the student to acquire real work experience while still "in school." Thus, the student can become acquainted with a number of different work situations, enabling

him to better choose the type of employment he would like to go into when he leaves school. It will also give employers the opportunity to get to know the student, so that their recruiting might be simplified and hiring done on the basis of increased knowledge about the applicant.

IPI as outlined here seems to present almost ideal conditions for vocational education. In fact, the method of instruction, highly suitable for vocational instruction, is perhaps more easily applicable to vocational education than it is to the more abstract social sciences.

With a continuous year-round program of instruction there would be approximately two months added to the time in school each year. In other words, the present twelve-year program could be completed by the average student in ten calendar years, or the program could be maintained at its present twelve years with the addition of two more years' worth of material. This possibility presents a number of problems and offers a number of opportunities particularly in the area of vocational education. Today, vocational education is concentrated in the last two years of high school, the eleventh and twelfth grades, but it is tied in with the regular school program in such a way that the student must be available for formal classes. This complicates the program of working part-time or training part-time in an actual work situation. If all of today's requirements for a twelfth grade education could be completed in ten years, it would leave an additional two years free in which the student could concentrate on a specialized area of vocational activity.

Using individually prescribed instruction, a vocational curriculum could be developed for each individual student to equip him for employment, with general training for a group of occupations or special training for a specific occupation or employer.

Having already completed in ten years what is currently the required curriculum for a high school education, the student would be able to concentrate intensively upon a vocational program which would include individual instruction on a formal basis and work in an actual job situation. These two years of intensive vocational training could prepare a student for most types of skilled or technical work. Having completed his internship during the training program, the student could start immediately upon graduation with an interesting job and an adequate income with little or not additional special training. In many cases the transition might be made without any changes whatsoever, the student having already worked with the employer during his vocational training. He would simply continue on the job as a full-time employee after graduation.

This would approach the ultimate in terms of preparing the student for employability upon leaving school, and could result in virtual elimination of unemployment due to post-graduation job searches and job changing in search of a satisfactory job. This would result in far greater earning capacity for the worker at an early age, as he would not waste the greater part of two or three years, as he does now, before getting settled with some minimum experience.

Such vocational education programs might also eliminate much of the present drop-out problem. One of the major reasons given for drop-outs is that they become bored in school and do not see any relationship between the type of education they are getting and the requirements for employment. An adequate "employment orientated" vocational education program could go far toward preventing such problems. In Jacksonville, Florida, for instance, the holding power of students increased in one secondary school by twenty-five per cent, apparently as the result of the introduction of a vocational education program.

IPI and Vocational  
Education: Problems

Nevertheless, there are still many problems and possible disadvantages involved with such programs, and these must be considered. Today, vocational education is concentrated in the last two years of high school. If two years of school were saved with a year-round school program and the curriculum were unchanged, the current vocational education programs which are given in high school would be completed two years earlier than at present. Thus, the extra two years would be made available for a concentrated program of technical or vocational education. This assumes, of course, that the vocational education currently being offered in high school in the eleventh and twelfth grade could be given to the students at an earlier age. Interviewees in vocational education indicated that children would be able to grasp the present material at a much earlier age, if it were properly presented.

There are a number of questions which would immediately arise regarding a year-round program: Would the two extra years of school be mandatory for students who complete the present requirements for a high school graduation in ten calendar years? How would these two extra years be utilized? Would the student be required to choose between a vocational education program or going to college? Or would he be free to enter the labor market at the early age of fourteen or fifteen? These are questions which must still be answered.

As noted above, a two-year specialized program of vocational education with IPI would permit the design of training programs to suit the needs of a particular employer or even a particular job. This would certainly improve the employability of the students, but perhaps such a program would be self-defeating in the long run, as the immediate

availability of a job does not guarantee its future usefulness. Extreme specialization could result in future unemployment if the job were discontinued because of technological change or for any other reason. For instance, many employers would be likely to exploit the possibility of filling specialized jobs by encouraging students to take the special training required. This high degree of specialization for an individual employer might make it extremely difficult for the worker to be employed in another job. While the employer might exploit the possibility of highly specialized training, he probably would not be willing to guarantee the future employment of the worker who has made the necessary specialization. The likelihood of this form of exploitation is evidenced by the fact that employers explicitly criticize vocational education for not providing the individual student with the type of training which would permit him to enter into a job without additional training.

A particular concern of vocational education today is the need to equip the individual to be adaptable to technological change; that is, with the ability to change jobs as technology advances. There is certainly a need to see that vocational education is both sufficiently specialized to provide workers with immediately usable skills, and sufficiently flexible to enable them to acquire future employment, regardless of economic or technological changes. These objectives would probably necessitate a continuous process of education throughout adult life. This process has not been possible for most workers in the past, and although the need is glaringly evident, no satisfactory provision is made for it today.

Even though vocational education combined with on-the-job training has many advantages, there are still large numbers of children enrolled in schools where there are no possibilities for part-time employment as part of the

vocational education process. Granted that much vocational training can be provided in the school setting itself, this does not provide the desired bridge between school and work. Providing vocational education exclusively in the school setting assumes that the facilities required for such education are available in the schools, which they are not. This means, among other things, that vocational students coming out of rural schools will be far less adequately prepared to enter into a life of work than those from urban schools, thus accentuating the existing differences in the quality of education between rural and urban schools.

This raises another question: Whether the rural schools should be required to provide the type of education and training which will enable students to be employable in an urban setting. Should the tax payers in rural communities, by supporting such vocational programs, be made to subsidize indirectly the urban community? The rural community gets no direct advantage from vocational education aimed at urban jobs for the students. In fact, such programs only encourage rural students to leave the community as soon as their schooling is completed.

This, in turn, raises an even broader problem. At present, most vocational programs are predicated on the assumption that a student should be trained for the employment needs of the local community. This is what employers assume when they complain that the school does not understand the needs of the employer and does not train the students to be immediately employable. They are thinking in terms of their own immediate needs. According to this concept, vocational training in each community should be suited to that community's needs, regardless of whether all the students could be employed in the immediate area or not. The question then arises, whether the student should be allowed to choose the type of vocational education he wishes to receive, regardless

of the immediate needs of the community. For instance, should a Florida student be given the training he desires even if such training could **only be used** in jobs found only in California or New York? Should the local school system support this kind of training, investing in a program of education that is certain to take the student out of the community upon graduation?

## ANNEX B

### ALTERNATIVES IN VOCATIONAL EDUCATION[6]

A vocational educator could identify innumerable alternatives in pedagogy, curriculum, finance, teacher recruitment and preparation, facilities and equipment and an almost endless number of critical issues. These are beyond the knowledge of an economist vitally interested in the results but unschooled and inexperienced in the mechanics of the vocational educator's craft.

From more than casual but less than extensive observations, progress in vocational education is apparent. At the legislative level, Congress has declared a new objective of meeting the employment needs of people rather than the skill needs of employers, a concept the implications of which are only dimly apparent. That the disadvantaged and handicapped deserve greater attention, that greater experimentation and innovation is necessary, that there is a role for residential schools, that new and emerging occupations are the critical ones, and that instructors need more and different preparation for the new assignments are hardly debatable, though the means of implementation may be in doubt. Area schools, skill clusters, central city skill centers, and expansion of training for white collar and technical skills and other developments better known to the practitioners of vocational education are undoubtedly significant and promising. Though the declared objectives are new, the techniques are not alternatives to traditional practice but more pleasing variations upon familiar themes. The alternatives most in need of exploration are

basic philosophical ones, hinted at in 1963 and 1968 legislation and illustrated by scattering of experimental programs. For the student and for the society they raise the question of how best to prepare for employment. For vocational educators they raise the specter of obsolescence as a trade and as an industry.

Is the appropriate objective of vocational education the training of interested youth and adults for employment in occupations for which demands do or will exist in the job market? If so, a unique profession of vocational educator differentiated internally by occupational specialty, separate legislation and appropriations at the federal, state, and school district levels to support that training, a professional association representing and lobbying for the unique interests of that profession and facilities and equipment specifically designated as belonging to that specialized form of education make sense and will endure. On the other hand, is the objective to prepare people for employment in the broadest sense, in a manner consistent with preparation for family life, citizenship, culture and other of education's limitless goals? If so, the separate vocational education structure may have little relevance.

If one begins with an infant as raw material and asks what is required to make him a successful labor force participant during his 40 or 50 year sojourn in that body, the possession of the skills of a particular occupation occur well down in the ordering of priorities. Beyond good physical, mental and emotional health, he must have the basic skills of human relations and of oral and written communications. He must be achievement-oriented. He must look upon work as the primary source of income but must find

nonpecuniary satisfactions and fulfillment in it as well. He must be at least vaguely familiar with the necessities and workings of the economic system. He must be reasonably willing to submit to the rules and discipline of society and the workplace. He must possess basic skills such as arithmetic and a knowledge of science, so important to much of the occupational scene. He must be familiar with the alternative vocational choices available to him and the promises and requirements of each. He must be adaptable to inevitable change. And he must have skills which an employer can use and is willing to pay for; but these salable skills can be obtained by a variety of means of which vocational education is only one and produces only a minority of the total labor supply.

A program of preparation for employment might, therefore, be more likely to center in general than in vocational education. It is significant that this has been the case with most foundation-financed experiments in employment-related education. Technology for Children is sponsored and advocated by a State Director of Vocational Education but taught by elementary school teachers as an integrated part of a regular curriculum. The Nova Schools emphasize general and academic education with career interests as motivators. The American Industries Project stresses environment, not skills, and its primary objective too is motivation. The teaching teams of the Richmond plan are as likely to center around the industrial arts of the English instructor as a vocational educator and always involve a majority of non-vocational teachers.

Those who have advocated and experimented with integrated approaches to preparation for employment have expected

to be ignored by academic educators. They have been surprised at the apathy and sometimes hostility of the employment-oriented vocational educator. They need not have been. It is not surprising that these and similar experiments, though attractive to the public and to students of the job market and gathering favorable marks from evaluators, have found little endorsement within the vocational education profession. However, though the concepts are unsettling, they pose little threat to the jobs of most vocational teachers. Skills must still be taught at some point. Education for employment (in contrast to vocational education in the traditional sense) is not the diesel locomotive, reducing total employment opportunities in an industry as well as eliminating the need for a craft. It is more like the jet transport, offering those flight engineers with the potential qualifications advancement into the status and incomes of pilots but destroying a craft and a union.

The 1967 National Advisory Council on Vocational Education advised:

Vocational education cannot be meaningfully limited to the skills necessary for a particular occupation. It is more appropriately defined as all of those aspects of educational experience which help a person to discover his talents, to relate them to the world of work, to choose an occupation, and to refine his talents and use them successfully in employment. In fact, orientation and assistance in vocational choice may often be more valid determinants of employment success, and therefore more profitable uses of educational funds, than specific skill training.

The philosophy is sound but it is doubtful that at least the vocational educators among them recognized clearly the implications of what they were saying. Early childhood orientation to the world of work, integrating skill preparation with

academic content and maintaining options for post-secondary preparation all make increasing sense in an urban, technological society. They appear to be distasteful to the academic educator wearing his college-bound blinders. The implications are more serious for the historical uniqueness of the vocational education movement. The integration of vocational and academic content in a unified program of education for employment may not threaten obsolescence for vocational teachers. It does menace the existing institutional structure of separate federal appropriations and bureaus, separate state directors and other trappings of the vocational education establishment. It should not be surprising if that establishment which has been the almost sole defender of formal occupational preparation at the less than college level should be less than anxious to be martyred in the modernization and revitalization of that system.

Yet despite this potential threat, a few state directors and many at the level of the individual school appear ready to endorse and live with the integrated concept. Perhaps they foresee as important and satisfying a role recently suggested by Professor Herbert Parnes of Ohio State University. As he visualized the role of vocational education in the total educational relationship, he saw education as a single unified experience but with an "employability supervisor" combining that experience for all aspects which might enhance the student's ultimate employability. Other such supervisors would, in concept, be responsible for promoting the interests of family life, culture, citizenship and the full range of educational objectives. That role of labor market "conscience" could be a critical one. Keeping the academic educator mindful of his responsibilities to the

student's vocational future is a fulltime job at school, district, state, and national levels. Yet the concept of preparation for employment as both a teaching technique and a motivating core would change the role of the vocational educator drastically. The new role would be as a member of a unified educational team, rather than as a player on a separate team in a different ball game.

ANNEX C

EXAMPLES OF CURRENT MANPOWER REPORTING [7]

The following reports on Pinellas County and Tampa are examples of current manpower reporting.

Florida Labor Market Trends  
Pinellas County

April 1970

PINELLAS COUNTY

Letter No. 265

CONSIDER  
YOUTH  
EMPLOYMENT

College and high school students will soon be available for summer work and graduates will be ready for full-time employment. Many of these young people have had summer jobs and/or part-time work experience. They are enthusiastic, catch on quickly, train easily, and have a keen desire to make good. In planning for staff expansion or summer vacation schedules consider these young workers. For further information call the Youth Opportunity Center at St. Petersburg 898-6301 or the Clearwater Florida State Employment Service office at 442-5151.

NONFARM  
EMPLOYMENT  
STABLE

Fluctuations within the non-manufacturing segments of nonfarm employment resulted in a meager increase of 300 in total non-agricultural employment. Pre-Easter sales, continued seasonal uptrends and opening of one new department store accounted for the rise of 600 in retail trade. The service and entertainment industries reached their seasonal peak and began a slow-down which resulted in a decline of 200 in this major segment. Labor stoppages in the construction industry more than off-set expected increases at several new building sites. The other major segments of industry remained unchanged from the previous month.

UNEMPLOYMENT  
DOWN

Total unemployment was estimated at 3,300 and comprised 2.0 percent of the estimated labor force of 167,100. This is a reversal of the uptrend of the past two months and reflects the end of the influx of winter "visitors" as well as additional hiring of local unemployed, particularly in the retail trade industries.

HOURS AND  
EARNINGS

Average weekly earnings for all manufacturing in Pinellas County in February were \$114.00, up \$1.54 from the January figure and \$2.91 above the February 1969 earnings. These changes reflect a steady rise in average hourly earnings over the past year. While average weekly hours worked increased slightly over the month, they were down sharply from a year ago.

LABOR TURN-  
OVER IN  
MANUFACTURING

Both accessions and separations in all manufacturing for the Tampa-St. Petersburg Metropolitan Area were down sharply from the previous month, and to a lesser degree from the previous February. Quits followed the same pattern while new hires showed a steady decline for the year. Layoffs, although lower than the previous month, recorded a substantial increase over this time last year.

PUBLIC  
SERVICE  
INFORMATION

The St. Petersburg office of the Florida State Employment Service broadcasts job openings daily on radio stations WLCY, WILZ, WINQ and WDAE as well as on WLCY-TV, Channel 10, "Opportunity Knocking," a Monday, Wednesday and Friday feature of the "Good Morning Show" between 8:00 a.m. and 8:30 a.m. and "Opportunity Line," a Saturday feature between 2:00 p.m. and 2:30 p.m. The Clearwater office of the Florida State Employment Service broadcasts openings regularly on WTAN, WCWR and WAZE. This is a PUBLIC SERVICE rendered to this

area by these stations to help us fill your job openings. May we assist you through these media?

Call 896-6651, St. Petersburg

Call 442-5151, Clearwater

BUILDING PERMITS FOR MARCH 1970

	<u>Number</u>	<u>Valuation</u>	
Clearwater	198	\$2,633,500	
Belleair	6	34,300	
Dunedin	54	1,208,000	
Largo	38	575,575	
Tarpon Springs	11	40,683	
Safety Harbor	<u>17</u>	<u>187,954</u>	
Clearwater	324		\$ 4,680,012
St. Petersburg	520		8,686,070
Gulfport	30	96,894	
Treasure Island	35	638,734	
Indian Rocks Bch. S. Shore	4	10,950	
Madeira Beach	18	110,743	
South Pasadena	5	53,000	
City of Pinellas Park	122	1,270,405	
St. Petersburg Beach	62	436,770	
North Redington Beach	1	500	
Redington Beach	8	50,069	
Redington Shores	0	-0-	
Unincorporated Areas	<u>382</u>	<u>3,378,233</u>	
Adjacent Areas	<u>667</u>		<u>\$ 6,046,298</u>
TOTAL	1,511		\$19,412,380

Released by:

JOHN WYNNICK, Manager  
Florida State Employment Service  
St. Petersburg, Florida

LOUIS E. FREY, Manager  
Florida State Employment Service  
Clearwater, Florida

Prepared by the Florida State Employment Service in cooperation with the U. S. Bureau of Labor Statistics.

## LABOR FORCE ESTIMATES - PINELLAS COUNTY

Employment Status	March 1970	February 1970	March 1969
Total Civilian Labor Force	167,100	166,900*	161,200
Unemployed	3,300	3,600	2,400
Employed	163,800	163,300*	158,800
In Agriculture	1,000	1,100	1,100
In Nonagricultural Establishments (1)	136,900	136,600*	132,200
Other (2)	25,900	25,600	25,500
Employed Workers in Nonagricultural Estabs. (1)	136,900	136,600*	132,200
<u>Manufacturing</u>	<u>21,600</u>	<u>21,600*</u>	<u>22,000</u>
Durable Goods	15,400	15,400*	16,100
Electrical Equipment and Supplies	7,200	7,200	8,300
Other Durable Goods	8,200	8,200*	7,800
Nondurable Goods	6,200	6,200	5,900
Food & Kindred Products	1,600	1,600	1,500
Printing & Publishing	2,200	2,200	2,100
Other Nondurable Goods	2,400	2,400	2,300
<u>Contract Construction</u>	<u>11,700</u>	<u>11,800</u>	<u>11,400</u>
<u>Transportation, Communications &amp; Public Utils.</u>	<u>6,200</u>	<u>6,200</u>	<u>5,700</u>
<u>Trade</u>	<u>39,900</u>	<u>39,300</u>	<u>37,900</u>
Wholesale Trade	4,700	4,700	4,600
Retail Trade	35,200	34,600	33,300
Bldg. Materials & Farm Equipment	1,700	1,700	1,600
General Merchandise	7,200	6,900	6,300
Food Stores	4,800	4,800	4,600
Auto. Dealers & Service Stations	4,900	4,900	4,800
Apparel & Accessory Stores	1,600	1,500	1,500
Furniture, Home Furnishings Stores	1,500	1,500	1,500
Eating & Drinking Places	9,500	9,300	9,100
Miscellaneous Retail Stores	4,000	4,000	3,900
<u>Finance, Insurance &amp; Real Estate</u>	<u>8,800</u>	<u>8,800</u>	<u>8,100</u>
<u>Services &amp; Miscellaneous &amp; Mining</u>	<u>31,000</u>	<u>31,200</u>	<u>30,000</u>
Hotels & Other Lodging Places	5,300	5,400	5,000
Personal Services	3,100	3,100	3,200
<u>Government</u>	<u>17,700</u>	<u>17,700</u>	<u>17,100</u>
Federal	3,200	3,200	3,100

(1) All industries are classified according to the Standard Industrial Classification Manual, 1967. All data are adjusted to first quarter 1969 benchmark levels.

(2) "Other" includes self-employed, unpaid family and domestic workers. \* Revised  
This information is made possible by the cooperation of local employers who furnish employment data on a monthly basis.

LABOR TURNOVER IN MANUFACTURING  
(Per 100 Workers)  
Tampa - St. Petersburg Metropolitan Area

Industry	ACCESSIONS						SEPARATIONS								
	Total			New Hires			Total			Quits			Layoffs		
	Feb. 1970	Jan. 1970	Feb. 1969	Feb. 1970	Jan. 1970	Feb. 1969	Feb. 1970	Jan. 1970	Feb. 1969	Feb. 1970	Jan. 1970	Feb. 1969	Feb. 1970	Jan. 1970	Feb. 1969
ALL MANUFACTURING	6.8	/1 7.6	7.2	5.0	/1 5.5	6.3	5.6	/1 8.0	6.1	3.6	/1 4.5	4.1	1.4	/1 2.7	1.0
Food & Kin. Prod.	7.7	8.5	8.3	6.9	6.9	8.0	6.4	8.8	8.1	5.3	6.3	6.2	0.6	1.6	1.1
Tob. Man.	4.9	12.5	3.6	4.2	3.6	1.5	5.0	8.7	3.2	4.1	3.7	2.9	*	4.0	*
Print. & Pub.	1.0	2.0	2.4	1.0	1.0	2.3	0.3	1.9	2.4	0.3	1.7	1.9	*	*	*
Chem. & All. Prod.	8.6	8.3	6.7	8.6	8.1	6.7	7.3	6.3	5.7	5.4	5.2	4.5	*	*	0.1
Stone, Clay, Glass	6.5	9.0	3.9	6.5	8.9	3.8	7.5	13.1	4.1	6.7	12.1	3.3	0.3	*	*
Fab. Metal Prod.	6.7	11.5	6.7	6.5	10.6	6.1	5.4	7.4	6.1	3.8	6.2	4.4	0.9	0.6	0.8
Elec. Machinery	2.6	1.9	2.0	1.6	0.9	1.7	3.8	5.8	2.6	1.7	1.0	1.1	1.8	4.2	1.1

/1 Revised

\* Rate less than 0.05.

AVERAGE HOURS AND EARNINGS IN SELECTED MANUFACTURING INDUSTRIES /1  
PINELLAS COUNTY

Industry	Average Weekly Earnings			Average Weekly Hours			Average Hourly Earnings		
	Feb. 1970	Jan. 1970	Feb. 1969	Feb. 1970	Jan. 1970	Feb. 1969	Feb. 1970	Jan. 1970	Feb. 1969
ALL MANUFACTURING	\$114.00	\$112.46*	\$111.09	40.0	39.6*	42.4	\$2.85	\$2.84	\$2.62
Food & Kin. Prod.	115.04	118.27*	101.09	46.2	46.2*	43.2	2.49	2.56*	2.34
Print. & Pub.	118.04	121.80	111.84	38.7	40.6	36.7	3.05	3.00	2.89
Elec. Machinery	130.88	130.00*	124.70	40.9	41.8*	43.6	3.20	3.11*	2.86

/1 Estimates are for all full-time and part-time production and related workers who are employed during the week including the 12th of the month. These average earnings figures are computed on a "gross" basis and reflect changes in premium pay for overtime and late shift work as well as changes in basic hourly and incentive rates.

\* Revised

LOCAL OFFICE

FLORIDA DEPARTMENT OF COMMERCE  
BUREAU OF EMPLOYMENT SERVICES

P O BOX 10490  
SAINT PETERSBURG, FLORIDA 33733

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EMPLOYMENT SECURITY MAIL

## Labor Market Information

Florida Labor Market Trends  
Tampa

April 1970

TAMPA

Letter No. 290

EMPLOYMENT  
INCREASES  
SLIGHTLY

Nonfarm employment, estimated at 170,300 at mid-March, made a slight increase of 100 over February. Most industries changed little or none in employment during the month. Total manufacturing employment edged off 100 while trade employment was also off 100. An increase of 200 in contract construction was balanced by a decrease of 200 in transportation, communication and public utilities. Finance, insurance and real estate; services; and government each edged up 100.

MANUFACTURING

Manufacturing employment had a total of 32,800, down 100 from February. While employment gained 400 in durable goods manufacturing, nondurables lost 500. An increase in ship repair employment and a slight gain in fabricated metal products boosted durable goods employment. Food and kindred products employment dropped 400 due to a temporary decline in canning. Other manufacturing industries had little or no change in employment.

NONAGRICULTURE  
EMPLOYMENT UP  
5.8 PERCENT  
OVER YEAR AGO

Employment estimates indicated that the economy was holding to a normal seasonal pattern for the period. March nonagricultural wage and salary employment showed an over-the-year increase of 5.8 percent. Manufacturing had a yearly gain of 3.1 percent, construction employment was up 13.0 percent, retail trade gained 3.5 percent, services rose 6.9 percent and government employment was up 6.5 percent.

UNEMPLOYMENT  
DOWN

Unemployment, estimated at 5,100 in March, was down 100 from February but up 200 over the March 1969 estimate. The labor force changed very little during the month. The unemployment rate was 2.5 in March, unchanged from February. Although unemployment was lower in March 1969, the unemployment rate was also 2.5.

LABOR FORCE ESTIMATES

	March 1970	February 1970	March 1969
Total Civ. Labor Force	204,400	204,300	194,100
Unemployed	5,100	5,200	4,900
Employed - Total	199,300	199,100	189,200
Nonag. wage & sal. workers	170,300	170,200	161,000
All other nonag. /1	23,400	23,400	22,700
Agricultural	5,600	5,500	5,500
Unemployment Rate	2.5	2.5	2.5

/1 Includes self-employed, unpaid family workers and domestics.

**HOURS AND EARNINGS**

Average weekly earnings in all manufacturing were \$119.29 in February, down \$4.97 from January but up \$5.47 above February 1969 earnings. Earnings were reduced in February due to a shorter work week than in January. Average weekly hours worked in February were 40.3, a decrease of 2.4 hours from January and 1.7 hours less than in February 1969. Average hourly earnings in all manufacturing were \$2.96 in February as compared with \$2.91 in January and \$2.71 one year ago. Earnings decreased in food and kindred products and in printing due to fewer hours worked.

**LABOR TURNOVER IN MANUFACTURING**

Accessions per 100 workers were 6.8 in February. The separations rate was lower at 5.6. Accessions in all manufacturing in February were lower than the 7.6 rate for January and the 7.2 rate for February 1969. New hires in February were 5.0 per 100 workers; in January the rate was 5.5 and in February 1969 it was 6.3. The February separations rate was lower than in January. The 3.6 quit rate in February was lower than in January.

**BUILDING PERMITS**

Building Permits - March 1970:

	<u>Number</u>	<u>Value</u>
Tampa	1,021	\$3,764,817
County Zoning	429	4,076,026
Temple Terrace	<u>22</u>	<u>216,096</u>
Total	1,472	\$8,056,939

Released by:  
 JACK B. BURGESS, Manager  
 Florida State Employment Service  
 Tampa, Florida

Prepared by the Florida State Employment Service in cooperation with the U. S. Bureau of Labor Statistics.

The job you place with us is advertised over the following radio and TV stations: WFLA-TV, WTVT-TV, WDAE, WPKM, WHAN, WINQ, WSOL, and WPLA (Plant City). FOR RESULTS, RESOLVE TO USE YOUR STATE EMPLOYMENT SERVICE. CALL 229-5121 in Tampa or 752-5001 in Plant City.

ESTIMATED EMPLOYMENT IN NONAGRICULTURAL ESTABLISHMENTS  
Hillsborough County, Florida  
(Prepared in cooperation with the U.S. Bureau of Labor Statistics)

Major Industries /1	Estimated Employment as of:		
	March 1970	February 1970	March 1969
<b>TOTAL</b>	<b>170,300</b>	<b>170,200</b>	<b>161,000</b>
<u>Manufacturing</u>	<u>32,800</u>	<u>32,900</u>	<u>31,800</u>
Durable Goods	14,500	14,100	13,400
Stone, Clay & Glass Products	2,300	2,300	2,300
Fabricated Metal Products	4,500	4,400	3,800
Other Durable Goods	7,700	7,400	7,300
Nondurable Goods	18,300	18,800	18,400
Food & Kindred Products	7,700	8,100	7,700
Tobacco Manufactures	2,600	2,600	2,600
Printing & Publishing	1,600	1,600	1,600
Chemicals & Allied Products	3,000	3,000	3,200
Other Nondurable Goods	3,400	3,500	3,300
<u>Contract Construction</u>	<u>12,200</u>	<u>12,000</u>	<u>10,800</u>
<u>Transportation, Communic. &amp; Public Utils.</u>	<u>14,700</u>	<u>14,900</u>	<u>14,200</u>
Railroad Transportation	1,900	1,900	1,900
Motor Freight Transportation	3,000	3,000	2,900
Water Transportation	1,900	2,100	1,900
<u>Trade</u>	<u>49,200</u>	<u>49,300</u>	<u>46,500</u>
Wholesale Trade	17,200	17,200	15,700
Retail Trade	32,000	32,100	30,800
Building Materials & Farm Equipment	1,300	1,300	1,300
General Merchandise	7,300	7,400	7,000
Food Stores	4,900	4,900	4,800
Automotive Dealers & Service Stations	5,300	5,300	5,000
Apparel & Accessory Stores	1,900	1,800	1,700
Furniture, Home Furnishings Stores	1,400	1,500	1,500
Eating & Drinking Places	6,500	6,500	6,400
Miscellaneous Retail Stores	3,400	3,400	3,100
<u>Finance, Insurance &amp; Real Estate</u>	<u>8,900</u>	<u>8,800</u>	<u>8,500</u>
<u>Services &amp; Miscellaneous &amp; Mining</u>	<u>26,300</u>	<u>26,200</u>	<u>24,600</u>
Hotels	1,800	1,800	1,700
Personal Services	3,100	3,100	3,100
<u>Government</u>	<u>26,200</u>	<u>26,100</u>	<u>24,600</u>
Federal	3,700	3,700	3,700

/1 All industries are classified according to the Standard Industrial Classification Manual, 1967. All data are adjusted to first quarter 1969 benchmark levels.

The above information is made possible through the cooperation of local employers who furnish employment data on a monthly basis.

LABOR TURNOVER IN MANUFACTURING  
(Per 100 Workers)  
Tampa - St. Petersburg Metropolitan Area

Industry	ACCESSIONS						SEPARATIONS											
	Total			New Hires			Total			Quits			Layoffs					
	Feb. 1970	Jan. 1970	Feb. 1969	Feb. 1970	Jan. 1970	Feb. 1969	Feb. 1970	Jan. 1970	Feb. 1969	Feb. 1970	Jan. 1970	Feb. 1969	Feb. 1970	Jan. 1970	Feb. 1969			
ALL MANUFACTURING	6.8	/1	7.2	5.0	/1	6.3	5.6	/1	8.0	6.1	3.6	/1	4.5	4.1	1.4	/1	2.7	1.0
Food & Kin. Prod.	7.7	8.5	8.3	6.9	6.9	8.0	6.4	8.8	8.1	5.3	6.3	6.2	0.6	1.6	1.1			
Tob. Man.	4.9	12.5	3.6	4.2	3.6	1.5	5.0	8.7	3.2	4.1	3.7	2.9	*	4.0	*			
Print. & Pub.	1.0	2.0	2.4	1.0	1.0	2.3	0.3	1.9	2.4	0.3	1.7	1.9	*	*	*			
Chem. & All. Prod.	8.6	8.3	6.7	8.6	8.1	6.7	7.3	6.3	5.7	5.4	5.2	4.5	*	*	0.1			
Stone, Clay, Glass	6.5	9.0	3.9	6.5	8.9	3.8	7.5	13.1	4.1	6.7	12.1	3.3	0.3	*	*			
Fab. Metal Prod.	6.7	11.5	6.7	6.5	10.6	6.1	5.4	7.4	6.1	3.8	6.2	4.4	0.9	0.6	0.8			
Elec. Machinery	2.6	1.9	2.0	1.6	0.9	1.7	3.8	5.8	2.6	1.7	1.0	1.1	1.8	4.2	1.1			

/1 Revised

\* Rate less than 0.05.

AVERAGE HOURS AND EARNINGS IN SELECTED MANUFACTURING INDUSTRIES /1  
Hillsborough County

Industry	Average Weekly Earnings			Average Weekly Hours			Average Hourly Earnings		
	Feb. 1970	Jan. 1970	Feb. 1969	Feb. 1970	Jan. 1970	Feb. 1969	Feb. 1970	Jan. 1970	Feb. 1969
ALL MANUFACTURING	\$119.29	\$124.26*	\$113.82	40.3	42.7*	42.0	\$2.96	\$2.91*	\$2.71
Food & Kin. Prod.	99.39	108.21*	92.69	40.9	44.9*	40.3	2.43	2.41	2.30
Tob. Man.	87.82	87.24	79.70	35.7	35.9	35.9	2.46	2.43	2.22
Print. & Pub.	147.06	149.72	160.58	38.0	39.4	43.4	3.87	3.80	3.70
Chem. & All. Prod.	139.36	136.50*	126.90	45.1	45.5	47.0	3.09	3.00*	2.70

\* Revised

/1 Estimates are for all full-time and part-time production and related workers who are employed during the week including the 12th of the month. These average earnings figures are computed on a "gross" basis and reflect changes in premium pay for overtime and late shift work as well as changes in basic hourly and incentive rates.

LOCAL OFFICE

FLORIDA DEPARTMENT OF COMMERCE  
BUREAU OF EMPLOYMENT SERVICES

P. O. BOX 1572  
TAMPA, FLORIDA 33601

OFFICIAL BUSINESS

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## Labor Market Information

## SELECTED REFERENCES

1. United States Department of Labor, Statistical Abstract of the U.S., 1965.
2. U.S. Department of Labor, Special Labor Force Report No. 74. "Labor Force Projections by State, 1970 and 1980." 1966.
3. U.S. Department of Labor. "Technician Manpower: Requirements, Resources, and Training Needs." June, 1966.
4. Florida Higher Education Facilities Study. Tallahassee, Florida: State Department of Education, 1968.
5. Adapted from: Final Report (Grant No. OECO-8-080480-4477(010) of James C. Simmons and Robert J. Garvue, Florida State University, An Examination of the Socio-Economic Implications of the Adoption of Individually Prescribed Instructional Systems by School Systems. Bureau of Research, Office of Education, Department of Health, Education, and Welfare, January, 1969.
6. Adapted from: Final Report (Grant No. OEG-3-7-000158-2037) of Robert C. Young (ed.), Manpower Information for Vocational Education Planning, Center for Vocational and Technical Education; Ohio State University 1900 Kenny Rd., Columbus, Ohio, November, 1969.
7. Florida State Department of Commerce, Letter Nos. 265 and 290. April, 1970.

GOAL 5

APPENDIX B

PROGRAM UTILIZATION IN MANPOWER  
DEMAND SATISFACTION

by

Lawrence Weisman

This study seeks to examine quantitatively the manner in which statewide vocational-technical programs meet state manpower needs. There will be many who will criticize the data used and the comparisons that have been made. The author concurs with these criticisms in that there are rough edges and forced matches. It is important, however, to know that the information available is poor; that in itself has at least one message. And in this light it must be stated that we used the best information that we could find. Mr. Jerry Butzer, of our staff, spent considerable time investigating sources.

The technique of examining the data by observation rather than analysis seemed appropriate for these reasons and also because the meaning does not arise solely from them, but from general observations in the field as well.

The selection of the occupations listed in the tables was arbitrary and at the discretion of the author. Some were selected because they were of special interest for a variety of reasons, some were selected just because they were felt to be typical. The point is, the data should not be construed as a representative sample in the statistical sense.

The data for FY 69/70 were not available at the time of writing, but will be included in the report for June, 1971.

It is recommended that the State Department of Education adjust its present annual reporting date for VTE information for the Federal Reports to an earlier one. The present system produces data that is several months too late to be useful for planning purposes on local and state levels. August is the earliest month in which feedback can be anticipated, and this is not adequate to make program adjustments. The result is that local districts must duplicate data gathering processes for local use--at significant cost--or they must plan with data one year old. This information, if timely, could be useful in adjusting program capacity planning, and consequently, could affect initial hiring and contract renewal decisions.

The data gathering process can begin shortly after the opening of the spring semester. These data can be adjusted by applying attrition and acquisition experience factors developed from previous years. The simplicity of these calculations can only be appreciated in the light of the discussions of the aspects of a total information system found in the accompanying individual reports by Kraft, Pate, and Latta.

This would also permit the state department more time to audit and correct the feeder reports to produce a more accurate consolidation.

In the event that the Office of Education finds no benefit in the recommendation, it is further recommended that they permit the state the option of adopting it.

It is recommended that an interagency council be established on the Federal level to adopt a common occupational classification system.

The accompanying tables illustrate the confusion that can result from a profusion of codes. One goal for this evaluation, and a continuing requirement for educational planners, is to match training requirements to manpower

requirements. Columns B, C, and D of Table 1 contain different codes utilized by agencies within Florida; undoubtedly there are others. The problem goes beyond codes, however, because patterns of "crosswalk" can be developed between codes if the classification patterns are the same.

Classification systems are hierarchical in structure with the major classification at the pinnacle. Classifications by industry or by occupational area are used most frequently, but these are hard to crosswalk. Similarities of occupations are more closely aligned with skills than with the industry. For instance, a boilermaker in the railroad industry could convert more readily to a pipefitter in the marine construction industry than he could become a brakeman or engineer: the basic skill being welding. Thus, manpower needs and resources may be studied more realistically by grouping basic skills.

For example, sewing machine operation is common to tailors, dressmakers, canvas goods operators, upholsterers, and so forth. It would not require total retraining for any of these to shift into another sewing machine craft. It may be seen that recent legislation restricting imports of certain textile commodities will affect not only the demand for garment workers, but for other "Sewers and Stitchers, Manufacturing" (DOT Classification). It may be observed in Table 2 that the "Textile Production" category shows the operator trainees (Total Enrollment) exceed the demand by 329 per cent. The training completed (Completion) column may not be significant in this category since there are no licensing requirements and since employment depends upon skill attained and not upon completion of the program. The significance is that increased demand or new demand for any subcategory here should not be met by additional preparatory programs since the demand will likely be met by a shift between industries. There may be need for temporary

supplemental programs followed by reorganization of some existing programs.

The effect on reporting of differences in classifications within the educational structure may be observed by examining the Automotive Technology category on Table 1. The enrollment figures were obtained from the Federal Reports [3]. Only one program was listed in the Personnel Directory for Technical Education [6], while eight were listed in the Director of Post-Secondary and Adult Occupation Curriculums for Florida [2]. Either the enrollment figure is wrong or the number of courses is wrong, but the resulting average is impossible.

A common classification system would also facilitate the implementation of a total information system and interagency data sharing; both recommendations are found elsewhere in this report.

It is recommended that cost-effectiveness studies be conducted on low output, high cost programs.

Column F on Table 1 shows average enrollment figures for the occupations selected. In some occupations, e.g., medical assisting, no special facilities or courses may be required but existing courses in other programs are utilized. Others, such as Massage Technology, require special facilities and instructors. Some courses may have good utilization but poor application. In this last case, Commercial Pilot Training is a good example. While Total Demand (Table 2) of 276 would seem to justify the Total Completions of 155, the low percentage of completions (10%) would indicate that admissions need to be curtailed. Since a commercial pilot's license would be relatively dependent upon completion, and the cost to the student is too high for idle motivation, one might conjecture that many students are interested in flying for personal use. In any event, this should be a funding consideration. Another

aspect that should be considered would be in the number of new entries that are recruited from the military forces.

Since techniques and consideration for cost-effectiveness studies are developed in an accompanying paper by Richard Kraft, these will not be enumerated here. It is necessary to emphasize that Table 1 demonstrates that some programs should be studied to enhance their program utilization. Consideration should be given to increasing the enrollments by regional or even national publicity. Another possibility for increasing utilization is to plan for shared facilities. For example, are there any kinds of training in health related occupations that could appropriately use the Massage facilities? Could other types of classes be conducted in the Massage classroom? Are there new programs that could be offered to utilize these facilities, e.g., Athletic Trainer Assistant?

Finally, what are the implications of combining facilities? Factors normally inhibiting this action are tenure of the instructor(s) and investment in the facilities. The questions that must be answered are:

1. Is it more economical to continue to maintain the facilities at low levels of utilization or is it better to absorb liquidation losses.

2. Can vacancies be found at other institutions or is it economically advantageous to carry one or more instructors in surplus positions at other institutions until suitable vacancies occur?

3. If a program has limited economic value, does it have redeeming social value? For example, the overproduction of typists cited earlier has definite value for personal use; this may have both social and personal economic value.

These questions and other similar ones should be included in the cost-effectiveness study.

Occupational programs should be restructured into sequential levels, which is sometimes referred to as "laddering." Students should be permitted to enter at any appropriate level and to exit with a certificate at each level completed.

Examination of Column G, Table 2, reveals that a number of occupations have zero or an otherwise very low percentage of completions. For some of these there may be special circumstances, such as was discussed for Commercial Pilot Training, and for new, two-year programs, there will be no completions for the first year. Generally, it may be observed that there is a correlation between low Percentage of Enrollment Completed (G) and a low Percentage of Demand Satisfaction.

The Demand Satisfaction figure was calculated by dividing Completions (F) by Demand (C). Thus, it does not mean that only that percentage can be satisfied by the educational program; it does mean that only that percentage of the demand can be satisfied by students who have completed. Therefore, the employer is forced to accept applicants who have not completed their training. It should be noted that the demand figure quoted represents new entries and not "rehires." We must conclude that many students are leaving the program to accept jobs in which they are only partially trained. We may further hypothesize that since employers are willing to hire students before they have completed the program, the students have acquired entry level skills at some point prior to completion. It would seem appropriate, therefore, to shorten the initial program to basic or entry level.

The results of this change would be to:

1. Encourage students to complete the shorter program.
2. Permit students to enjoy the "success" of a school completion, signified by a certificate, which would

tent to stimulate participation in continuing education programs or return to advanced programs.

3. Encourage employers to look for completion as a sign of minimum entry level skill and thus discourage them from hiring students before completion.

4. Reflect the success of vocational programs more accurately in quantitative reports.

The overall plan for restructuring vocational programs is outlined in an accompanying paper by this writer (Goal 4, Appendix A).

It is recommended that raw data on completions should not be used on the Federal Report as they are not significant. An adjusted percentage would be more meaningful, calculated by dividing completions by initial enrollments in established programs.

It is possible that within individual classifications, some programs will be of one year duration or less, while other programs may be of two years' duration. It is even conceivable that, particularly in the secondary schools, some programs may be designed to continue three or four years. An established program, for purposes of our recommendation is one which has been established long enough for a full sequence to complete in the year being reported. Reporting completions for a course in which no one has had an opportunity to complete will obviously distort the results. This is especially significant during periods of expanding offerings, which is the present condition.

It is recommended that interagency committees be established at both Federal and State levels to develop systems of information sharing.

The interaction and interdependency of commerce, labor, and education agencies is like the old adage about the weather: "Everybody is talking about it, but nobody is doing anything about it." There are, however, several

factors that make the need one of more pressing importance:

1. The increasing complexity of the society and the economy due to growth in size and technology.
2. The increasing complexity and cost of information retrieval system.
3. The increasing complexity and need for planning and the resulting increasing dependence on data retrieval systems.
4. The growing technology and hardware available to accomplish the requirement.

An example of a need that could be met in this manner would be the need for follow-up data for school graduates, particularly of vocational programs. Graduates of vocational programs are traditionally reluctant to answer questionnaires regarding their employment status and those few who do answer are deemed by many to be the "unsuccessful" ones. In a private interview, Dr. Ralph O. Gallington, Professor of Vocational and Industrial Education at The Florida State University, expressed the belief that surveys made in this manner would be significantly biased. Dr. Gallington asserted that the only way to obtain an unbiased sample would be by making field visits. This type of survey is costly. One area vocational center designed a simple post-card type questionnaire and combined it with an alumni membership offer. This had all the earmarks of success, but produced only a 20 per cent return. The need for follow-up data and the inherent problems in obtaining it are well documented. The information is available in government agencies. The best information is available in the Internal Revenue Service (IRS).

The IRS has occupational title information on each tax return and all tax returns are now computerized and in data banks. With appropriate enabling legislation the following program would be feasible:

1. All employers would be required to enter DOT codes on the W-2 form.
2. Each student would be required to have a social security number and to have it on file in his school.
3. Each state would submit lists of graduates by social security number to the regional IRS data center annually.
4. IRS would annotate the file of each student, indicating the state from which graduated and would report on the student for five years or as agreed upon with the state.
5. The report would include, as a minimum, the chief occupation by DOT code, during the year for each graduate. It should include the income category of each graduate. It could include such information as marital status, residence, employer's address.
6. Safeguards would have to be provided to protect the privacy of the individual.

TABLE 1  
PROGRAM UTILIZATION

a	b	c	d	e	f	g
Occupation	OE Code	VTAD Code	Commerce Code	Total Enrollment	No. of Programs	Average Enrolled
Ambulance Attendant	07.02 99			51	1	51
Dental Assistant	07.01 01	3046 (046V)		221	10	22
Dental Hygienist	07.01 02	3047 (047V)		203	3	68
Dental Lab. Technical	07.01 03	3019 (019V)		193	2	96
Inhalation Therapy Tech.	07.02 09	3053 (053V)		49	2	24
Medical Assistant	07.02 09	3054 (054V)		96	5	12
Medical Lab. Assistant	07.02 03	3067		228	7	33
Optometric Asst.	07.02 99	3058 (058V)		59	*2	30
Physical Therapy Asst.	07.02 15	3059 (059V)		39	*2	20
Radiologic (X-ray) Tech.	07.02 11	3038-(038V) 3045-(045V)		116	5	23
Surgical Tech.	07.02 13	3009 (009V)		229	*8	29
Total Medical & Dental Tech.			1,280	1,484	36	41
Textile Prod. Dressmaking	17.33 01			850	45	19
Tailoring	17.33 02			660	13	51
Total Sewing Mach. Oper.			6,840	1,510		
Construction: Carpentry	17.10 01		5,110	2,241	15	149
Construction: Electricity	17.10 02		5,140	2,222	32	69
Const. Plumbing & Pipefitting	17.10 07		5,170	1,198	18	67
Millwork and Cabinet Making	17.36 01		5,915	656	5	131
Aeronautical Technology	16.01 99	042V (4042)		*281	4	70
Construction: Masonry	17.10 04		5,120	1,298	16	81

TABLE 1.--Continued

Occupation	OE Code	VTAD Code <sup>c</sup>	Commerce Code	Total Enrollment	No. of Programs	Average Enrolled
Electrical Lineman	17.14 02		5,710	807	2	404
Nurse Associate	07.02 04	3044 (044V)	1,230	*2,047	15	136
Practical Nurse	07.02 05	3001 (001V)	7,950	*2,324	25	93
Automotive Mechanic	17.03 02		5,430	6,774	66	98
Aviation Maintenance	17.04 01		5,420	*4,350	6	725
Automotive Technology	16.01 04	013V (4013)		30	8	4
Commercial Pilot Training	16.05 02		1,915	*1,556	5	311
Drafting & Design Tech. Graphics Technology	16.01 99	040V (4040)		181	5	36
Radiological Health Tech.	16.05 99	2045 (045V)	1,280	*46	1	46
Massage Technology	07.02 99			22	1	22

<sup>a</sup>Titles from ref. 3.

<sup>b</sup>OE Codes from ref. 3.

<sup>c</sup>VTAD Code from refs. 4, 5, 6.

<sup>d</sup>Commerce Code from ref. 1.

<sup>e</sup>Total enrollment from ref. 3.

<sup>f</sup>No. of programs from ref. 2.

\*Indicates these figures were extracted from refs. 4, 5, 6.

<sup>g</sup>Column e ÷ Column f = Column g.

TABLE 2  
MANPOWER SATISFACTION

a Occupation	b OE Code	Annual Entry Demand	d Program Enrollment		e Total Completions	f % of Enrolled Comp.	g Demand Satisfaction Percentage
			Total	Adult Supply			
Ambulance Attendant	07.02 99		51	18			
Dental Assistant	07.01 01		221	40	136	61	
Dental Hygienist	07.01 02		203		84	42	
Dental Lab. Technician	07.01 03		193	86	21	11	
Inhalation Therapy Tech.	07.02 09		49				
Medical Assisting	07.02 99		96		63	66	
Medical Lab. Assistant	07.02 03		228	43	58	25	
Optometric Assisting	07.02 99		59		13	22	
Physical Therapy Asst.	07.02 15		39		4	10	
Radiologic (X-Ray) Tech.	07.02 11		116		3	26	
Surgical Tech.	07.02 13		229	59	136	59	
<b>Total Medical &amp; Dental Tech.</b>		<b>901</b>	<b>*1484</b>	<b>246</b>	<b>518</b>	<b>34</b>	<b>57</b>
Textile Prod. Dressmaking	17.33 01		850	69			
Tailoring	17.33 02		660	48	165	25	
<b>Total Sewing Mach. Oper.</b>		<b>459</b>	<b>1,510</b>	<b>117</b>	<b>165</b>	<b>11</b>	<b>36</b>
Construction: Carpentry	17.01 01	1,770	2,241	1,774	36	2	.1
Construction: Electricity	17.10 02	475	2,222	1,983	12	.6	6
Const. Plumbing & Pipefitting	17.10 07	680	1,198	1,111			
Millwork and Cabinet Making	17.36 01	190	656	85	144	22	76
Aeronautical Tech.	17.01 99		#281	19			

TABLE 2.--Continued

a Occupation	b OE Code	c Annual Entry Demand	d Program Enrollment		e Total Completions	f % of Enrolled Compl.	g Demand Satisfaction Percentage
			Total	Adult Supply			
Const.	17.10						
Masonry	04	476	1,298	225	354	27	74
Electrical Lineman	17.14 02	647	807	807			
Nurse Associate	07.02 04	2,590	*2047		500	25	19
Practical Nurse	07.02 05	894	*2324	484	1,147	49	128
Automotive Mechanics	17.03 02	1,411	6,474	1,205	1,288	20	91
Automotive Technology	16.01 04			30		17	57
Commercial Pilot Training	16.05 04	276	*1556	80	155	10	56
Drafting & Design Tech.	16.05 02	142	1,852	391	163	9	114
Electrical Technology	16.01 99		181		5	3	
Graphics Technology	16.01 07						
Radiological Health Tech.	16.02 99	901	*46		8	1	.1
Massage Technology	07.02 99		22		16		

<sup>a</sup>Titles from ref. 3.

<sup>b</sup>OE Codes from ref. 3.

<sup>c</sup>Annual Entry Demands from ref. 1

<sup>d</sup>Program Enrollments from ref. 3

\*These were considered as two-year programs in calculating column f.

<sup>e</sup>Total Completions from ref. 3.

<sup>f</sup>Percentage of Enrolled Completed:  $e \div d$  (total).

<sup>g</sup>Percentage Demand Satisfaction =  $e \div c$ .

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A MANAGEMENT INFORMATION SYSTEM FOR VOCATIONAL-  
TECHNICAL AND ADULT EDUCATION

by  
Richard D. Pate

Traditional Practices

Educational information traditionally has been classified in terms of functional areas of administrative control within the educational organization such as payroll, attendance, scheduling, testing, purchasing, etc. Information handling in each of these areas is under the direct supervision and control of an administrator responsible to the superintendent or president for all matters directly relating to that function. Therefore, each such administrator is responsible primarily for defining his own information needs, gathering the necessary raw data, and manipulating the data to provide the desired reports. Data processing then, like most other functions, is carried on in relative independence of the activities of other administrators. In fact, personnel in one division usually have little if any knowledge of the information needs of any of the other division, and no one in the organization has an adequate conception of the overall information needs of the organization. Among the major weaknesses of the traditional approach are:

1. The duplication of effort required by those furnishing the raw data.
2. Unmanageable collections of paper work in each administrative area resulting in the preparation of management reports so out of date that they

provide little help to the decision makers.

[Most educators have seen estimated figures for a given school year that were published two years after the close of that school year.]

3. Inability to mechanize processing activities adequately due to excessive annual cost of equipment needed for handling large masses of data during rush periods, with resulting idle time during the off-season. [1]

#### Total Systems Approach

The total systems approach required the . . . acceptance of newer systems concepts which recognize an organization as an organic system composed of many interdependent sub-systems; concepts which call for the determination of the real management information needs, and which will utilize fully the unique capabilities of the computer and other new tools to produce better, more integrated administrative (and educational) processes. [2]

This approach to information systems recognizes and emphasizes the fact that the nature of "data processing" is such that it cannot function in isolation from other sub-units of the organization. Data processing more appropriately is conceived as only one of the major functions of an information system which is dependent upon people, materials, procedures, and information, as well as machines.

Only during the last few years have organizations made significant progress toward the optimum use of computers and other electronic equipment in the information system. Recent developments in the machine area have been so dramatic that attention of users has been drawn away from other elements of the information system and concentrated on the machines. A certain amount of concentration on machines is

necessary of course, but successful use of data processing in the information system requires equal attention to other elements.

Since the information system of any organization is interwoven throughout the organization, practically all of its functions are affected by the introduction of high speed data processing equipment. Therefore, commitment to a total systems approach and the effective utilization of computers in an educational organization demand that the superintendent or president recognize, in the beginning, that the administrative structure and organizational policies, to which information system personnel (as well as others) relate, must be such as to make possible the orderly development, maintenance, and control of procedures which will promote the free flow of information throughout the organization: horizontally across conventional administrative lines, and vertically between the highest and lowest level of users, whether administrators, researchers, teachers, or students.

There must be a readiness throughout the organization to accept change in the method of performing daily operations--even change in the nature of operations to be performed. Such readiness can be inspired only through the leadership of a superintendent or president who is committed to the principle of optimum use of both machines and men in the educational enterprise.

In order for the information system to serve the needs of the organization adequately, top-level coordination of the development and implementation of the system is essential.

Once adequate organizational structure and policies have been established, a nucleus of information system specialists should be recruited or identified from among existing staff. Each segment of the system must be planned to make a contribution to the establishment and maintenance of a

data bank which may be accessed for use in other segments. Such planning assumes comprehensive knowledge on the part of key planners concerning current contents of the data bank, as well as the design of files and procedures for future storage of data. It is unreasonable to expect that any administrator of an operating division of the organization will have the time or the inclination to gain such knowledge. Unless provision is made in the beginning for use of one or more competent information system specialists in key planning roles, the total systems approach probably should not be attempted.

When key information system specialists are on site, their energies should be turned to a study of the information needs of the organization. This begins with an analysis of information structures ranging from the complex of data underlying the operation of the educational institution, to the principles which underlie the collecting, coding, storage, retrieval, processing, and transformation of data, and a consideration of the most appropriate modes of presenting information to the users.

The next step is the acquisition of the appropriate processing equipment and the full staffing of the technical support necessary to accomplish defined goals within a realistic time frame.

As yet, to my knowledge, no educational organization has dared venture so far from tradition as to attempt full scale adoption of a total systems approach in practice! Perhaps the current national emphasis on quality education and on the scientific assessment of the degree to which educational objectives are attained in our country will provide for educators both the motivation and the financial resources required to take the bold strides necessary actually to develop and implement a total information system for education.

It may occur in our time! [1]

This Management Information System is envisioned as

an all encompassing decision making tool (total systems approach). The industrial sub-system should serve as the focal point on which all other decisions are based. Industry would state both its present and future needs and would describe each employment area's entry requirements. Hence, all vocational-technical and adult educational programs would be reviewed, updated, expanded, deleted or modified based on what industry states as its needs.

#### Reinforcement of Need

In order to make intelligent decisions on educational programming for the vocational-technical and adult area, these types of questions need to be answered on a statewide basis. What are industry's needs, both in quality and quantity, by specific job categories? What is the individual program's cost and how effective is it? Is the current curriculum designed to meet the needs as stated by industry? Do we have sufficient facilities and equipment to fulfill industry's needs in a given program? Are these facilities up-to-date? In terms of what is going on in industry today, is the equipment used up-to-date? Do we have sufficient qualified personnel to meet the needs of industry? Are program costs realistic in terms of their output; in other words, are we spending the money wisely?

The Department of Education has recognized the need for a statewide vocational-technical and adult education information system. This need is outlined in detail in Dr. Carl W. Proehl's letter of September 19, 1968, to Mr. T. J. Bailey, et al. This information system is needed not only to evaluate existing programs, but also to plan and develop new programs.

Lack of this statewide information has been a serious handicap to the effective evaluation of vocational-technical

and educational programs by the Study Group for Statewide Evaluation of Vocational-Technical Education in Florida. As an example (prior to the 1969-70 school year report which is not available), the VTAD 20 report has no definitive reference to the number of disadvantaged or handicapped persons served by these programs. This handicap is evidenced in other sections of this report, some examples of which follow:

1. Charles Russell's report relates the need for definitive information of the number of disadvantaged and handicapped people served by this program.
2. Roy Golden's report indicates a need for up-to-date guidance information.
3. Marshall Harris' report indicates a lack of statewide facility information in terms of quantity and quality of space available and space utilization.
4. Lawrence Weisman's report indicates inadequate student follow-up information.

There is also a lack of information available relating to the number of persons served by industrial training programs and private vocational training centers.

A lack of program cost information exists at all levels. The current fiscal accounting system does not lend itself readily to the development of program cost-effectiveness studies.

#### Review of Progress to Date

Pinellas County became a pilot center for development of the vocational-technical and adult education information system approximately one and one-half years ago. Much progress has been accomplished in developing the student and personnel sub-systems and some statewide reports (VTAD 20);

additionally, considerable background information for other areas has been gathered. To date, documentation of these accomplishments has not been made. However, it was indicated that a progress report will be submitted later this year. Follow-up and evaluation for the coming year should be continued.

#### A Model of a Management Information System for Vocational-Technical and Adult Education

A Development Center should be selected in one of the regional areas to design and coordinate the implementation of the Management Information System. The Development Center should design the Management Information System as a total system for statewide implementation.

The four other regional areas should be investigated to select a center, which should be a part of the existing vocational-technical and adult program, to offer electronic data processing as a part of their curriculum with appropriate personnel and hardware provided. These centers should devote the available non-instructional time to implementation of the of the Management Information System as a total system for statewide implementation.

The major sub-systems should include the following and should be designed to facilitate the corresponding principles:

#### Industry

The industrial sub-system should serve as a focal point for all planning in the vocational-technical and adult educational area. The base for this sub-system would be a statewide manpower survey which would detail, by industrial groups and specific employers, their requirements in terms of numbers by specific job classification, the number presently

employed, future projection of one-year and five-year needs, and would include the annual turnover by category based on the composite job descriptions for specific categories. All curriculum would be planned to fulfill the needs indicated by industry. Prior to the present time, the needed up-date information was not available. However, the Model State's program has taken a new direction which would make the up-dating information readily available. This information will be based on the daily job orders processed by the Florida Employment Service and compiled on a daily basis, both locally and statewide.

### Curriculum

The curriculum sub-systems would be based on the statewide composite job description by specific category. These job descriptions would serve as the instructional objectives for training in these specific categories. The manpower survey would serve as a device to review and modify, where necessary, all vocational-technical and adult educational programs. The curriculum sub-system should be a combination of data processing, micro-cards, and all other appropriate media. This area also would include the scheduling process.

### Student

The student sub-system would include the number of students who have completed a program who are (a) employed in their respective field, (b) employed in a related field, and (c) employed in a non-related field. It also would record their job entry level, their earnings on entrance, and a follow-up for a two- or three-year period to record their progress in terms of salary, the relation of the training to the

employer's requirements, and how the employer feels the graduate is progressing. This information also should be a part of the vocational guidance system which, on a statewide basis, would give a very good indication of salary range by specific categories.

### Facilities and Equipment

The facilities and equipment sub-system would indicate the total amount of instructional space in the state dedicated to the vocational-technical and adult education, the number of students that can be served in these areas, and the percentage of utilization. It also would indicate how many classrooms are utilized in the state that are beyond their years; in other words, the obsolescence factor. In addition, it also would indicate equipment used in the program that is obsolete or incompatible with present industrial technology.

### Personnel

The personnel sub-system would be a combination of all statistical data necessary to be complementary to the other sub-systems.

### Finance

The financial sub-system would be compatible with future PPBS systems and would gather the necessary cost data to derive costs per student per course and cost per student per program. The sub-system also would provide data for cost-effectiveness studies.

The MIS outputs must include relevant information for all levels of educational policy and/or decision-makers.

The major levels would include the following:

- State Legislature
- State Cabinet
- Department of Education (HEW reports)
- Local School Board
- Superintendent and Staff
- Vocational-Technical Center Administration
- Vocational Guidance
- Department Chairmen

As indicated in the state plan, very close and continuous cooperation between all local, state, and federal agencies having any effect on technical-vocational and adult education must be instituted. For example, the State Bureau of Unemployment Compensation has accessible information which should be a part of the student follow-up system. Another example would be the new emphasis placed on the Model State's Program, which will provide daily industrial demands based on the job orders processed by the Florida Employment Service. In addition, consideration must be given the private sector's influence, i.e., industrial training programs and private vocational training schools.

#### Recommendations

It is recommended that:

1. A Management Information System be developed and implemented with the highest priority.
2. In order to accomplish this recommendation, additional funding be provided.

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