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ABSTRACT

This analysis of secondary vocational education in Texas considers enrollments, teacher units, expenditures, and placement, and their relationship with the State's changing occupational needs. The data came from the Texas Education Agency, the Texas Employment Commission, and various other public and private agencies. The small enrollment in vocational programs limits the system's success in meeting manpower needs. This problem is aggravated by a lack of relevancy of training for employment. Analysis of current and projected employment shows that the system has failed to adapt to a changing labor market. The report concludes that the Texas vocational system is inflexible, traditional, and behind the times. New and innovative courses will be necessary to make education meaningful and relevant. Recommendations included hiring a team of labor market consultants to evaluate present labor trends in Texas, removing home economics from the vocational curriculum, and setting up more new and innovative programs. (BH)

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THE ROLE OF TEXAS' SECONDARY SCHOOLS IN THE PREPARATION OF YOUTH FOR EMPLOYMENT

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Through the services of

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This paper was prepared for the University of Texas Graduate School in partial fulfillment for the degree of Master of Arts. Portions of the original text have been deleted for the sake of brevity. The Center for the Study of Human Resources at the University of Texas is sponsoring publication of this work so that vocational educators, teachers, economists, and other interested persons can benefit from its use. However, the author is solely responsible for the content and factual accuracy of all material presented in the paper.

PREFACE

Challenges for a Modern System of Secondary Vocational Education

The National Advisory Council on Vocational Education in its First Annual Report to the Secretary of Health, Education, and Welfare underscored the great need for a relevant and meaningful system of education in America:

> The violence that wracks our cities has its roots in unemployment and unequal opportunity. Those who have no jobs in an affluent community lash out in anger and frustration. Young men and women who cannot qualify for decent jobs distrust the society which reared them. Dissidents speak with the voice of rebellion; campus and inner-city revolt reaches into our schools. Our Nation seethes.
>
> Racial unrest, violence and the unemployment of youth have their roots in inadequate education. Each year the ranks of the school drop-outs increase by three-quarters of a million young men and women. They enter the job market without the skills and attitudes employers require. They and the millions of others who are underemployed--among these the students who are graduates of our high schools but who are inadequately prepared for anything--are tragic evidence of the present inadequacy of our educational system.[1]

Despite the great increases in the wealth of our nation in the last decade, unemployment rates among younger persons have been staggering. In the last year alone, unemployment rates among teen-agers have risen from 12.9 percent in September, 1969 to 16.8 percent as of September, 1970. The factors behind the high unemployment rates among teen-agers are a general lack of skills among the 14-19 age group, the imperfect mechanisms for finding jobs and suitable occupations, uneven changes in population, changes in the composition of demand, legal restrictions upon the employment of youth, and general economic conditions which stagger teen-age employment in recessionary swings.[2] Most of these factors could be alleviated with the help of the education system in America. Yet, this system has not yet come to the needs of the majority of people it is training. It has instead focused its efforts those students who prepare for college, ignoring others who need specific

training for productive work.

What does this great concern over teen-age unemployment rates have to do with Texas? What are the challenges that Texans must face with their youth? During the 1970's, 34 million young workers are expected to enter the American labor force. In Texas alone, in 1970, the State's population of teen-agers aged 15-19 was 1,151,249.[3] High school enrollments for 1970-71 are estimated to be well over 780,000 and this number will rise to over 835,000 in 1974-75.[4] Robert Gordon estimated that "according to official projections, the 14-19 age group will account for about 10 percent of the total labor force in 1970."[5] In Texas, this would indicate that almost 480,000 youths are in the Texas labor force in 1970. All in all, the number of young people who will be entering the Texas labor force in the 70's will be significant. The fact that younger people encounter difficulties in the labor market because of inadequate education, lack of occupational guidance, or discrimination should place great responsibility on the secondary vocational system for preparing youth for employment.

Many of the urban problems which confront today's youth will also present challenges to our system of vocational education. In recent years, migration of youths and adults form rural to urban areas has caused many problems for Texas. In 1960, the urban population in Texas had increased to more than 75 percent and less than 25 percent of the people lived in rural areas. Today, estimates indicate that about eight out of every ten Texans now live in towns and cities.[6] With these movements to the city, the educational system must provide realistic programs based on the needs of a predominantly urban society.

Another crucial problem that faces secondary vocational education concerns school drop-outs. Although drop-out rates have been decreasing steadily in Texas, they have not been reduced sufficiently in light of the increasing

numbers of teen-agers in school. Of the 175,925 youths enrolled in the 9th grade in 1962-63, only 121,084 graduated from high school in 1965-66, showing a drop-out rate of 31.17 percent.[7] Education systems must encourage their students to stay in school, and must provide training that is relevant for the students who are in school. Studies in 1967 showed that most drop-outs came from general or commercial courses, and that the holding power of vocational schools was lower than that of all high schools.[8] If this study is true to Texas, then great changes must be made to keep students in vocational courses. As the Vocational and Technical Education Annual Report for the fiscal year 1967 indicates,

> ...engaging all youth in challenging and meaningful occupational education would prove invaluable to increasing the holding power of schools and in equipping youths with the vocational and general education to enter and succeed in the economic and social mainstream of America.[9]

Thus, the challenges that face the public secondary vocational education system are many. Hopefully this report will test the true function that vocational training plays in solving the problems of youth in Texas. There can be no room in education for training that is not relevant to people.

FOOTNOTES

[1] National Advisory Council on Vocational Education, Annual Report, (Washington, July 15, 1969), p. 1.

[2] U.S. Department of Labor, Youth Unemployment and Minimum Wages, (Washington, 1970), p. 1.

[3] Texas Education Agency, the Texas State Plan for 1971, (Austin, Texas, 1970), p. 114.

[4] Texas Advisory Committee on Vocational Education, Guidelines for the Development of Vocational Education in Texas through 1975-76, (Austin, 1968), p. 6.

[5] Robert A. Gordon, The Goal of Full Employment, (New York, 1967), p. 124.

[6] Texas Advisory Committee on Vocational Education, p. 6.

[7] Governor's Committee on Public School Education, p. 62.

[8] National Education Association, School Drop-Out, (1967-81), pp. 19-20.

[9] U.S. Department of Health, Education, and Welfare, Vocational and Technical Education, Annual Report, fiscal year 1967. (Washington, 1969), p. 89.

ACKNOWLEDGMENTS

Several individuals have played a significant role in the preparation of this study. Dr. F. Ray Marshall and Dr. Vernon M. Briggs have contributed many useful suggestions in the direction and reading of the study. Numerous individuals in the Texas Education Agency and the Texas Employment Commission have provided statistical data necessary for an analysis of this type. The views expressed in this publication are those of the author, however, who assumes full responsibility for data interpretation. Special thanks go to my grandparents, Mr. and Mrs. Edward Groweg, who have given financial and emotional support for my scholastic efforts. Finally, special acknowledgment goes to my husband, Barton, who has been a most patient and helpful critic. Without his ever present support and encouragement, the work would have not been possible.

S.G.H.

Austin, Texas
January, 1971

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CHAPTER I

INTRODUCTION

Purpose of the Study

The purpose of this study is to examine the effectiveness of public secondary vocational education in meeting the manpower needs of Texas. The contention of this report is that public high school vocational education has the potential to become one of the most influential institutions affecting the future of today's youth. Vocational education's established position in our country, as well as its influence on young people at the age of occupational decision-making make it a most important manpower program.

In the 60's, the development of education and training has become a significant part of total manpower policy. With the occurrence of high unemployment rates among our nation's youth and minority groups, as well as structural unemployment and underemployment among many members of the labor force, Federal legislation has increasingly focused on the problems of training people for productive work. Manpower policy has evolved into programs aimed to stimulate more employment opportunities, to upgrade skills and adaptability of our work force, and to link the two--jobs and men--more effectively.[1] In upgrading our nation's human resources, manpower policy has been concerned with training, retraining, mobility and rehabilitation.

Investment in this educational training has developed in many forms, including post-secondary technical education, training on the job, apprenticeship programs, training and retraining by government agencies as well as vocational training in the secondary schools. Because of the large amounts of Federal, State, and Local monies invested in the secondary programs, and because of the

great numbers of students this institution influences, high school vocational training has become a most crucial element of manpower policy. As a preventive rather than remedial training program, secondary vocational education can save the Federal government money by preventing unemployment and underemployment problems before they begin. Other manpower programs can provide efficient educational training for youth. Yet, these institutions have not influenced as many youth, nor have gained as much financial and political support as the secondary training program.

Given the importance of secondary education in the development of human resources, a study of this specific system of training in Texas is justified. Political leaders have recently placed great emphasis on vocational education as a cure for many of America's social and economic ills. Governor Preston Smith of Texas has personally committed hismelf to vocational education because it holds "perhaps the greatest possibilities for reducing crime, mounting welfare rosters, technological displacement of workers, and erosion of the family unit."[2] With the suggestion that vocational education is the panacea of hope for solving the nation's ills, this study will analyze the input and output of secondary vocational education in Texas in relation to the manpower needs of our economy.

Approach to the Study

In this study, a number of different approaches have been used to examine and evaluate the present and future role of secondary vocational education in Texas. Chapter II surveys the Texas and national labor market, highlighting current and future manpower shortages. Secondary vocational education's role in meeting these shortages is carefully analyzed. In Chapter III there is an in-depth analysis of enrollments in student vocational courses, as well as

teacher training courses. Comparison of enrollments by occupation with future manpower needs provide some insight into the effectiveness of vocational education.

Chapter IV presents an expenditure profile of the vocational system of education. Allocations of teachers by occupational area are also discussed, with special reference to the manpower needs and the rural-urban situation in the state. The central theme of Chapter V is the presentation and evaluation of graduates and placements of vocational training which is the real test of effectiveness of the system has had in meeting the needs of industry and in becoming a more effective manpower program. Recommendations for a more efficient institution are made with respect to the evidence presented concerning the effectiveness of the vocational education system.

Scope and Limitations of this Study

This report concerns the effectiveness of vocational education in the state as a whole. Time considerations have limited any specific examinations that might have increased our knowledge on such issues as large versus small cities, rural versus urban areas, or East versus West Texas in regard to vocational education systems in these areas. Hopefully, within the near future, researchers in education, economics and other related fields will perform local area studies aimed toward evaluation of the vocational education program.

In terms of evaluation, the scope of this study is more of an analysis than an evaluation. A comprehensive evaluation of the system of vocational education would require a large and talented staff of personnel, working for a number of years on every aspect of the education system. Texas desperately needs trained people to evaluate programs, teacher training, student

placement, curriculum, and attitudes in the system, but funds for this type of work are limited. As an analysis, this study has covered only the aspects of vocational education that can be quantified from previously existing data.

In this respect, the statistics gathered were taken from the files of the Texas Education Agency, the Texas Employment Commission, and various other public and private agencies. Limited time and resources prohibited unique data gathering, although some verification of data was possible by brief investigation. There are many limitations in the data that have been used from these agencies, and hopefully students of research will cross check this information for its validity. There is no such system of verification within the present education or employment agencies.

Definition of Terms

In order to avoid misunderstanding, this section defines many of the new terms which have been introduced by recent legislation on manpower programs. A highly debated subject in the last decade has centered on the use of the words manpower program. There are numerous definitions and interpretations for a manpower program conceived by economists and educators, but the most comprehensive definition is one by Seymour Wolfbein which seems to include most of the variations formed by other authors. Wolfbein states that:

> An active manpower policy is the process embracing those principles and programs which aim to assist the individual to become fully employed in productive work of his choosing consonant with his aptitudes, talents, and interests under fair standards; to help sustain and rehabilitate the individual experiencing economic or personal hardship and to help maintain the individual in adaptable, flexible, and responsive a stance as possible to changing requirements of the world of work.[3]

Under this all-encompassing definition, manpower programs include all phases of training, labor market systems, and programs to match people with jobs through

mobility programs.[4] The most important factor in the definition of a manpower program is the emphasis attached to the matching of the supply of labor to the changing demand for labor. Indeed, developing all the human potential possible must take into consideration the growing needs of industry and business.

As a most important manpower program, vocational education in itself must be defined in terms of its goals and purposes in upgrading the nation's human resources. Section 108 of the amended Vocational Act of 1963 defines vocational education as

> ....vocational or technical training or retraining which is given in schools of classes...conducted as part of a program designed to fit individuals for gainful employment as semi-skilled or skilled workers or sub-professionals in recognized occupations and in new and emerging occupations or to prepare individuals for enrollment in advanced technical education programs.[5]

In essence, the definition of vocational education includes 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 order to operate a vocational education program, funds must be provided for the basic costs of instruction including salaries, pupil transportation, and materials. In Texas, the Minimum Foundation Program provides state aid to local high schools for these purposes. The funds provided are determined by the numbers of children actually attending a school. After the numbers of children are converted into funding formulas for employment of teachers, administrative, and supporting personnel, funds are distributed on an 80 percent state and 20 percent local basis. Here we see that formulas translate children into numbers of dollars required to pay for instructional costs. When discussing the Minimum Foundation Program in this study, then, it should be realized that monies for instructional costs are allocated on a per student

basis, rather than a political basis. In this respect, Texas is not hindered, as other states have been, by political maneuvering of education funds.

Another term that must be defined is the Advisory Council for Technical-Vocational Education in Texas. This is a 21 member group of educators, businessmen, labor representatives, and other consultants, appointed by the State Board of Education, whose purpose is to

> ....cause to be established a climate conducive to the development of technical, vocational, and manpower training in educational institutions in the state of Texas to meet the needs of industrial and economic development of the state. The Council is responsible for planning, recommending, and evaluating educational programs in the vocational, technical, adult education, and manpower training areas at the state level in the public secondary and post-secondary educational institutions and other institutions ....[6]

By definition, this Board has widespread authority for evaluation and planning in vocational programs. This authority, its use and effectiveness, will be examined in later chapters.

In this study, the synonymous terms high school and secondary school are used in a limited frame of reference. By secondary school or high school, I mean a four-year accredited public educational institution serving the ninth through the twelfth grades. These institutions are supported by the Permanent School Fund or are provided for in Article VII, Section I of the Constitution of the State of Texas. Information concerning vocational training in the private high schools in Texas was unavailable for this study.

Finally, the terms job, occupation, trade, vocation, or profession are used throughout this thesis to indicate the type of activity an individual chooses in order to earn a livelihood. Before the Civil War in America, when the economy was centered on the primary industries, the prime instruments of production were human and animal strength. Work was defined then in terms of physical effort.[7] A man's status was determined not by the job he held, but by the amount of work he could do and by the amount of goods he could produce

through physical effort. Today, however, the function of work is to secure, not the production of goods, but their distribution. Work itself is no longer an absolute necessity for subsistence or a means of gaining status. In this paper, I will assume, as does Grant Venn, that:

> In the place of work, we have substituted the job. A man's occupation in American society is now his single most significant status-conferring role. Whether it be high or low, a job status allows the individual to form some stable conception of himself and his position in the community.[8]

The purpose of vocational education, then, is to train individuals for the job, occupation, trade, vocation, or profession of their choice to the end that these individuals become capable of maintaining a stable position in their community and a firm self-image of themselves.

FOOTNOTES

1 Seymour Wolfbein, Employment, Unemployment, and Public Policy, (New York: Random House, 1965), p. ix.

2 The Advisory Council for Technical-Vocational Education in Texas, Proceedings of the Governor's Conference on Technical-Vocational Education in Texas (Austin, Texas, 1970), p. 26.

3 Wolfbein, op. cit., p. 121.

4 Ray Marshall, "Some Reflections on Manpower," Speech made at Texas State Advisory Committee Meeting of Camps, (July 14 and 15, 1970).

5 United States Congress, Vocational Education Act of 1963, (as amended) Public Law 90-567, Section 108 (1), (Washington, 1968), p.6.

6 The State of Texas, Senate Bill 261, p. 2.

7 Grant Venn, Man, Education, and Work written for the American Council on Education, Washington, D.C. 1964, p. 10.

8 Ibid., pp. 10-11.

CHAPTER II

THE TEXAS LABOR MARKET

Introduction

The underlying purpose of vocational education is to prepare people for existing and future jobs by relevant training and efficient placement. In this context vocational training must aim toward improving "the ability of the supply of labor to meet the changing demand" of the economy.[1] If educational leaders are to plan vocational courses on a rational basis, then labor demands and vacancies for the present and future must be known and used in planning. In the last ten years, occupational and industrial shifts in the nation's economy have increased the demand for manpower possessing high level of education and skill.[2] These changes are unique to this period of time, and are quite relevant to the direction vocational education and training will take in the future.

This chapter will discuss the changes in the labor market during the 1960's. Special emphasis will be given to national trends which are in many respects illustrative of trends in Texas. Statistics concerning labor market trends in Texas are often incomplete, or too general for planning use. Some information of this type will be presented, however, with special reference to the shortcomings of the data and its means of collection. Even though the statistics for Texas are inadequate, educators must use all available occupational data so that students can be trained in skills and given the work experience necessary to meet exisiing labor shortages.

Recent History of Labor Market Data Collection in Texas

In the last decade, manpower specialists and vocational educators have

become increasingly aware of the great need for occupational information. The need is well expressed by Herbert Parnes:

> So long as one grants the relevance of education to vocational preparation, it is clear that any rational decisions with respect to educational policy must take into account future manpower requirements of the economy. It seems to follow that if one is to have planning in any of these areas, there must be some process for arriving at judgments with respect to future manpower structures. This is all one needs to mean by manpower forecasting.[3]

The Vocational Act of 1963 called for the public employment offices in each State to make "available to the State Board and local educational agencies occupational information regarding reasonable prospects of employment within the community and elsewhere."[4] This charge to the employment service offices in Texas has not been met as of 1970. As the Governor's Committee on Public School Education has aptly shown, "no effective system for making occupational surveys on the area wide basis has been produced in Texas."[5]

The reasons for the inadequate performance by the Texas Employment Commission (TEC) are revealing. Primarily, the Vocational Act of 1963 was not backed by specific financing for the purpose of labor market data collection. Research and evaluation were left to the sole discretion of the already understaffed and overworked TEC. Secondly, it was not until 1968 that the leadership in the employment service began seriously to discuss the problem of occupational data gathering. The delay from 1963 to 1968 was due to the lack of initiative by TEC officials, the inadequate Federal funding for such purposes, and the absence of trained personnel to do the job. The research that should have begun in 1963 is now in the infant stage, and it will be another ten years before adequate planning information is available. For a State with growing urban pains, and minority unrest, the knowledge gained from this information may come too late to aid in training skilled workers in Texas.

With this apparent lack of leadership and financing for occupational

projections in Texas, upon what grounds has the Texas Education Agency (TEA) planned its secondary vocational education program? From the information gathered, the TEA has had to rely upon smaller community area labor surveys, "crystal ball" projections from the 1960 census, and local community knowledge of labor trends. As in the nation as a whole, there is very little information exchange coordination between vocational educators and the Employment Service. Vocational educators apparently distrust the Employment Service, or feel the information provided is not specific enough, or is not presented in the proper fashion for their use. They have therefore tended to make their own surveys and their own projections.[6] On the whole, vocational education planning has been divorced from adequate employment data, and usually has been left to the discretion of local school officials. These officials apply for courses that they feel are needed, and the Texas Educational Agency approves the teacher units and funds with little knowledge of the needs of the community involved. Even the small area surveys "do not accurately reflect the true employment needs of the entire State. . .an internal examination of the TEA statistics reveals some inconsistencies which defy logic."[7] The past dominates the future, as can be seen in the predominance of agriculture and home economics courses in the Texas secondary school curriculum, and the system of vocational education stagnates. Many have concluded that "Texas has no effective system for measuring its manpower needs and no plan for allocating training responsibilities."[8]

National Occupational Trends

With the brief background of data collection in mind, it may be beneficial to examine various occupational projections made for the nation as a whole. These projections are made under a number of assumptions, as are all projections, but the data is the most reliable point of reference that we have in understanding

educational needs. Within the last two years, four important sources of data have been published by the Department of Labor. Most recent discussion is found in the Atlanta Office, Job Prospects Good for Craftsmen and Service Workers, a second in the 1970-71 Occupational Outlook Handbook, a third in the Department of Labor publication Tomorrow's Manpower Needs, and a fourth in an unpublished Department of Labor Current Population Survey Data. Percentage break-downs by occupation for 1975 and 1980 for three of these publications are shown in Tables I, II, and III.

The assumptions upon which these are based are generally varied, but generally fall into four categories. First, no major event will alter the nature of economic growth. Second, scientific and technological advances will continue to change at about the same rate as in the recent past. Third, defense expenditures will increase at about the same average rate as during the 1955-65 period, the Vietnam War will be ended for some time by 1975. And fourth, maintenance of high levels of employment, utilization of available manpower, and continuing economic and social patterns will continue into the 70's.

When looking at the occupational categories illustrated above, it is apparent that the titles of occupations do not exactly match the vocational education classifications for training. For purposes of comparison, I will assume that most students of agriculture vocational courses are trained to go into "Farm or Farm-related Occupations," although it is known that many of these students, by necessity, must find jobs in other unrelated occupations. Students of office education will be assumed to qualify for clerical occupations, and this match is almost accurate. Vocational students of distribution accurately are matched to sales workers occupations, and trades and industrial students will more than likely be eligible for craftsmen, foremen, and operatives occupations. Home economics students will be given every benefit of the doubt, and will be assumed to be qualified for service occupations. With these assumptions, it

TABLE I

NATIONAL EMPLOYMENT DISTRIBUTION BY OCCUPATIONS:

Projected for 1975 from 1960 data

Professional, Technical, Kindred	14.6%
Managers, Officials, Proprietors	10.19%
Clerical Workers	16.65%
Sales Workers	6.6%
Craftsmen and Foremen	12.81%
Operatives	18.7%
Non-farm laborers	4.26%
Service Occupations	14.37%
Farm Occupations	3.78%

Occupations as they relate to Training areas

Health	2.43%
Technical	1.6%
Agriculture	3.84%
Distributive	6.66%
Office	16.65%
Trades and Industries	33.82%
Home Economics	11.03%

Source: Tomorrow's Manpower Needs, Volume IV, Appendix G, pp. 37-40.

TABLE II

NATIONAL EMPLOYMENT DISTRIBUTION BY OCCUPATIONS:

Projected for 1975 from 1964 data

Professional and Technical	15.6%
Managers, Officials and Proprietors	10.4%
Clerical Workers	16.5%
Sales Workers	5.7%
Craftsmen and Foremen	12.6%
Operatives	16.4%
Non-farm laborers	4.6%
Service Occupations	14.5%
Farm Occupations	3.5%

Source: Unpublished U.S. Department of Labor, Current Population Survey Data. Found in Texas Cooperative Manpower Plan, "Statewide Summary," p. 30.

TABLE III

JOB OPENINGS IN THE NATION BY OCCUPATION

Projected for 1980 from 1968 data

Professional and Technical	16.3%
Managers, Officials, and Proprietors	10%
Clerical Workers	18.2%
Sales Workers	6.3%
Craftsmen and Foremen	12.8%
Operatives	16.2%
Non-farm laborers	3.7%
Service Workers	13.8%
Farm Workers	2.7%
TOTAL	100%

Source: U.S. Department of Labor, Atlanta
Job Prospects Good for Craftsmen and Service Workers, p. 10.

will be beneficial to examine the national occupational trends.

In the next decade, approximately eight out of 10 jobs will be open to young people with less than a college degree.[9] That is, 80 percent of the occupational openings in the 1970's will be jobs that require vocational training, high school diploma, apprenticeship training, or some form of post-secondary education. As the occpuational tables clearly show, in 1980, 18.2 percent of all job openings will lie in the very rapid growing clerical occupations and will compose 16.5 percent of the employment distribution. Secretaries, stenographers, typists, bookkeepers, accounting clerks, cashiers, and bank clerks and tellers will be demanded by our nation's economy. These jobs will employ mostly women, and will bring relatively high wage rates. Fortunately, many of the people for these jobs can be trained in vocational office education courses both in high school and post-secondary institutions.

Sales work in the seventies will also offer career opportunities to young people since approximately 6 percent of all new jobs in the decade will fall in this area. Vocational distributive courses can provide excellent opportunities for those students interested. In fact, many areas of secondary vocational education can prepare students for jobs--if these areas are up to date, and are deemed necessary by local officials. A most important area of this type is skilled training. Skilled occupations such as craftsmen and foremen will account for over 10 percent of the job openings in the 70's. For those students trained in machine service repair, plumbing, pipefitting, construction machinery, and aircraft mechanics, excellent job opportunities will prevail. Many of the job openings in this area can be trained for in secondary trades and industry courses if apprenticeship programs do not compete with them. Indeed, if vocationally trained persons can enter the plumbing, electrician, bri'k-laying, carpentry, plastering, or painting areas, hourly wages may range as high as $5 - $6. Average wages for plumbers in Houston, El Paso, Dallas, and San Antonio is $5.76 per hour. Problems do arise, however, when these occupations

are unionized since vocationally trained students may not be recognized by the apprenticeship programs, nor allowed into the unions because of race, limited vacancy, or few contacts.

Operative occupations will account for approximately 16 - 18 percent of the jobs in the upcoming decade. Although these jobs are classified as semi-skilled, three out of five of these workers will be classified in assembly work in factories or machinery operations, two lines of work for which trades and industrial courses can prepare students. However, these jobs eventually will decline as automation replaces the assembly line worker. On the other hand, a very fast growing area is service occupations. These jobs cannot be said to require a specific type of training, but they will occupy nearly 15 percent of the jobs in this decade. Police officers, licensed practical nurses, hospital attendants, cosmetologists, cooks and chefs, and building custodians will be in great demand. Training for many of these jobs can come from the health, home economics, or industrial courses taught in high school vocational education courses. Up to this point, then, the great need for vocational education in our economy is apparent. Clerical, sales, skilled operative, and service occupations demand the type of training that secondary and post-secondary vocational education can provide.

Of all the occupations discussed so far, none have had the decreasing demand problem as found in farm occupations. Here is a declining occupational area, illustrated by the fact that only 3.78 percent, at most, of the jobs in the 70's will lie in agriculture. The Job Prospects article estimates that the number of farm workers will decline one-third from 3.5 million in 1960 to 2.6 million in 1980. The decline is due to the rising trend of larger and more efficient farms, plus grater productivity on the farm with fewer men. The latter is due to the technological inventions in machinery, fertilizers, and seeds. Because of these trends, there is definitely a great need for agricultural

production vocational education courses to be de-emphasized in the vocational education system in the next decade. Courses preparing farm youth for non-agricultural occupations will be most beneficial to these students.

A last important category in our nation's economy is professional, technical, and managerial occupations, occupations which generally require college degrees or specialized post-secondary training. About 25 percent of the jobs to be opened in the 70's will focus in this category. Note, however, that approximately 5 percent or more of these jobs will require specialized training that secondary and post-secondary education can provide. Tomorrow's Manpower Needs indicates that jobs such as medical and dental technicians and other medical workers will compose approximately .69 percent of the labor market in 1975. Service health workers will account for 1.74 percent of the labor market in 1975. These combined figures give a 2.43 percent employment rate for health occupations--occupations for which personnel can be trained by some type of vocational education.

The health field provides one of the most rapidly expanding occupational areas. Leonard Lecht states that "Much of the growth in employment in professional and service occupations is expected to grow out of greater public and private spending for health and education."[10] Evidence of the expanding need for trained people in the health areas is witnessed by the total number of physicians required for patient care, medical research, and teaching. These areas are projected to need about 20,000 new physicians each year for the next ten years. Only about 10,000 doctors will join the work force each year, however, if medical schools continue operating at present capacity and if the same number of immigrant physicians are licensed as in recent years. Requirements for nurses in 1980 are likely to be about one and one-half times the 660,000 employed in 1968, or 260,000 more nurses between 1968 and 1980.[11] Since these professional needs probably will not be met due to present output, although

output is marginally increasing, the use of less elaborately trained people to perform many of the routine tasks formerly done by physicians will be needed. Licensed vocational and practical nurses, medical technicians, nurses aides, and hospital attendants--four types of para-professional workers--can be trained in secondary and post-secondary vocational programs. Indeed, personnel shortages in the medical field will be remedied in the future by additional programming in these vocationally trained occupations.

Table No. IV further illustrates the manpower trends discussed by tracing the experienced civilian labor force by occupation for the years 1954-1968. As is seen, from 1954-1968, Professional and Technical workers moved from 8.9 percent to 13.3 percent of the labor force, Managers and officials, 9.8 - 10 percent, Clerical workers 13.1-16.8 percent, Sales workers 6.4-6.1 percent, Craftsmen and foremen 13.6-13.1 percent, Operatives 20.7-18.6 percent, Service Workers 8.2-10.2 percent, Farmers and farm managers from 6.0 percent to 2.5 percent, and Farm laborers and foremen from 4.1 percent to 2.1 percent of the experienced civilian labor force.

From this discussion of occupational trends in the nation as a whole, then, it is obvious that at least 80 percent of future jobs in this decade can be qualified for by training in some type of vocational training. One cannot say for certain that this trend will be exactly the same in Texas, but the areas of difference can be discussed from the small bits of knowledge we have about the Texas labor force. It is not enough for vocational educators to say, "we don't know what the trends are in Texas, so we will continue to do what we have always done." Vocational educators can determine future needs by national trends, where these trends are applicable. If schools are to help the untrained, undertrained, underemployed, and unemployed persons in our society, there is no choice. At this point, a discussion of Texas occupational trends is appropriate.

TABLE IV

U.S. EXPERIENCED CIVILIAN LABOR FORCE BY OCCUPATIONS, 1954-1968[1]

OCCUPATION	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1966[2]	1967	1968
Professional, Technical & Kindred Workers	8.9	8.9	9.2	9.7	10.4	10.5	10.8	11.1	11.5	11.6	11.8	12.0	12.3	12.52	13.0	13.3
Farmers & Farm Managers	6.0	5.7	5.5	4.9	4.5	4.4	4.0	3.8	3.6	3.3	3.2	3.0	2.8	2.8	2.6	2.5
Managerial Officials & Proprietors except farm	9.8	10.0	9.8	10.0	10.1	10.2	10.2	10.2	10.5	10.2	10.3	9.9	9.8	9.9	9.8	10.0
Clerical & Kindred Workers	13.1	13.1	13.5	13.9	14.0	14.0	14.5	14.6	14.8	14.8	15.0	15.4	15.9	16.1	16.6	16.8
Sales Workers	6.4	6.2	6.3	6.3	6.4	6.6	6.5	6.6	6.4	6.3	6.3	6.5	6.4	6.2	6.1	6.1
Craftsmen, Foremen & Kindred Workers	13.6	13.2	13.4	13.3	13.3	13.1	12.9	13.0	12.8	13.0	12.7	12.7	12.9	13.1	13.1	13.1
Operative & Kindred Workers	20.7	20.7	20.1	19.8	18.8	18.6	18.6	18.3	18.3	18.7	18.8	18.9	19.0	19.2	19.0	18.6
Private Household Workers	2.9	3.1	3.3	3.2	3.4	3.3	3.3	3.5	3.5	3.4	3.3	3.1	3.1	2.6	2.4	2.3
Service Workers except private Household	8.2	8.4	8.6	8.6	8.9	9.1	9.3	9.6	9.7	9.9	10.0	10.0	10.2	10.2	10.3	10.2
Farm Laborers & Foremen	4.1	4.4	4.5	4.2	3.9	3.9	3.9	3.7	3.3	3.2	3.1	2.8	2.4	2.1	2.2	2.1
Laborers except farm & mine	6.3	6.3	5.9	6.0	6.2	6.2	6.0	5.7	5.7	5.6	5.5	5.6	5.2	5.1	5.0	4.9
TOTAL	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Source: Handbook of Labor Statistics, 1969 USDL, p. 33.

1. Includes the employed, classified according to their current job, and the unemployed according to their latest civilian job, if any; excludes the unemployed person who never held a full-time civilian job.
2. Beginning with 1966, total data revised to refer to persons 16 years of age and over.

Texas Occupational Trends

As mentioned earlier, occupational data gathering in Texas has been inadequate, and often unsuitable for realistic educational planning. The Texas Education Agency has based its projections on the 1960 census occupational break-downs, and has assumed that the make-up of the economy in the 70's will have the same emphasis as that of 1960. The Texas Employment Commission has discussed in general what the occupational trends may be, but has only been able to provide "shortage occupations" as reported throught the employment commission reports. Here, no specific estimates have been provided. Industrial projections and trends have also been made available through the TEC, but these are not very useful when trying to focus on and evaluate occupational trends. With these handicaps in mind, some discussion of future manpower needs in Texas will be attempted.

As of January 1969, the Report of the Senate Committee on Vocational-Technical Education showed an occupational distribution in Texas as:

Managerial, clerical, and sales	30.4%
Craftsmen and operative	28.2%
Professional and technical	10.8%
Services	8.7%
Agricultural	7.9%
Laborers	5.4%
Private and Household workers	3.7%
Others	5.0%

The Committee comments:

> We really do not know exactly what percentage of each of the above occupational categories actually demands college training. There exists a wide variety of opinion on and a sizeable number of studies about this particular question, but no real answers are currently possible.[12]

The Committee admits that accurate education requirement data does not exist, but does discuss what it thinks the general needs in Texas are. They have found a need for "clerical, managerial, and sales personnel" as one of the "largest single items in the occupational ledger sheet." Most of this demand will be met by general educational programs, but distributive education and mid-management courses in both the secondary and post-secondary schools are needed to give the specialized skills to the percentage of this work force that needs additional training.[13] In addition, the Committee goes on to say that continued growth in industry will require the additional services of many hundreds of thousands of skilled craftsmen and operatives.[14] A large percentage of this training could be made available on a co-operative program basis in the secondary and post-secondary schools. Other new areas of vocational training will become important as the economy changes, and the Committee asks that such new areas should be accepted and easily absorbed into the vocational education system.

Another discussion of occupational needs in Texas is found in the Annual Manpower Planning Report, March, 1970, published by the Texas Employment Commission. In discussing the needs for 1971, the report states that

> ...the greatest need will be for clerical workers with a total of 45,600 jobs to be filled. Nearly 79% of the clerical needs will be for female workers. The second greatest need is expected among operatives (38,600), followed closely by craftsmen (33,200), professional and technical (30,400), and service workers (28,500). Farm workers and nonfarm laborers will be the categories with the smallest needs.[15]

Thus far, then, the clerical and skilled craftsmen areas are occupations of top priority in 1969 and 1970.

A listing of the Texas Employment Commission "shortage occupations" is available at the end of this Chapter in Table XI. From this table one can see that the health, professional, clerical, sales, skilled, and service

TABLE V

FUTURE JOB OPPORTUNITIES BY OCCUPATIONAL GROUPINGS
IN TEXAS, FISCAL YEAR 1971

Occupation	Total Needs	
	Replacement	Expansion
Professional, Technical, and Kindred	15,000	15,400
Farmers and Farm Managers	3,800	---
Managers and Officials	13,200	13,500
Clerical and Kindred	25,600	20,000
Sales Workers	10,600	10,000
Craftsmen, Foremen, and Kindred	12,700	20,500
Operatives and Kindred Workers	14,600	24,000
Private Household Workers	10,100	4,800
Service Workers	16,000	18,500
Farm Laborers	2,700	---
Laborers except Farm	4,700	8,000

Source: Texas Employment Commission, Annual Manpower Planning Report, March, 1970, p. 35. Expansion needs data were taken from TEC's Economic Assumptions and replacement needs were prepared by the methodology outlined in the U.S. Department of Labor's publication Tomorrow's Manpower Needs, Bulletin 1606, Volume 1.

occupations are needed in at least one of 22 standard metropolitan areas in Texas. More significantly, auto mechanics, machinists, secretaries, stenographers, linemen, and waitresses were needed in 10 or more SMSA's. The role of vocational education in the public high schools is very important when occupations such as those listed are in such great need of workers. The demand for these workers is crucial at this period of time. Vocational education can supply trained persons for these jobs if the funding and administrative agencies of Texas vocational educational porgrams deem it necessary to do so.

With the Texas Employment Commission data and the Senate's Committee data in mind, we must now look at the information that the Texas Education Agency has published on occupational demands. The Texas State Plan for 1971 requires the State Board of Education to

> ...give due consideration to information regarding current and projected manpower needs and job opportunities... Identification of current and projected manpower needs and job opportunities, particularly new and emerging needs and opportunities, will be based on reports provided the State Board by the Texas Employment Commission and other agencies, ...the Bureau of Labor Statistics, U.S. Department of Labor, local education agencies (as a result of community surveys), and other public and private organizations. The current manpower and job opportunity data from all courses will be synthesized to provide a comprehensive basis for current vocational program development and modification, and the long-range manpower and job opportunity projections provided by the more reliable sources of data will be carefully considered and incorporated into the long-range program section of this Plan.[16]

The projections mentioned are presented in the State Plan so that vocational education courses to be taught can be justified. On paper, the occupational data presented by the Texas Education Agency is supposed to be the primary means for planning future vocational education courses. In reality, however, the projections made by the Texas Education Agency are grossly inadequate and statistically misleading.

Primarily, TEA's methodology depends on the 1960 census data of occupational emphasis (as exhibited by the percentage that each occupation held in respect

to total occupational employment). The TEA assumes that the emphasis in 1960 will stay the same in future years, with the exception of a three percent change each year for replacement needs. In other words, if Agricultural Occupations accounted for 11 percent of the total labor force employment in 1960, it would also account for approximately 11 percent of employment in 1970, 1975, and so on plus replacement needs. By computing an estimated labor force number for each year, the Texas Education Agency computes its projected labor demand in this way:

Projected employment opportunities in year 3 equals:
(Occupational percentage of 1960) X (Labor Force projection in year 3) -
(Occupational percentage of 1960) X (Labor Force projection in year 2) +
(3%) (Labor Force Projection of year 3)

This calculation supposedly yields the labor demands in the occupational groups for year 3. Year 3 is used here as any year, and year 2 is the notation for the year preceding year 3. The weakness in this type of calculation is the assumption that occupational distributions will remain constant over time and that replacement needs will only constitute three percent of the labor force in each year. The results of this year's State Plan are as illustrated in Tables VI and VII. Of the projected secondary and post-secondary output for 1975 in the State Plan, 9.7 percent of the students are projected to be graduated in Agriculture courses, 12.5 percent in Distribution courses, 28 percent in Home Economics useful, 1.9 percent in Home Economics gainful, 4.3 percent in Health courses, 17.3 percent in Office education, 5.9 percent in Technical courses, and 19.6 percent in Trades and Industrial courses. Even with the problems involved in occupational estimates, it is evident that projected demand for these occupations is disregarded in the distribution of vocational enrollments output for 1975. If vocational courses were the only source of supply for the labor

TABLE VI

CURRENT AND PROJECTED EMPLOYMENT BY INSTRUCTIONAL PROGRAM
IN TEXAS, 1970 AND 1975

Instructional Program	1970 Current Employment	1975 Projected Labor Demand
Agriculture	363,758	20,431
Distribution	621,639	29,434
Health	96,720	14,160
Home Economics (Consumer and Homemaking)	---	---
Home Economics (Gainful)	170,376	9,569
Office	566,382	31,812
Technical	102,577	9,169
Trades and Industry	1,298,535	72,930

Source: TEA State Plan for 1971, page 108.

TABLE VII

PERCENTAGES OF CURRENT EMPLOYMENT TO TOTAL EMPLOYMENT AND THE PERCENTAGES OF PROJECTED LABOR DEMAND TO TOTAL LABOR DEMAND BY OCCUPATION IN TEXAS

Occupation	1970 Current Employment	1975 Projected Labor Demand
Agriculture	11%	9.8%
Distribution	19.3%	23.8%
Health	3%	6.8%
Home Economics (Consumer and Homemaking)	---	---
Home Economics (Gainful)	5%	4.6%
Office	18%	15.3%
Technical	3.2%	4.4%
Trades and Industry	40%	35.1%
	99.5%	99.8%

Source: Calculated from Table VI

market, distributive and trades and industrial areas would be deficient in a supply of skilled workers. Granted, other training institutions will in all probability focus on occupations that are in great demand, but vocational education should try to provide a supply of labor that is demanded by the economy. A more detailed discussion of vocational enrollment trends will be presented in Chapter IV and the effectiveness of vocational education in the high school will be evaluated.

Texas Industrial Trends

By looking at the Texas labor force estimates as compiled by the Texas Employment Commission, further information into the needs of the 70's can be gained. Agriculture employment has decreased by over 48 percent in the last twenty years.[17] As Table VIII shows, farm employment has moved from 455,600 annual average in 1950 to 299,400 annual average in 1969. The Annual Manpower Planning Report by TEC states,

> No drastic changes in agriculture are expected during 1970 and 1971. The number of seasonal farm workers required will continue to dwindle as the average farm size increases and more machinery is utilized. The regular hired workers figure should remain static.[18]

It is also estimated that 28,000 fewer workers will be needed by 1975 as this mechanization, herbicides, "cowfarming," and other manpower-saving techniques reduce demand by some 5,500 jobs per year into the 70's.[19] With this data it can be postulated that vocational education courses in agriculture in their present format and quantity are unnessary and perhaps wasteful in our education system. They are unnecessary in the sense that they do not provide training which can lead to gainful employment in the labor market, and wasteful in the sense that Federal, State, and local funds are being spent to train people for non-existing jobs.

TABLE VIII

TEXAS LABOR FORCE ESTIMATES IN FARM EMPLOYMENT --
ANNUAL AVERAGES FROM 1949 to 1969

1949	450,000*
1950	455,600
1951	426,400
1952	400,700
1953	400,400
1954	409,200
1955	419,500
1956	420,400
1957	390,800
1958	389,900
1959	394,900
1960	343,000
1961	333,600
1962	325,300
1963	315,300
1964	313,300
1965	330,100
1966	315,100
1967	304,200
1968	300,400
1969	299,400
1970	280,000**

* April employment for this year.

** As estimated by the Texas Cooperative Manpower Plan, p. 28.

Source: Texas Employment Commission

In other industrial areas, it is much more difficult to generalize about training needs and future occupational requirements. Table IX illustrates some of the trends that have been occurring in other industries. In the last 10 years the service sector has shown the greatest increase in employment, with government and manufacturing following respectively. Of the services, medical and professional service will continue to expand in the 70's, while demands on State and local governments will increase in government areas. Non-durable goods in manufacturing are expected to increase in the 70's, requiring a number of skilled workers. However, data of this type is inadequate in view of specific needs for new occupational training. Plans for the collection of industrial-occupational data are being developed by the TEC Labor Research Division. This Division has taken Texas industrial employment estimates and has applied the national matrix in Tomorrow's Manpower Needs to determine occupational projections for 1975. After these projections are calculated, TEC will run a sample on representative industries in Texas to calculate unique occupational demands for Texas.

Preliminary figures for the Texas Employment Commission calculated from the Industry-Occupation Matrix contained in Tomorrow's Manpower Needs show that in terms of annual averages, Professional and Technical fields will experience the greatest change per year among occupations. Clerical workers are next in priority of employment change per year, and Service workers are third in their annual average change. Of the Clerical occupations, Stenographers, Typists, and Secretaries will experience the greatest yearly change, 5,600 per year. Note also that the Craftsmen occupation will change 12,930 yearly, and Operatives will experience an annual change in employment of 13,310. Of all the occupations listed, farmers and farm workers show the greatest decrease in employment in terms of their annual average change. As projected, this occupation should lose 3,480 employees per year (average).

These figures as shown in Table X should not be considered as final since

TABLE IX

TEXAS CIVILIAN LABOR FORCE BY INDUSTRY FOR THE YEARS 1949, 1959, AND 1969

Industry	1969	1959	1949	1949-1969 Increase	1959-1969 Increase
Proprietorships, Self-employed Domestics	597,000	501,000	397,000	45.8	15.6
Manufacturing	746,500	488,800	343,800	117.1	52.7
Mining and Gas	105,100	129,500	101,500	3.5	-19.0
Contract Construction	223,300	165,500	131,100	70.3	34.9
Wholesale Trade	242,800	172,200	128,100	89.5	41.0
Retail Trade	581,400	461,800	348,500	66.8	22.9
Finance, Insurance, and Real Estate	180,000	124,700	69,600	158.6	44.3
Service and Miscellaneous	556,700	321,900	224,000	148.5	72.9
Government	671,000	419,000	276,700	142.5	60.0
Transportation, Communications, and Utilities	257,800	229,200	217,600	18.5	12.5

Source: Texas Manufacturers Association, Employer Perspectives, p. 13.

TABLE X

PRELIMINARY FIGURES ON PRIMARY[1] EMPLOYMENT IN TEXAS BY OCCUPATION 1960-1975

Occupation[3]	Texas 1975[2]	1960-1975 Net Change	1960-1975 Annual Average Change
Professional, Technical, and Kindred:	698,820	327,540	21,840
Technicians, Medical Dental	20,950	14,070	940
Other Medical, Health Workers	6,640	2,370	160
Managers, Officials, & Proprietors:	428,710	96,210	6,410
Clerical & Kindred :	736,040	271,870	18,120
Stenos, Typists & Secretaries	198,270	83,960	5,600
Office Machine Operators	26,030	12,710	850
Accounting Clerks	26,520	5,660	380
Bookkeepers, Hand	50,590	14,290	950
Bank Tellers	10,320	5,360	360
Cashiers	67,730	32,960	2,000
Mail Carriers	13,320	3,450	230
Postal Clerks	11,770	2,990	200
Shipping, Receiving Clerks	13,950	3,030	200
Telephone Operators	23,290	4,890	330
Clerical & Kindred Workers, nec	294,250	102,550	6,840
Sales Workers:	323,010	71,530	4,770
Craftsmen:	643,430	194,000	12,930
Construction Craft	196,650	51,200	3,410
Carpenters	62,360	10,900	730
Brickmasons & Tilesetters	12,870	3,690	250
Cement, Concrete Finishers	6,720	3,110	210
Electricians	22,450	6,460	430
Excavating, Grading Machine Operators	23,410	8,110	540
Painters & Paper Hangers	32,180	5,600	370
Plasterers	1,570	430	30
Plumbers & Pipe Fitters	24,420	8,350	560
Roofers & Slaters	5,040	1,810	120
Metal Working Craftsmen	47,030	12,750	850
Printing Trades Craft	13,870	2,750	180
Mechanics & Repairmen	201,110	79,160	5,280

TABLE X
(Cont'd.)

Occupation[3]	Texas 1975[2]	1960-1975 Net Change	1960-1975 Annual Average Change
Craftsmen (cont'd)			
Airplane Mechanic	16,300	6,420	430
Motor Vehicle Mechanic	58,560	17,200	1,150
Office Machine Mechanic	3,530	1,910	130
Radio & TV Mechanic	9,690	3,090	210
Other Mechanics and Repair	111,920	50,970	3,400
Bakers	4,130	200	10
Cabinetmakers	4,020	750	50
Crane, Derrick Hoist Men	5,550	2,340	160
Upholsterers	5,140	1,630	110
Craftsmen & Kindred nec.	43,280	4,610	310
Operatives:	721,750	199,700	13,310
Welding & Flame cutters	43,010	21,200	1,410
Machine Tool Operators Class B	8,340	2,210	150
Assembly Metal. Class A	6,790	3,520	230
Assembly Metal. Class B	19,190	8,630	580
Laundry & Dry Cleaning Operators	28,310	40	0
Meat Cutters	9,700	800	50
Service Workers:	646,790	216,540	14,440
Private, Household	144,700	15,530	1,040
Cooks	62,250	24,780	1,650
Counter & Fountain Workers	20,590	10,870	720
Janitors	55,110	23,960	1,600
Nurses, Practical	32,640	18,640	1,240
Attendents, Hospital, other	37,630	23,490	1,570
Laborers, except Farm & Mine	212,900	26,200	1,750
Farmers & farm workers	217,510	-52,180	-3,480

1
Employment less the secondary jobs of those workers on more than one payroll.

2
Projections. Subject to revision and based on National Projections made by the Bureau of Labor Statistics.

3
Items may not add to totals due to rounding and because all data for each occupation is not shown here.

Source: Texas Employment Commission: Labor Market Research Division

the information is subject to revision and as yet is not ready for public release. The data do give us some idea, however, of the direction and magnitude of occupational trends up to 1975. The final results fo this Texas Employment Survey should prove quite beneficial to Texas Education Agency officials. Since September 4, 1964, an operating agreement of TEA and TEC for the exchange of information and assistance of manpower needs has been in effect. So far, however, "this agreement has not produced an effective system for making occupational surveys on an area-wide basis. ..."[20]

Hopefully, future cooperation between the two agencies will evolve, and vocational education planning will be performed on a reformed and informed basis.

Conclusion

From this examination of national and State manpower trends, there can be little doubt that vocational training can play a tremendous role in supplying students in occupations for which there will be growing demands in the 70's. During the next decade, greater degrees of specific occupational training will be required of youth entering the labor market. Expectations are for continued growth in the service and white-collar industries, for declines in agricultural employment, for no increases in the demand for laborers, and for some small increases in blue collar workers, especially those skilled or semi-skilled craftsmen.[21] The increase in white-collar employment in 1969 occurred almost entirely in the professional, technical, and clerical occupations. The latter, technical and clerical, can definitely be trained for in secondary vocational education programs. Employment opportunities in blue-collar employment can also be provided by training in the technical and trades and industrial courses in the high school. A large increase in manpower needs in Texas will be seen in the health, clerical, technical, and

service worker areas where education and training requirements can be fulfilled by the secondary schools.

The challenge for secondary vocational education, then, is to provide relevant training to meet the manpower demands of the 70's. If this entails Texas Education Agency and TEC cooperation, and/or outside consultant studies, the job of knowing occupational demand and meeting this demand with trained individuals must be met by the vocational education system in Texas. Education is called on to provide vocational training which will enable the youth of America to find relevant work in this decade. There can be no excuse for a system of training that cannot act as an employment agency as well as a training agency.

TABLE XI

OCCUPATIONAL SHORTAGES IN TEXAS AS OF
NOVEMBER 1969

PROFESSIONAL, TECHNICAL, & MANAGERIAL

Accountants[2]
Administrator, Contract & Order
Auditor
Biochemistry Technician
City Planning Aide
Dental Assistant
Director, Community Organizations
Draftsman, All Types[2]
Economist
Engineer
  Chemical
  Civil[2]
  Electrical
  Electronics
  Industrial
  Manufacturing
  Mechanical
  Petroleum
  Production
  Structural
Instrument Man
Laboratory Technical Chemist
Laboratory Tester, Trainee
Librarian
Manager
  Credit & Collection
  Department
  Retail & Wholesale
  Trainee[3]
Medical Personnel
  Medical Technician
  Medical Laboratory Technician
  Nurses, Licensed Practical (LVN)[3]
  Nurses, General Duty
  Nurses, Registered
  Surgical Technician[1]
Occupational Therapist
Ordinanceman
Programmer, All Types[2]
Redman
Social Worker with MSW
Surveyor

CLERICAL & SALES

Auto Counterman
Automotive Partsman
Bookkeeper[2]
Cashier[3]
Claims Adjustor
Clerk, General Office[3]
Clerk-Typist[2]
Clerk, Shipping & Receiving
Clerk, Stock
Collector
Computer Operator[2]
Duplicating Machine Operator
Estimator
Foreign Clerk
Grocery Checker
Keypunch Operator
Messengers
Rater, Insurance
Receptionist
Routeman
Salesman
  All Types
  Business Machines
  Insurance[2]
  Office Machines
  Real Estate
Salesperson[2]
Secretary[1]
Solicitor
Stenographer[1]
  All Types
Telephone Operator
Typist
Trans Machine Operator[3]
Office Machine Operator[3]

TABLE XI
(Cont'd)

SERVICES	PROCESSING, MACHINE TRADES, BENCH WORK, STRUCTURAL WORK, & MISCELLANEOUS
Babysitter	Air Conditioner Mechanic
Bar Maid	Alteration Tailor
Bus Boys & Bus Girls	Auto Body Repairman[3]
Chef	Automobile Transmission Mechanic
Cleaner & Presser	Auto Mechanic[1]
Companion	Auto Service Station Attendant[3]
Companion (live in)	Bagging Salvager
Cook (all kinds)[2]	Baker
Cosmetologist	Bench Mechanic Steel Welder
Counter Girl	Boiler Maker
Day Workers	Bricklayer
Delivery Boy	Broommaker
Dishwasher	Butcher
Domestic Worker	Cabinet Makers
Dry Cleaner	Candy Maker
Fireman	Cannery Worker
Fountain Girl	Carpenters
Grocery Workers	Cement Mason
Hat Blocker	Chemical Operator II
Home Attendant	Construction Worker
Janitor	Cordwood, Cutter
Kitchen Helper	Core Maker
Laundry Workers	Crane Operator
Maid (Any industry)[2]	Cutter, Machine
Maid, Domestic	Dental Laboratory Technician
Maid (Live in)	Diesel Mechanic
Meatcutter	Electrician
Nurses Aide	Construction
Nurse, Licensed Vocational	Maintenance
Orderly	Marine
Parking Lot Attendant	Electronics Assembler
Patrolman	Electronics Mechanic
Porters[3]	Electronics Technician
Presser	Embroidery Machine Operator
Machine	Engine Lathe Operator
Shirts	Explosive Operator
Salad Girl	Farm Equipment Mechanic
Shoe, Repairman[3]	Farm Hand, General
Shirtline Operator	Fitter
Silk Finisher	Flamecutter
Waiter[3]	Floor Layer
Waitresses & Carhops[1]	Foreman, Warehouse
Watchman	Foundry Worker
Ward Attendant[2]	Front Alignment Man
Wool & Silk Presser	Furnace Operator
Yardman	Furniture Assembler
All-around Farm Machine Operator[3]	
Irrigators	

TABLE XI
(Cont'd)

PROCESSING, MACHINE TRADES, BENCH WORK, STRUCTURAL WORK, & MISCELLANEOUS(cont'd)

Furniture Finisher
Furniture Upholsterer
Groundskeeper
Laborer, General
Labor, Stores
Layout Man I (Any Industry)
Lineman[1]
Loftsman
Log Loader
Machine Operator
Machine Set-up Operator
Machinist (all types)[1]
Maintenanceman, Building
Maintenance Mechanic
Master Tailor
Mechanic, All Kinds
Metal Fabricator
Metal Pourer
Milking Machine Operator
Milling Machine Operator
Millwright
Mixing Machine Operator
Mobile Homes Installer
Molder, Foundry
Offset Pressman
Painter, Auto[3]
Painter, Foreman
Painter, Shipyards
Painter, Spray
Patternmaker, Wood
Pipefitter
Pipelayer
Plumber
Porter, Car Lot
Poultry Eviscerator
Production Machine Operator
Pump Man II
Refrigeration Mechanic
Repairman
  Appliance
  Electrical
  Household Appliances
  Instrument
  Motorcycle
  Office Machine
  Radio & T.V.[2]
  Sewing Machine
  Gasoline Engine[2]
Projection,
  Printer
Rodman
Roofer
Sawmill Operator
Seamstress
Sewage Plant Attendant
Sewing Machine Operator, (All Kinds)
Sewing Machine Repairman[2]
Sheetmetal Worker[2]
Shear Operator
Snag Grinder
Sorter
Spreader, Cloth
Structural Steel Layout Man
Taxi & Bus Driver
T.V. Cable Lineman
Tire Changer
Tool & Die Maker
Tool Grinder Operator
Tool Planner
Treatment Engineering Helper
Truck Driver, Heavy[3]
Truck Driver, Light[3]
Turret Lathe Set-up Operator
Upholsterer, Auto
Upholsterer, Furniture
Vending Machine, Repair[3]
Welder
  Arc
  Combination[3]
  Pipe
Well Puller
Water Treatment Plant Operator[1]
Sewage Treatment Plant Operator[1]

TABLE XI
(Cont'd)

NOTE: All occupational classifications listed are reported by the Texas Employment Commission as shortage occupations in at least one of the twenty-two standard Metropolitan Statistical Areas in Texas. Head notes indicate the geographical extent of shortage as follows:

1
Reported as shortage in 10 or more SMSA's

2
Reported as shortage in 7 or more SMSA's

3
Reported as shortage in 5 or more SMSA's

Source: Texas Employment Commission

FOOTNOTES

[1] Robert E. McPherson, "The Role of Public Junior Colleges in Manpower Development" (Master of Arts Thesis, University of Texas at Austin, 1968), p. 7.

[2] McPherson, p. 25.

[3] Symposium on Forecasting of Manpower Requirements, International Manpower Institute (Washington, 1966), p. 54.

[4] United States Congress, Vocational Education Act of 1963 (Washington, 1963), Public Law 88-210, Section 5, Part (a) (4).

[5] Governor's Committee on Public School Education, The Challenge and The Chance, Volume II (Austin, Texas, 1969), p. 114.

[6] Rashi Fein, "Introduction," The Journal of Human Resources, Volume III, Supplement (1968), p. 7.

[7] Senate Committee on Vocational-Technical Education, To Bridge the Gap (Austin, Texas, 1969), p. 30.

[8] Governor's Committee on Public Education, p. 97

[9] U.S. Department of Labor, Bureau of Labor Statistics, Atlanta Regional Office, "Job Prospects Good for Craftsmen and Service Workers"(Atlanta, 1970), p. 1.

[10] Leonard A. Lecht, Manpower Needs for National Goals in the 1970's (New York, 1969), p. 73.

[11] U.S. Department of Labor, Manpower Report of the President, A Report on Manpower Requirements, Resources, Utilization, and Training (U.S. Government Printing Office, 1970), pp. 175-176.

[12] Senate Committee on Vocational-Technical Education, p. 28.

[13] Ibid., p. 31.

[14] Ibid.

[15] Texas Employment Commission, Annual Manpower Planning Report (Austin, 1970), p. 34.

[16] The Texas State Plan for 1971, Section 3.26-1, (Austin, Texas, 1970), p. 61.

[17] Texas Manufacturers Association, Employer Perspectives on Vocational-Technical Education in Texas (Spring, 1970), p. 28.

[18] Texas Employment Commission, Annual Manpower Planning Report (March, 1970), p. 26.

[19] Texas State Camps Coordinating Committee, Texas Cooperative Manpower Plan (Statewide Summary Plan, 1971), Part A, p. 28.

[20] Governor's Committee on Public School Education, p. 114.

[21] McPherson, p. 30.

CHAPTER III

ENROLLMENT IN SECONDARY VOCATIONAL EDUCATION AND TEACHER TRAINING IN TEXAS

Introduction

In recent years, there has been considerable controversy concerning the role, adequacy, and future objectives of high school vocational education. With the great numbers of young people entering the labor market in the 70's, the need for skilled manpower has never been greater. Along with this great influx of youth has come an increased participation by labor in the service and white collar jobs, as well as an increasing influx of women and blacks into the labor market. These changes alone have caused great structural and social challenges for vocational education programs to meet. When considering the effectiveness of vocational programs in meeting the needs of youth, women, blacks, and changing manpower requirements, two basic questions must be considered. First, to what extent vocational education penetrated the student body in the school system? And second, has the vocational program been related to the needs of the students and the changing occupational structures of the state?[1]

In order to answer the first question, it is necessary to analyze enrollments in the secondary vocational education programs in Texas. How these enrollments compare to the academic and general curricula and to the movement of students after graduation is most crucial to the discussion. To answer the second question, it is necessary to examine enrollments by program area in the high school and in teacher training with special reference to the occupational structure of the State. Along with this, it is quite important to analyze the procedures actually adopted in the initiation of new vocational programs and in the discontinuance of old programs.

Pentration of Vocational Education in the Texas Public High School

When discussing the number of students who are taking, or who have taken, secondary vocational education courses in Texas, one very revealing fact arises. At no point in the last ten years has the enrollment in vocational education courses been more than 34 percent of total enrollment in Texas high schools. In 1968-69, only 245,064 of the 739,456 total students were enrolled in vocational courses. These vocational enrollees accounted for only 33.1 percent of total high school enrollments. Table XII illustrates trends in total high school enrollments, vocational enrollments, and the percent of those enrolled in vocational courses relative to total enrollments for the last 20 years. It is quite clear from this Table that the percentage of secondary school students enrolled in vocational education programs has changed slightly during the last two decades. In 1948-49, the figure was 33.5 percent and in 1968-69 it was 33.1 percent. Thus, only one out of three students in Texas high schools have entered courses which are aimed at training students in a saleable skill. The rest of the students, 70 percent, have taken courses in the general curriculum or college preparatory study.

The fact that less than a majority of high school students take vocational courses is relevant. A greater percent of students should be enrolled in vocational training. National and local trends show that less than 20 percent of the occupational requirements for the 70's call for college training. The Advisory Committee Study of 1968 estimated that 75.2 percent of the manpower needs in Texas were in occupations for which secondary vocational education programs prepare workers. Note, however, that approximately 70 percent of the present school emphasis lies in courses which are general, and aimed toward further specialized training after graduation from high school.

A second important factor lies in the drop-out rates of students who begin

TABLE XII

VOCATIONAL EDUCATION ENROLLMENTS IN RELATION TO TOTAL PUBLIC HIGH SCHOOL ENROLLMENTS IN TEXAS FOR THE YEARS 1948 - 1969

School Year	Total Public High School Enrollments	Enrollment in H.S. Vocational Courses	V.E. Enrollment as Percent of H.S. Enrollment
1948-49	265,460	89,068	33.5%
1949-50	275,714	105,088	38.1%
1950-51	286,839	124,778	43.5%
1951-52	298,790	132,702	44.4%
1952-53	320,318	129,123	40.3%
1953-54	335,579	141,241	42.1%
1954-55	354,985	145,359	40.9%
1955-56	372,768	140,565	37.7%
1956-57	390,901	140,796	36.0%
1957-58	416,842	143,507	34.4%
1958-59	440,327	144,153	32.7%
1959-60	453,606	145,424	32.1%
1960-61	472,873	149,635	31.6%
1961-62	514,961	158,886	30.8%
1962-63	553,668	167,209	30.2%
1963-64	595,691	168,328	28.3%
1964-65	629,144	174,461	27.7%
1965-66	649,755	189,001	29.1%
1966-67	677,662	209,843	30.9%
1967-68	707,900	239,024	33.7%
1968-69	739,456	245,064	33.1%

Source: Texas Education Agency Research Division

school in the first grade. Recent data provided by the Texas Education Agency Department of Occupational Education and Technology shows that out of every 100 students who entered the first grade in 1954-1955, 44.6 percent dropped out of school before high school graduation; 55.9 percent of the students who entered first grade in 1954-1955 went into the labor market without completing a secondary or post-secondary vocational program or a Baccaluareate degree; 36 percent of those first graders in 1954-55 entered college in the fall of 1967, but only 18.3 percent of these will have graduated with a Baccaluareate degree in June, 1971.

Of the high school students who did graduate from high school, only 17.2 percent carried vocational education program completions. All evidence, then, points to the fact that high school training is not beneficial to 55.9 percent of students who enter the labor market with no college degree and no vocational training. These students must find jobs without the benefit of a saleable skill. The reason for this trend lies in the out-dated attitudes of teachers, counselors, administrators, and educators within the present system of secondary education. These people have clung to the ideals of a good academic or general education, and have ignored the ranks of the unemployed and underemployed members of our society who lack the background of vocational training that is demanded by our technical economy. As James A. Rhodes, Governor of Ohio, states:

> The (education) system is definitely at fault, and it needs attention. It needs attention from parents who must take a practical view of education.... School boards must provide educational policy that will enable educators to design, build, and operate an education program which is truly democratic, because it has full concern for all the students. The presence of the 'caste system' in education can be changed by school board policy.[2]

TABLE XIII

SEPTEMBER, 1954 TO JUNE, 1971 EDUCATIONAL PROFILE
OF TEXAS

The following statistics are presented with the sources indicated about what happened to the 1954-1955 first graders percentage-wise:

$\frac{176,633^1 \text{ (1961-1962 Eighth Graders)}}{226,959^1 \text{ (1954-1955 First Graders)}}$ = 77.8% Entered Eighth Grade

$\frac{205,192^2 \text{ (1966-1967 Occupational Preparation Enrollments)}}{678,204^1 \text{ (1966-1967 Total 9-12 Enrollments)}}$ =

30.3% Secondary Students Enrolled in Occupational Preparation Programs

$\frac{38,915^2 \text{ (1966-1967 Secondary Vocational Education Program Completions)}}{226,959^1 \text{(1954-1955 First Graders)}}$ =

17.2% High School Graduates with Vocational Education Program Completions

$\frac{125,734 \text{ (High School Graduates 1966-1967)}^1}{226,959 \text{ (First Graders in 1954-1955)}^1}$ = 55.4% Were High School Graduates

$\frac{81,687 \text{ (First Time Enrollees in College for Fall 1967)}^3}{226,959 \text{ (First Graders in 1954-1955)}^1}$ = 36.0% Entered College in Fall of 1967

$\frac{16,750 \text{ (Post-Secondary First Year Enrollees in Vocational Education Programs)}^2}{226,959 \text{ (1954-1955 First Graders)}^1}$ =

7.4% Enrolled in a Post-Secondary Vocational Education Program in 1967-1968

$\frac{10,463 \text{ (1967-1968 Completion plus 1968-1969 Completions)}^2}{226,959 \text{ (1954-1955 First Graders)}^1}$ =

4.6% Completed Post-Secondary Vocational Education Programs in 1967-1968 and in 1968-1969

$\frac{41,535 \text{ (Estimated 1971 College Graduates)}^3}{226,959 \text{ (1954-1955 First Graders)}^1}$ = 18.3% Will Graduate with a Baccalaureate Degree in June 1971.

TABLE XIII
(Cont'd.)

1
Data was obtained from the Texas Education Agency Research Division.

2
Data was obtained from Texas Vocational Education Annual Reports for year indicated.

3
Data was obtained from the Coordinating Board, Texas College and University System.

Source: Occupational Education and Technology Department, Texas Education Agency, March 9, 1970.

Thus, massive changes must be made in the next decade if high school students are to receive training which will prepare them for the highly technical and demanding jobs they will aspire to fill--jobs which require vocational training.

Vocational Enrollments by Subject Area

The limitations of vocational training in reaching the majority of high school students has been discussed. Many critics of the secondary vocational system believe that present vocational training is inadequate and irrelevant for today's manpower needs and that this training should be abolished rather than emphasized. These critics claim that vocational training can no better prepare students for life and work than can the general or college preparatory programs. In fact, one of the greatest criticisms of the vocational system has been its inflexibility to change in the face of changing labor market needs. This is witnessed by the fact that "It continues to emphasize too much the needs of agriculture and homemaking."[3]

Table XIV reveals the percentage of program enrollments as related to total vocational education enrollments in public high schools.

The distribution of students among the various programs has remained relatively constant over the last 20 years.[4] Vocational homemaking and agriculture together enrolled over 91 percent of the students taking vocational education in 1949-1950, and this percentage has declined only to 77.5 percent in 1968-1969. Ten percent of this decline occurred in agriculture courses, with home economics maintaining 56.72 percent of enrollments in 1968-1969. Distributive, or sales education courses have minimally increased as a percentage of total enrollments in the last 20 years. Office education, similarly, was only 3.41 percent of total enrollments in 1968-1969. Health enrollments were less than one percent in this same year. Leonard Lecht discusses the relevance of the

TABLE XIV

PUBLIC HIGH SCHOOL VOCATIONAL EDUCATION ENROLLMENTS IN TEXAS FOR THE YEARS 1948-1969

School Year	Agri-culture	Distri-butive	Health	Home-making	Indus-trial	Occupa-tional Training 1	Office	Technical	Total
1948-1949	27,514	2,869	-	53,313	5,372	-	-	-	89,068
1949-1950	31,805	3,255	-	65,013	5,015	-	-	-	105,088
1950-1951	37,994	4,430	-	76,536	5,818	-	-	-	124,778
1951-1952	40,794	3,984	-	82,173	5,751	-	-	-	132,702
1952-1953	43,375	4,328	-	75,063	6,357	-	-	-	129,123
1953-1954	43,894	4,441	-	85,985	6,921	-	-	-	141,241
1954-1955	44,464	4,660	-	87,525	8,710	-	-	-	145,359
1955-1956	43,781	5,103	-	83,381	8,300	-	-	-	140,565
1956-1957	42,263	4,830	-	84,939	8,764	-	-	-	140,796
1957-1958	41,951	4,788	-	85,939	11,342	-	-	-	143,507
1958-1959	42,791	4,880	-	85,595	10,887	-	-	-	144,153
1959-1960	42,508	4,992	-	87,554	10,370	-	-	-	145,424
1960-1961	42,548	5,043	-	90,982	11,062	-	-	-	149,635
1961-1962	44,684	5,454	-	97,342	11,406	-	-	-	158,886

TABLE XIV
(Cont'd.)

School Year	Agri-culture	Distri-butive	Health	Home-making	Indus-trial	Occupa-tional Training 1	Office	Technical	Total
1962-1963	46,603	5,764	-	102,294	12,334	-	-	214	167,209
1963-1964	47,476	6,483	-	100,966	13,360	-	-	543	168,828
1964-1965	48,646	8,130	951	97,377	17,177	938	616	626	174,461
1965-1966	49,214	8,947	1,133	105,620	18,741	2,815	1,378	1,153	189,001
1966-1967	49,107	9,387	1,347	122,308	18,802	4,651	3,264	977	209,843
1967-1968	49,668	10,511	1,365	141,459	21,373	7,367	5,695	1,587	239,024
1968-1969	51,017	11,931	1,773	139,026	22,916	7,842	8,374	2,185	245,064

Source: Texas Education Agency

TABLE XV

PERCENTAGES OF PROGRAM ENROLLMENTS AS RELATED TO TOTAL VOCATIONAL EDUCATION ENROLLMENTS IN TEXAS PUBLIC HIGH SCHOOLS, 1949 - 1969

School Year	Agriculture	Distribution	Homemaking	Industrial	Office	Technical	Health
1949-50	30.26%	3.09%	61.86%	4.77%	-	-	-
1950-51	30.44	3.55	61.33	4.66	-	-	-
1951-52	30.74	3.00	61.92	4.33	-	-	-
1952-53	33.59	3.35	58.13	4.92	-	-	-
1953-54	31.07	3.14	60.87	4.90	-	-	-
1954-55	30.58	3.20	60.21	5.99	-	-	-
1955-56	31.14	3.63	59.31	5.90	-	-	-
1956-57	30.01	3.43	60.32	6.22	-	-	-
1957-58	29.23	3.33	59.52	7.90	-	-	-
1958-59	29.68	3.33	59.37	7.55	-	-	-
1959-60	29.23	3.43	60.20	7.13	-	-	-
1960-61	28.43	3.37	60.80	7.39	-	-	-
1961-62	28.12	3.43	61.26	7.17	-	-	-
1962-63	27.87	3.44	61.17	7.37	-	.10%	-
1963-64	28.12	3.84	59.80	7.9[illegible]	-	.32	-
1964-65	27.68	4.66	55.81	9.84	.35%	.35	.54%
1965-66	26.03	4.73	55.88	9.91	.72	.61	.59
1966-67	23.40	4.47	58.28	8.96	1.55	.46	.64
1967-68	20.78	4.37	59.18	8.94	2.38	.66	.57
1968-69	20.81	4.87	56.72	9.35	3.41	.80	.72

Source: Texas Education Agency

vocational education emphasis by commenting:

> Courses in home economics aid young women to become homemakers and this, rather than vocational training, is their primary function. While the percentage of the total course enrollment in agriculture has been diminishing, courses in this field constitute preparation for one major occupational group in which employment is projected to decline in the coming decade.[5]

A second factor that is shown by enrollment data, as illustrated in Table XIV, is that absolute increases in certain vocational areas have been multifold. Caution should be taken in interpreting these increases, however, since vocational educators tend to use this type of information when protecting the system of education. Absolute changes indeed speak louder than changes in distribution. In the last 20 years, homemaking enrollments have increased approximately 2.5 times their level in 1948-1949, and agriculture enrollments have increased absolutely about two times their level in 1948-1949. Increases for other vocational areas show that enrollment in distributive courses have increased 5 fold in the 20 year period, industrial courses 5 fold, office education 13 fold, technical courses 10 fold, and health education approximately 2 fold. Absolute increases, however, tend to disguise enrollment distribution, and can only show what a system has done in areas where relatively no money and no support were previously given. Growth figures, as discussed in the First Annual Report of the Advisory Council for Technical-Vocational Education in Texas, are meaningless when used alone to show the effectiveness of vocational education.[6]

Table XVI analyzes enrollments by showing the distribution of vocational education enrollments in secondary, post-secondary, adult, and special needs areas. Of all enrollments, less than a majority of total vocational students are taught in the high school, and of those students enrolled, home economics, agriculture, and distributive education are given the most emphasis in training

TABLE XVI

PERCENTAGE OF ALL VOCATIONAL ENROLLMENTS IN TEXAS AS RELATED TO OCCUPATION AS OF AUGUST 29, 1969

Vocational Subject	Secondary	Post-Secondary	Adult	Special Needs
Agriculture	34%	.2%	65%	.1%
Distribution	31%	3.6%	64%	.8%
Health	13%	59%	22%	.57%
Home Economics	63%	.06%	30%	1.0%
Office	26%	43%	29%	.9%
Technical	25%	62%	12%	.7%
Trades and Industry	40%	12%	38%	8.5%

Source: Texas Education Agency, U. S. Office of Education Form 4048

in terms of students taught. Sixty-four percent of enrollments in distributive education courses are found in adult programs, while office education is stressed in post-secondary areas. Health courses are most important in the post-secondary area, and technical and trades and industry courses are emphasized in both post-secondary schools and high schools. This information suggests that secondary schools are not playing the role that they should or could play in the total vocational education training area, and that the training that is stressed in the secondary school is deficient in more technical, clerical, and health areas of training.

It is obvious thus far that more high school students need vocational training, yet this training on the whole is probably not relevant to the needs of the State or the nation's economy. Reporting by broad occupational categories does not truly reflect the emphasis in training, so further evidence is needed to answer the question, Is vocational education relevant to the needs of students and the changing occupational structure of the State? Table XVII gives further insight into the question by presenting enrollment figures by sex and by agriculture and home economics courses. Here we see that agriculture courses have not really moved to off-farm programs, and that home economics courses have not really redirected toward the development of gainful occupations. This is best seen by the examination of the students in agriculture production courses and in home economics comprehensive programs. Agriculture production courses deal with

> ...subject matter and learning activities which are concerned with the principles and processes involved in the planning related to and the economic use of facilities, land, water, machinery chemicals, finance, and labor in the production of plant and animal products. Activities include classroom instruction and laboratory experiences in and of school, including farms, ranches, and other agriculturally related establishments.[7]

TABLE XVII

TEXAS ENROLLMENT BY SEX, AGRICULTURE AND HOME ECONOMICS COURSES FOR FISCAL YEARS 1967-68 AND 1968-69

	1967-1968	1968-1969
Total Males Enrolled	84,697	88,466
Total Females Enrolled	154,327	156,598
Total Males as Percent of Total Students	35.4%	36%
Total Females as Percent of Total Students	64.5%	64%
Total Males in Agriculture Courses	49,685	51,130
Total Males in Agricultural Production	48,405	49,224
Total Students in Agriculture	49,668	51,017
Males Enrolled in Agriculture Coures / Total Males	58.6%	57.7%
Males Enrolled in Agriculture Production / Total Males	57.1%	55.7%
Males in Agricultural Production / Total Males in Agriculture Courses	97.4%	96.2%
Total Number of Students in Agriculture Production / Total Enrollees	20.2%	20.1%
Total Males and Females in Agriculture Production	48,468	49,289
Total Number of Females in Home Economics	139,461	137,180
Total Number of Students in Home Economics	141,459	141,092
Total Number of Females in Comprehensive Home Economics	136,772	134,542
Females in Home Economics Courses / Total Females Enrolled	90.3%	87.6%
Females in Home Economics Comprehensive / Total Females Enrolled	88.6%	85.9%

TABLE XVII
(Cont'd.)

	1967-1968	1968-1969
Females in Home Economics Comprehensive / Total Females in Home Economics	99.6%	98.0%
Total Number of Students in Comprehensive Home Economics / Total Enrollees	58.9%	56.3%
Total Males and Females in Comprehensive Home Economics	140,959	138,162
	20.2+	20.1+
	58.9=	56.3=
	79.1%	76.4%

Source: Texas Education Agency, Annual Reports for 1967-1968, 1968-1969.

These are courses which relate directly to plant and animal science, with little or no relation to agri-business or off-farm activities. Home economics comprehensive courses are concerned with,

> . . .instruction which derives content from a combination of the various areas of homemaking (child development, clothing and textiles, consumer education, family health and relations, foods and nutrition, home-management, and housing and home furnishings) and emphasizes basic principles and interrelationships among these areas.[3]

These courses do not directly train students for occupational skills, but rather those skills directly aimed for the role of the homemaker. Note that homemaking courses are not required to train students for a skill, unless they are gainful courses. This does not mean, however, that all home economics courses should be general and not aimed toward training of saleable skills.

The results of Table XVII are revealing. First, over half of the males who were enrolled in vocational education courses in 1967-1968 and 1968-1969 were enrolled in agriculture courses. Of those males enrolled in agriculture courses, 97.4 percent and 96.2 percent in 1967-1968 and 1968-1969 respectively were enrolled in agriculture production courses, courses aimed for farm education. Of the total number of students enrolled in all courses, male and female, over 20 percent took agriculture production courses in each of these two years. Thus, the emphasis in agriculture vocation training has not been toward off the farm courses in terms of student enrollments. The system of vocational education has not moved into the often messaged "agribusiness"[9] training in terms of students enrollments, but has stuck to tradition and trained students in Texas in a declining area. This type of education cannot lead to anything but unemployment, increasing welfare, and lack of skills for the 49,000 or so students who take agriculture production courses. There is no doubt that the education system of vocational education must change in this very important area if it is to have relevance or existence in the future.

Home economics courses seem to have fallen into a similar situation. Here of the total females enrolled in vocational courses, 90.3 percent and 87.6 percent of the students in 1967-1968 and 1968-1969 took home economics courses. Of those females who took home economics, 99.6 percent (close to 100 percent) and 98 percent in the two respective years enrolled in the home economics comprehensive course. Of all students, male and female, who took vocation training in 1967-1968 and 1968-1969, 58.9 percent and 56.3 percent took the comprehensive home economics course. Thus, over a majority of students taking vocational courses are being trained in an area which inadequately prepares the student for work in today's labor market. It is not enough to say, "the system is changing, more relevant courses are being offered." Vocational educators must act, act to influence local officials who refuse to change courses that are being taught now as they have been taught in the past. With agriculture production and home economics comprehensive courses combined, one can say that 79.1 percent and 76.4 percent of all students enrolled in vocational courses in 1967-1968 and 1968-1969 were trained for decreasing demand skills, or for no saleable skills at all.

Enrollment in Teacher Training Programs in Texas

One of the significant measures of the growth and development of vocational education is the change in the number of institutions offering teacher training and the change in the areas of vocational education taught by these institutions. The number of teachers and their areas of training in vocational studies are important factors which will determine the types of training that our children will receive in the future, occupationally and quantitatively. In Texas, many of the programs of teacher training are carried out by the college and universities. It is no surprise that most of the institutions approved to teach vocational education teach one or more of these three areas: agriculture, home economics, or trades and industry. Of the 34 institutions

approved to teach vocational training in 1968-1969, nine were in agriculture, 19 were in home economics, and three were in the trades and industry area. Only three instiutitions were approved to teach in the health areas, and no institutions were approved to teach distributive, office, or technical courses for teachers. The latter areas were supplied teachers from industry, from short summer courses, and from inservice training.

Statistics concerning the enrollment in the approved institutions in Texas are shown in Table XVIII. In 1968-1969, a high percentage of teachers, 62.3 percent, were enrolled in either agriculture or home economics courses. The pattern of teacher training correlates highly with the enrollments of students in vocational coureses. Most teachers are trained in the traditional areas of vocational education. Since these areas have built up their materials and curriculum in the universities in Texas, it is quite difficult for a vocational teacher outside of industry to receive training in areas other than agriculture and home economics. The fact that office occupations supplied only 3.2 percent of the teacher enrollees in 1968-1969 illustrates the great need for more teacher trainees in office, distributive, and industry education, and therefore, for more approved institutions outside the standard areas of home economics and agriculture. As the General Report of the Advisory Council on Vocational Education states,

> . . .extending the range of occupations for which vocational education is provided will most certainly involve flexibility in teacher certification arrangements. . . . In short, the social and economic need for vocational education cannot be blocked by rigid certification requirements that limit the field of choice of potential instructors.[10]

Comparison of Employment and Enrollment Trends by Occupational Areas

A comparison of student enrollments with future manpower needs in needed to evaluate student and teacher training enrollments. As we have seen, student

TABLE XVIII

STATUS OF TEACHER TRAINING IN TEXAS VOCATIONAL EDUCATION, 1968-1969

Vocational Subject	Number of Approved Institutions	Number of Enrollees in Teacher Training (pre-and in-service)	Percent of Teacher Enrollees to Total Enrollment
Agriculture	9	1,517	22.3%
Distribution	None	768	11.3%
Health	3	108	1.6%
Home Economics	19	2,719	40.0%
Office	None	221	3.2%
Technical	None	40	.5%
Trades and Industry	3	1,413	20.8%
	34	6,786	99.6%*

Source: Texas Education Agency, U.S. Office of Education, Form 4047-3.

*Addition does not equal to 100 percent due to rounding.

enrollments have clustered in the agricultural and home economics fields for the last 20 years. Using manpower information from Tomorrow's Manpower Needs, a revealing comparison can be made using TEA's projected output in secondary and post-secondary enrollments.

As noted in Chapter II, projected output for 1975 in secondary and post-secondary areas are: Agriculture 10,683, Distributive 13,716, Health 4,770, Home Economics (Useful) 31,017. Home Economics (Gainful) 2,187, Office 19.017, Technical 6,532, and Trades and Industry 21,565. If these outputs are to correspond with the manpower needs of Texas in 1975, then the supply of labor trained should generally match the demand for labor as forecast by Tomorrow's Manpower Needs--assuming Texas trends are similar to the nation. Since there are numerous manpower programs that will be training people for employment, only a general statement of comparison of supply and demand can be made. Such a comparison, however, may be useful in determining the effectiveness of vocational education in Texas.

From the preliminary figures on primary employment calculated by the Texas Employment Commission, agriculture workers, or "Farmers and Farm Workers" are to experience a -3,480 annual average change in 1975. This means that farm employment will be dropping by over three thousand workers per year from now until 1975. If the Secondary and Post-secondary schools graduate over ten thousand agriculture students in 1975 alone, there will be no choice for these students except to find jobs in other occupational areas.

In the clerical area, an expected change in employment for 1975 is 18,120 workers. The output of vocational trainees, 19,017, will mor. than likely be able to find jobs in 1975, here again assuming that other manpower programs will not create an oversupply of clerical workers and that all who are trained actually seek employment. In the Distributive area, only 4,770 workers are projected to be needed in 1975. Vocational training, however, is predicted to

graduate over 13 thousand students in 1975 in the Distributive courses. The 1975 projected output for trades and industrial and technical workers together is over 28,000 students. The projected changes in employment in 1975 in the Craftsmen and Operative areas, two primary sources of employment for these trainees, is 26,240 employees. Here, the match of supply with demand is almost exact (assuming other manpower areas are not included in input figures). If Health occupations supply 4,770 workers, most of these workers will be able to fill the 3,910 projected openings.

Home Economics courses, gainful and useful, are projected to graduate over 33,000 students in 1975. The jobs that these students can fill will fall mostly in the service worker area, which, in its entirety, will only need 14,440 workers in 1975. This figure, however, includes janitors, cooks, counter workers, bartenders, and a number of other occupations which are primarily male not female oriented. Since only 1,498 males took homemaking courses in 1968-1969, there is little possibility that home economics will supply many workers for the male-oriented jobs. There can be no doubt that those students of home economics will have great difficulty finding jobs in our economy unless the type of training that is presently taught is radically changed in the next five years. If the Texas trends in employment are anything like the national trends in 1975, a number of obvious outcomes will occur to the students trained in vocational courses. First, those students in agriculture will not be able to find jobs related to their training. Persons in distribution may experience this difficulty, as well, if there is too great an emphasis in these courses in the next five years. Students of home economics will be very hard to place in jobs at any time. Office occupation trained students will easily find jobs, and those students of technical and trades and industrial courses will be able to find jobs with virtually no trouble, assuming vocational education really prepares people for occupations.

These trends may not occur as predicted because of the assumptions inherent in the employment projections or the unreasonableness of the general assumption that Texas may be similar to the nation in occupational trends. As mentioned in Chapter II, however, Health areas are expanding very rapidly in Texas, and a great demand is present for clerical, technical, and service workers. It is very apparent that predicted changes in vocational courses will benefit only the students taking these courses in the long run. Teachers as well as schools must react flexibly to the new occupational demands. There can be no doubt that the purpose of vocational education in meeting the needs of industry has not and will not be met unless changes in the system occur now. If the purpose of this manpower program is to train youth for useful employment, then enrollment emphasis must be altered greatly in the next two to five years.

The Initiation of New Courses

The major criticism of vocational education's lack of responsiveness to labor market changes has been centered on the continuance of outmoded programs and the failure of vocational systems to establish new courses reflecting expanding occupational requirements.[11] In order to evaluate this criticism, an analysis of the procedures actually used in the initiation of new courses must be made.

In Texas, the established procedure for initiating a new course begins with the local school which, with the advice and counsel of an advisory committee, submits an application to the State Board of Education for funds. The advisory committee is composed of representatives of "employers and employees from the occupations or industries related to programs being conducted or proposed to be offered."[12] It is the responsibility of the advisory committee to evaluate the need for programs in occupations located in the proposed area as well as to examine:

> ...sources of qualified teachers, counselors, and supervisors, evaluation and improvement of programs as necessary, and other advice and counsel required for conducting programs of high quality, realistic in the light of actual or anticipated opportunities for gainful employment and suited to the needs, interest, and ability of students to benefit from such program.[13]

This data is collected by means of local area surveys, by infomation provided from local Texas Employment Commission offices, or from ccntacts with employers in the area.

If the local school and the advisory committee establish the need for a new course, the decision to go ahead rests with local and State school boards. If the application passes the local board, then a reviewing committee of the State Board composed of consultants, area supervisors, and head State supervisors of the vocational programs, services, or activities for which funds are being requested must pass on the application.[14] The Associate Commissioner for Occupational Education and Technology will approve the applications upon recommendation of the reviewing committee.

The steps that one must take to initiate a new course are indeed complicated and subject to much scrutiny from local and State boards of education. The red tape is enormous. Given human inertia and the complications of starting new courses, Samuel Burt comments:

> Is it any wonder, then, that already understaffed and overburdened administrators shudder at the thought of becoming involved in establishing new programs and, for the most part, usually wait for event or outside pressure before considering initiating new programs.[15]

Besides the complications involved in initiation of new courses, a few of the weaknesses inherent in the local advisory committee concept are notable. In Texas, the local advisory committees are usually more important on paper than in practice--if they are even established on paper. Many of the committees do not have qualified personnel to conduct the research and surveys that are ired to support a local appliaction. In some areas, local advisory committees

are political groups, or self-interest employers looking for a ready supply of trained labor. Local Texas Employment Commission staffs do not have the data or personnel to conduct realistic labor market surveys; much of the research, therefore, must be carried out by the local school board. Hence, the requests for additional vocational education courses frequently is dictated by local employer needs or by request of potential students rather than by current labor market needs, as shown by statistical surveys. Burt states that "In practice... few local school systems have developed an articulated system of occupational education, nor have they utilized general advisory committees."[16]

The problems in the initiation of new courses are indeed manifold. The process involves researched applications, as well as approvals from a myriad of advisory and education groups, all who may or may not stop, delay, or hinder an application. New course offerings are viewed with scepticism because of the procedures necessary for approval, or because properly certified teachers may not be available to teach the course. Course initiation in Texas is usually achieved only by outside pressures from the public and from industry, rather than by in-system suggestion. It is much easier for an educator or a system to continue offering the courses that have been taught in the past, than to go through the motions of initiating new courses. Discontinuance of old courses involves discontinuance of teachers who may have enough tenure so that they cannot be fired or displaced. Unfortunately, even the Vocational Act of 1963, as amended in 1968, provides little understanding about ways in which new teachers in technical education, trade and industrial education and distributive education can be trained and recruited. New trends in other fields will likely require teachers who are unlikely to hold baccalaureate degrees. Unless special care is taken, the effect will be to discriminate against instructional personnel for new and emerging fields where baccalaureate degree programs are not now offered and where employment opportunities in business and industry are so great

as to require incentive to persuade capable personnel to enter the teaching field.[17] The system of vocational education cannot as yet serve as an instrument of change in a world which itself is undergoing great economic, and occupational change.

Conclusion

Governor John Rhodes of Ohio, an advocate of vocational education, has said:

> The chief contributor to the decadent society is our out-dated educational system which refuses to recognize the basic problems of society; yet, it is this system which holds our only hope for the future. The system flatly rejects up to 70% of the young people in school; in doing so, it creates the dropouts, the delinquents, the unemployables, and the welfare recipients.[18]

The educational system in Texas and the United States has been deficient in providing the training needs of a growing population in an expanding industrial economy. Not only have too few high school students been encouraged to take vocational courses, but those who have taken courses in vocational education have rarely been prepared for jobs in the labor market. There is a belief that the productivity of the more than five million workers in the labor force in Texas in 1975 will depend upon the quality and quantity of occupational education available in public schools.[19] If the youth of our State are to be realistically prepared in expanding occupations of the future, then educational planning must be structured to adapt to the changing manpower needs of business and industry. These needs fall in the health, clerical, service, and technical fields of training. Enrollments must not be in out-dated and declining occupations, but rather on up-coming, modern, expanding occupations where jobs are scarce and training is needed.

FOOTNOTES

1 Jacob J. Kaufman and others, The Role of the Secondary Schools in the Preparation of Youth for Employment (University Park: Institute for Research on Human Resources, the Pennsylvania State University, 1967), pp. 1-3.

2 James A. Rhodes, Alternative to a Decadent Society (New York, 1969), p. 12.

3 Advisory Council for Technical-Vocational Education in Texas, Proceedings of the Governor's Conference on Technical-Vocational Education in Texas, (Austin, Texas, 1970), p. 60.

4 Senate Committee on Vocational-Technical Education, To Bridge the Gap (Austin, Texas, 1969), p. 108.

5 Leonard A. Lecht, Manpower Needs for National Goals in the 1970's (New York, 1969), p. 108.

6 In discussing the trends in vocational industrial education, the Advisory Council on page 10 of its First Annual Report, September 1, 1970 said, "Vocational Industrial education in Texas has experienced a phenomenal 222% growth during the eight year period. Vocational industrial education has the largest growth of any of the four vocational programs listed during the 1962-1963 school year." These figures are meaningless when one compares this field to other areas.

7 U.S. Department of Health, Education, and Welfare and U.S. Department of Labor, Vocational Education and Occupations (Washington, D.C., 1969), p. 4.

8 Ibid., p. 52.

9 Agri-business is defined by the American Vocational Association, 1964, as "an inclusive term which embraces a cluster of agricultural occupations pertaining to the business and/or management phases of manufacturing, servicing, processing, and distribution of the products going into and/or coming from farm production.

10 Advisory Council on Vocational Education, Vocational Education the Bridge Between Man and His Work (Washington, D.C., 1968), p. 94.

11 Gerald G. Somers, "The Response of Vocational Education to Labor Market Changes," The Journal of Human Resources, Vol. III, Supplement, 1968, p. 53.

12 The Texas State Plan for 1971 Section 3.23-2, (Austin, Texas, 1970), p.56.

13 Ibid., Section 3.23-6, p. 56.

14 Ibid., Section 3.22, p. 51.

15 Samuel Burt, "Initiating New Vocational and Technicl Education Programs," Research Approaches to the Initiation of new Vocational-Technical Programs (Madison, The Center for Studies in Vocational and Technical Education, The University of Wisconsin, 1966).

16 Samuel Burt, "Industry Participation in Local Vocational and Technical Education Programs," Research in Vocational and Technical Education, (Madison, The Center for Studies in Vocational and Technical Education, The University of Wisconsin, 1966), p. 227.

17 Rupert Evans, Garth Mangum, and Otto Pragan, Education for Employment: The Background and Potential of the 1968 Vocational Education Amendments, (Ann Arbor, 1969), p. 106.

18 Rhodes, p. 10.

19 Texas Advisory Committee on Vocational Education, Guidelines for the Development of Vocational Education in Texas Through 1975-1976, (Austin, Texas, 1968), p. 32.

CHAPTER IV

EXPENDITURES FOR AND TEACHER UNITS OF SECONDARY VOCATIONAL EDUCATION

Introduction

Jacob Kaufman noted in the Journal of Human Resources that:

> The real challenge to vocational education is the expansion of its offerings and the opening of its opportunities to more youth who find neither the academic nor the general curriculum--nor even the vocational curriculum--satisfactory.[1]

These new offerings and openings can only come about through an expansion of new funds and new teachers in the areas where the need is greatest. This chapter will analyze these two aspects of vocational education to see if there is realistic hope for changes in the Texas system of vocational training.

In the last five years, funds available for vocational education have greatly increased due to the passage of the Vocational Education Act of 1963. The Act made available more funds to schools in Texas for the first time in the fiscal year of 1966. The trends in public school expenditures in the occupational categories over the last decade and the effect of the Vocational Education Act on secondary school training are important factors in examining the flexibility of expenditure allocation for change.

In terms of instructional staff, both the quality and quantity of teachers available determine how well vocational education will be maintained, expanded, and extended.[2] In the last decade, the number of vocational teachers in Texas has increased by 57.7 percent. The occupations that these teachers have specialized in and the parts of the State, rural or urban, that they have located in are very important factors in evaluating the effectiveness of the vocational education system in changing social, economic, and political world.

Expenditures on Public High School Vocational Education in Texas

In the last seven years, since the passage of the Vocational Act of 1963, investment in vocational education has been substantially increased by Federal, State and local sources. Economists such as Jacob Kaufman, Michael Taussig, and Arthur Corazzini have been concerned with the effectiveness of vocational education expenditure on a cost-benefit or a cost-effectiveness basis. These authors have conducted studies to determine the status of given resources available for public education and the efficiency of their allocation between vocational-technical and academic education.[3] In general, the results of these studies show that the returns to the vocational system have been meager relative to the social investments or costs in the program. The effectiveness of the system in terms of earnings, occupational placements, drop-out prevention, unemployment rates, and social factors has been minimal in all these studies.

This section of my study will discuss the costs of vocational education on a very general basis. A measure of effectiveness will be examined in Chapter V, but there is by no means any attempt to make a cost-benefit analysis of vocational education. Research in this area has been restricted because of the great inadequacies found in the reporting system used by the Texas Education Agency. Specific equipment, administrative, and construction costs by occupational area for secondary vocational education are not collected or available for the State of Texas. In addition, the Texas Education Agency reports expenditures by occupational category only in terms of total funds for all training, secondary, post-secondary, and adult courses, allocated under the Vocational Education Act of 1963, the Smith-Hughes Act, and the George-Barden Act. Unfortunately, because of this accounting system, specific expenditures for secondary vocational education cannot be calculated. The Evans, Mangum, Pragan study further notes that:

> Since the states do not have to include in their report that portion of state and local expenditures which is above their matching requirements or which is spent for non-reimbursable programs, the total state and local expenditures are understated. Therefore, even the amount of total expenditures is not fully accurate because it does not include some of the overmatching of federal funds and does not reflect reimbursable programs.[4]

With these limitations, some cost aspects of vocational education will be discussed. Table XIX indicates the Federal, State, and local expenditures for vocational education in Texas from 1959-1960 through 1967-1968. Total expenditures for Texas vocational education have increased nearly threefold, from approximately $19.5 million in 1959-60 to over $57 million in 1967-68. After the passage of the Vocational Education Act in 1963, Federal and local monies rose approximately seven times in 1965 from their level of 1963. The Act greatly stimulated State and local funds because of the matching agreements attached to many of the allocations.

It would appear from Table XIX that State expenditures have not responded equally to the Federal and local expenditure increases. This may be accounted for by the time lag in State legislative procedures in Texas. Here, the State budget is planned at least two years in advance so that the response of Texas to the Act is not seen until the fiscal year 1967. Local legislative processes, because they are less cumbersome, have responded more rapidly to changed conditions created by the Vocational Act of 1963.[5]

From the data presented in Table XX, it is quite evident that Texas' State expenditures have adequately supported vocational education programs. In 1967-68, for every dollar that was invested in vocational education, approximately 60 cents was contributed by the State, 12 cents by local sources, and 28 cents by Federal monies. The impact of the Vocational Act of 1963 reversed the trend in the ratio between Federal and State expenditures for the periods 1963-1966. During this time, the Federal ratio increased from 8 to 27.7 percent between 1963 and 1966, and the State ratio decreased from

TABLE XIX

FEDERAL, STATE AND LOCAL EXPENDITURES FOR VOCATIONAL EDUCATION IN TEXAS
1959-60 THROUGH 1967-68

Fiscal Year	Federal	State	Local	Total
1959-60	$ 2,061,667	$16,482,189	$ 904,828	$19,448,684
1960-61	2,143,785	16,603,227	860,392	19,607,404
1961-62	2,216,849	20,981,989	1,120,594	24,319,432
1962-63	2,249,820	21,680,580	1,247,961	25,178,361
1963-64	2,636,196	22,957,609	1,320,696	26,914,501
1964-65	9,033,178	24,638,135	7,639,767	41,311,080
1965-66	14,105,092	28,753,112	11,815,646	54,673,850
1966-67	15,858,022	28,345,105	13,026,356	57,229,483
1967-68	15,738,533	34,513,382	6,899,722	57,151,637

Source: Texas Education Agency

TABLE XX

PERCENTAGE OF FEDERAL, STATE AND LOCAL EXPENDITURES ON VOCATIONAL EDUCATION IN TEXAS, 1959-60 THROUGH 1967-68

Year	Federal	State	Local
1959-60	10.6%	84.7%	4.7%
1960-61	10.9%	84.7%	4.4%
1961-62	9.1%	86.3%	4.6%
1962-63	8.9%	86.1%	5.0%
1963-64	9.8%	85.3%	4.9%
1964-65	21.9%	59.6%	18.5%
1965-66	25.8%	52.6%	21.6%
1966-67	27.7%	49.5%	22.8%
1967-68	27.5%	60.4%	12.1%

Source: Calculated from Table XIX.

85.3 to 49.5 percent. The local ratio increased over fourfold, from 41.9 to 22.8 percent in the same period. Thus, local and Federal monies have come to play a greater role in vocational education support in Texas in the last five years due to the Act of 1963.

Again, it is very difficult to determine how much of the increases for State and local expenditures resulted in changes in reporting practices or from actual dollar increases. With the increases in Federal allotments, Texas began to report expenditures for programs which were not previously included in the reports. It is also likely that there are still considerable amounts of State and local funds expended for vocational education which are not reflected in the reporting system of Texas.[6] Thus, the data used here may or may not accurately reflect the status of expenditures in Texas.

Expenditures by Occupational Categories

As previously mentioned, reporting by the Texas Education Agency is still largely oriented to the broad occupational fields established to meet the requirements of the Smith-Hughes and George-Barden acts. Specific reporting by occupational categories for secondary schools in not available or possibe under the present system of accounting in Texas. To determine trends in expenditure, however, total costs for secondary, post-secondary, and adult education have been reviewed in Table XXI. These expenditures do not include construction, guidance, work study, or "not otherwise classified" costs. The data does not reflect the costs of specific courses, the types of new programs, or the changes that are taking place within the programs, but it does lead to some revealing observations concerning the impact of vocational education in Texas.

In reviewing the expenditures for the years 1962-63 through 1966-67, it appears that while total funds for vocational education increased each year,

TABLE XXI

TOTAL COSTS FOR VOCATIONAL EDUCATION IN TEXAS BY OCCUPATIONAL AREA, 1948-1967

Year	Agriculture	Distributive	Homemaking	Office	Trades and Industry	Technical	Homemaking Gainful	Health
1948-49	3,064,833	451,687	2,488,993		983,200			
1949-50	4,339,701	556,128	3,925,002		1,089,720			
1950-51	4,924,167	734,423	4,340,721		1,209,816			
1951-52	5,512,761	616,507	5,043,174		1,196,810			
1952-53	5,246,467	732,717	5,043,323		1,443,782			
1953-54	5,481,982	687,230	5,287,381		1,351,116			
1954-55	6,066,966	753,950	6,034,951		1,506,854			
1955-56	6,251,407	780,794	6,183,720		1,579,151			
1956-57	6,277,525	838,946	6,336,974		1,625,673			
1957-58	7.127,035	997,736	7,567,853		2,207,752			
1958-59	7,500,620	973,762	8,324,706		2,341,456			
1959-60	7,589,605	916,934	8,241,580		2,225,261			
1960-61	7,636,814	895,781	8,256,990		2,195,390			
1961-62	9,086,443	1,250,163	10,480,983		2,595,348	503,243		
1962-63	9,311,917	1,303,157	10,729,460		2,856,731	507,691		469,364
1963-64	9,446,361	1,446,867	11,021,737		3,247,683	1,219,547		532,303
1964-65	9,410,488	1,673,865	11,571,369	68,419	3,704,011	1,238,431		482,442
1965-66	9,384,963	2,092,885	14,097,164	491,465	2.172,457	2,329,365		491,679
1966-67	10,765,944	2,425,096	13,914,036	2,006,367	8,312,002	4,812,997	493,770	1,101,780

Source: Vocational and Technical Education, Annual Reports
U.S. Department of Health, Education, and Welfare,
U.S. Office of Education, for years 1948-1967.
(Expenditures for Vocational Occupations by Source of funds and by State or Territory)

there was also a modification in the distribution of funds by occupational category. Table XXII relates the total expenditures reported for each occupational category to the total expenditures for vocational education in the 1962-67 period. Here we see that the distribution of funds spent in agriculture and home economics decreased in the five year period, with agriculture funds falling from 36.9 percent of the total in 1962-63 to 24.6 percent in 1966-67, and home economics from 42.6 percent to 31.7 percent in the same period. These two categories, however, together accounted for over 56 percent of total funds in 1966-67.

In terms of percentage distribution, distributive and health occupations show a relatively stable pattern in this period, while technical, office, and trades and industrial areas gained considerable emphasis. Technical expenditures increased from two percent of the total in 1962 to 10.9 percent in 1967, office occupations from .24 percent in 1964 to 4.6 percent in 1967, and trades and industrial from 11.3 percent to 18.9 percent in the 1962-1967 period. These redistributions of funds, especially in office occupations, have come about because of the inclusion of office occupations in the Vocational Act of 1963 and the Congressional emphasis levied toward the more technical fields of training. In the total picture, however, agriculture and home economics expenditures still held over a majority of funds, or over 24 million dollars, used in the secondary, post-secondary, and adult vocational education areas in 1966-67.

The reporting system used here presents several limitations to any type of analysis that can be made, for it does not provide expenditures for the different levels of instruction, or for the specific programs within occupational fields.[7] However, the Texas Education Agency Research Division does provide minimum foundation costs by occupational area, enabling instructional costs of secondary school expenditures to be considered. These costs are presented in Tables XXIII and XXIV, giving numerical cost figures by occupational category as well as

TABLE XXII

PERCENTAGE OF TOTAL COSTS FOR VOCATIONAL EDUCATION BY OCCUPATIONAL AREA IN TEXAS, 1962-63 THROUGH 1966-67

Year	Agri-culture	Distri-butive	Home Economics	Office	Trades and Industry	Technical	Home Economics Gainful	Health
1962-63	36.9	5.2	42.6		11.3	2.0		1.9
1963-64	35.1	5.4	40.9		12.1	4.5		1.9
1964-65	33.4	5.9	41.1	.24	13.2	4.4		1.7
1965-66	19.9	7.7	52.1	1.8	8.0	8.6		1.8
1966-67	24.6	5.5	31.7	4.6	18.9	10.9	1.1	2.5

Source: Calculated from Total Costs of Vocational Education as reported in Vocational and Technical Education, Office of Education Annual Reports.

TABLE XXIII

TEXAS VOCATIONAL EDUCATION MINIMUM FOUNDATION PROGRAM COSTS--
1948 THROUGH 1968

School Year	TEACHERS SALARIES				
	Agriculture	Distributive	Homemaking	Industrial	Total
1948-49	-----	-----	-----	-----	$ 1,344,774
1949-50	$ 2,976,325	$ 294,550	$ 3,382,958	$ 493,200	7,147,033
1950-51	3,388,371	418,826	3,807,197	480,620	8,095,014
1951-52	3,740,825	436,150	4,294,400	516,670	8,988,045
1952-53	3,646,340	438,100	4,544,323	663,890	9,292,653
1953-54	3,817,706	434,590	4,619,025	658,571	9,529,892
1954-55	4,232,184	467,728	5,153,682	648,784	10,502,378
1955-56	4,551,775	509,375	5,505,325	733,500	11,299,975
1956-57	4,515,100	525,675	5,611,275	757,950	11,410,000
1957-58	5,076,540	615,060	6,494,850	895,050	13,081,500
1958-59	5,163,207	654,099	6,800,000	950,995	13,568,301
1959-60	5,180,000	679,375	7,020,750	994,375	13,875,000
1960-61	5,116,155	699,960	7,146,960	1,026,915	13,989,990
1961-62	7,120,151	815,849	8,447,391	1,087,802	17,471,193
1962-63	7,295,025	871,293	8,787,546	1,346,855	18,300,719
1963-64	7,403,511	947,839	9,103,373	1,671,469	19,126,192
1964-65	7,631,347	1,158,891	9,379,082	2,094,471	20,263,791
1965-66	8,303,983	1,420,759	10,651,876	2,605,488	22,982,106
1966-67	8,207,411	1,537,657	10,857,132	3,095,761	23,697,961
1967-68	9,103,533	1,834,123	12,576,031	4,107,973	27,671,660

Source: Texas Education Agency

TABLE XXIV

PERCENTAGE OF PROGRAM COSTS AS RELATED TO TOTAL MINIMUM FOUNDATION COSTS IN TEXAS, 1949 THROUGH 1969

Year	Agriculture	Distributive	Home Economics	Industrial
1949-50	41.6%	4.1%	47.3%	6.9%
1950-51	41.8%	5.2%	47.0%	5.9%
1951-52	41.6%	4.8%	47.8%	5.7%
1952-53	39.2%	4.7%	48.9%	7.1%
1953-54	40.0%	4.6%	48.4%	6.9%
1954-55	40.2%	4.4%	49.0%	6.2%
1955-56	40.2%	4.5%	48.7%	6.4%
1956-57	39.6%	4.6%	49.2%	6.6%
1957-58	38.8%	4.7%	49.6%	6.8%
1958-59	38.0%	4.8%	50.1%	7.0%
1959-60	37.3%	5.0%	50.6%	7.2%
1960-61	36.6%	5.0%	5[illegible].0%	7.3%
1961-62	40.8%	4.6%	48.4%	6.2%
1962-63	39.8%	4.8%	48.0%	7.4%
1963-64	38.7%	5.0%	47.6%	8.7%
1964-65	37.6%	5.7%	46.2%	10.3%
1965-66	36.1%	6.2%	46.3%	11.3%
1966-67	34.6%	6.4%	45.8%	13.0%
1967-68	32.8%	6.8%	45.4%	14.8%
1968-69	31.0%	7.2%	45.0%	15.8%

Source: Calculated from Table XXIII.

percentages of occupational category costs as related to total costs. Local funds which normally provide facilities, supplies, and other costs are not included in the Minimum Foundation costs.

As of 1969, only agriculture, trades and industry, home economics, and distributive courses were covered under the Minimum Foundation Program. The instruction costs of these four areas reveal enough information, however, to comment on the effectiveness of vocational education in Texas. In the last twenty years, funds expended for home economics and agriculture courses together have accounted for over 75 percent of total monies spent on instructional costs. Agriculture expenditures have decreased in this period from 41.6 percent in 1949 to 31.0 percent in 1968, but the funds spent on agriculture in 1968-69 were still over two times as much as that spent in industrial courses. In 1968-69, only 20.81 percent of high school vocational students were enrolled in agriculture courses. Home economics expenditures have remained stable in this period, centering around 45 to 50 percent of total expenditures, with over $12 million spent in 1968-69. Distributive courses have gained minimal importance in the last 20 years. Industrial courses, on the other hand, have had steady increases in expenditures since the passage of the Vocational Act of 1963.

The conclusions that are gained from the analysis clearly point to the biases inherent in the Texas system of vocational education. In terms of sources of funds, State resources have played a most important role in the vocational education system. The occupational fields that these funds have supported, however, reflect the agricultural biases of the vocational system, the tradition of home economics courses since the Smith-Hughes Act in 1917, and the great inadequacies of supply of vocationally trained labor in meeting the demands of industry. Thus far, vocational education has been presented in terms of its effectiveness in student and teacher enrollments and expenditures. The

results of the analysis have led to the same conclusion: that agriculture and home economics courses overwhelmingly dominate the vocational training taking place in the secondary schools. In terms of meeting the demands of the economy, vocational education has not accepted the challenge of the manpower revolution.

Further analysis of the system in terms of teacher unit allocation will create further understanding of the problems of the system of education in Texas.

Teachers in Secondary Vocational Education

As pointed out in Chapter I, the major portion of vocational education in secondary schools is financed by the Minimum Foundation Program which allots support for every accredited four-year high school in Texas. Each of these schools is allowed two vocational teacher units to teach one or more vocational programs in agriculture, homemaking, trades and industry, and distributive education. Additional vocational teacher units may be allotted according to needs determined by a survey of the community and approved to needs determined by a survey of the community and approved by the State Commissioner of Education.[8] Thus, allocation of two teacher units by occupational area is left to the determination of the local school with more units dependent upon surveys in the community. In theory, the distribution of teachers in occupational areas should adequately reflect the manpower needs of each community if local administrators request teachers on a labor demand criteria. In practice, however, this distribution may reflect no more than the traditional patterns of course choice.

This section will examine the make-up of teachers in Texas vocational courses to determine how well vocational education is meeting the needs of industry through its teaching force. Teachers, undisputedly, are a most important input in vocational education, especially since students receive ideas of work, occupational choice, and social attitudes from the teacher. Teachers bring to

the classroom experiences which qualify them to teach some specific training that will enable students to obtain gainful employment after graduation. If this training does not enable the student to qualify for a job, then the methods used to teach those courses must be changed.

In all fields except trade and industrial and technical education, the Texas teacher is required to have a bachelor's degree. In the technical fields mentioned, equivalent experience or study in a post-secondary school is required. If the content of a teacher's field changes, he can usually go back to school at his own expense or can work in industry for a summer period. A third alternative is that the teacher can grow obsolete, as Mangum notes,"spending (his) summers in such employment as selling encyclopedias to make more money than (he) could earn in (his) own field." The Mangum study goes on to say that these types of teachers:

> Soon...are no longer employable in their occupation, but...may be allowed to continue to teach it anyway. While the dedication and ability of most teachers is commendable, built-in procedures are needed to keep current those who desire to do so, encourage those who do not, and weed out those who will not.[9]

The numbers and types of vocational teachers in our public education system determines the future of our nation's youth. Table XXV gives us some insight into the numbers of teachers by occupational category who teach in the secondary schools. Throughout the last decade, home economics, agriculture, and industrial courses have held the largest numbers of teachers, in that respective order. As for the percentage of teacher allocations, homemaking has maintained a steady number of teachers in the last 20 years, fluctuating from a low of 42.4 percent in 1968-69 to a high of 52 percent in 1961-62. The percentage of teachers in agricultural courses has decreased from 41.86 percent in 1950-51 to 23.86 percent in 1968-69. A study by the Center for Vocational and Technical Education at Ohio State University found that, in Ohio,

TABLE XXV

SECONDARY VOCATIONAL EDUCATION TEACHERS IN TEXAS -- 1948 THROUGH 1969

School Year	Agri-culture	Distri-butive	Home-making	Health	Indus-trial	Occu-pational Training	Office	Tech-nical	Total
1948-49	-	-	-	-	-	-	-	-	-
1949-50	869	86	988	-	144	-	-	-	2,087
1950-51	987	122	1,109	-	140	-	-	-	2,358
1951-52	1,115	130	1,280	-	154	-	-	-	2,679
1952-53	1,082	130	1,348	-	197	-	-	-	2,757
1953-54	1,142	130	1,382	-	197	-	-	-	2,851
1954-55	1,122	124	1,366	-	172	-	-	-	2,784
1955-56	1,117	125	1,351	-	180	-	-	-	2,773
1956-57	1,108	129	1,377	-	186	-	-	-	2,800
1957-58	1,106	134	1,415	-	195	-	-	-	2,850
1958-59	1,113	141	1,466	-	205	-	-	-	2,925
1959-60	1,120	147	1,518	-	215	-	-	-	3,000
1960-61	1,111	152	1,552	-	221	-	-	2	3,038
1961-62	1,126	161	1,618	1	233	-	-	2	3,141
1962-63	1,135	168	1,662	1	283	-	-	5	3,254
1963-64	1,132	183	1,708	1	346	-	-	8	3,378
1964-65	1,154	224	1,745	2	435	19	20	11	3,610
1965-66	1,121	245	1,812	3	493	91	49	27	3,841
1966-67	1,108	271	1,852	7	586	123	108	32	4,087
1967-68	1,122	301	1,948	9	703	190	163	37	4,473
1968-69	1,129	332	2,010	25	764	217	215	39	4,731

Source: Texas Education Agency

TABLE XXVI

PERCENTAGE OF TEACHERS BY PROGRAM IN RELATION TO TOTAL TEACHERS FOR SECONDARY VOCATIONAL EDUCATION IN TEXAS 1948-1969

School Year	Agri-culture	Distri-butive	Home-making	Health	Indus-trial	Office	Tech-nical
1949-50	41.63%	4.12%	47.34%	-	6.9%	-	-
1950-51	41.86%	5.20%	47.03%	-	5.9%	-	-
1951-52	41.62%	4.80%	47.70%	-	5.9%	-	-
1952-53	39.24%	4.70%	48.90%	-	7.1%	-	-
1953-54	40.00%	4.60%	48.50%	-	6.9%	-	-
1954-55	40.00%	4.50%	49.00%	-	6.2%	-	-
1955-56	40.00%	4.50%	48.70%	-	6.4%	-	-
1956-57	39.60%	4.60%	49.17%	-	6.6%	-	-
1957-58	38.80%	4.70%	49.60%	-	6.8%	-	-
1958-59	38.10%	4.80%	50.00%	-	7.0%	-	-
1959-60	37.30%	4.90%	50.60%	-	7.2%	-	-
1960-61	36.60%	5.00%	51.00%	-	7.3%	-	.065%
1961-62	35.80%	5.00%	52.00%	.030%	7.4%	-	.063%
1962-63	34.88%	5.20%	51.00%	.030%	8.6%	-	.153%
1963-64	33.50%	5.40%	50.00%	.029%	10.2%	-	.240%
1964-65	31.90%	6.20%	48.00%	.050%	12.0%	.55%	.300%
1965-66	29.20%	6.40%	47.20%	.030%	12.8%	1.20%	.700%
1966-67	27.00%	6.60%	45.00%	.170%	14.3%	2.60%	780%
1967-68	25.10%	6.70%	43.50%	.200%	15.7%	3.60%	.820%
1968-69	23.86%	7.00%	42.40%	.520%	16.1%	4.50%	.820%

Source: Calculated from Table XXV.

the greatest need for secondary teachers was in the trades and industrial field. Although Ohio is a very industrial state, future trends in Texas may follow the same needs as industry plays a more important role in the Texas economy.

Also notable is the fact that office education teachers composed only 4.5 percent of teachers in 1968-69; this percentage is numerically translated as 215 teachers. Distributive teachers also only numbered 332 in 1968-69. A study by Dr. Fred Cook and Dr. Frank Lanham concerning the opportunities for employment in office education occupations in Detroit, Michigan found that more entry jobs are available in the office and retail fields than all other occupational fields combined. In fact, the authors find that "Fifty-four percent of all entry jobs were accounted for in clerical and sales Dictionary of Occupational Titles classifications; 44 percent clerical and 10 percent sales." Cook and Lanham conclude that vocational business education programs at the high school level should receive support in relation to the size of the population served and that "All school personnel should be informed of and recognize the importance of office and retail classifications as. . .an avenue for entry jobs."[11] Texas vocational teachers might examine the possibility that clerical and sales jobs are important to the vocational student entering the labor market. Here again, the study was carried out in Detroit, but there are similar patterns for office employment by industry in Texas.

Thus far, the so-called traditional areas of teacher education, agriculture and home economics, have dominated the teaching force for secondary vocational education. Comments concerning the quality of these teachers cannot be made with existing information, although future studies may increase understanding in this area. The Texas Advisory Committee on Vocational Education in 1968 commented that "there is evidence that existing teacher preparation cannot produce qualified teachers in sufficient numbers to meet the anticipated needs

in the years ahead."[12] Since no more than 39 percent of the total teacher units in 1968-69 were in the most demanded fields of training, clerical, health, distributive, industrial and technical areas, the comment by the council is justified.

Rural and Urban Comparisons

The Preface mentioned some of the rural and urban problems confronting our nation and State in the last decade. Especially noted was the widespread migration of youths and adults from the farm to the city. The influx of these persons has caused increasing difficulties for the city since many migrants have moved into cities without adequate training for urban employment in industry and service. Cities are rapidly deteriorating in their largeness and congestion, as experienced by the increasing number of student and racial demonstrations, pollution warnings, and unemployment rolls in the last decade. Poor rural migrants are unemployed and frustrated because of their lack of skills. The problems of the migrant in the cities is chronic, and the education system is one avenue that can be used insolving the training needs of these migrant farm workers.

The most recent U.S. Office of Education's Vocational and Technical Education Annual Report states that:

> Education and employment opportunities in rural America must be such as to hold people already there, and, hopefully, to attract others from the crowded cities. There is much promise in the recent tendency of industry to establish new and expensive plants outside large metropolitan areas. If industry is to be encouraged in such investments, vocational education must help to provide the skilled labor force needed in new rural industry.[13]

What then are the prospects for an upgraded and up-dated vocational system in the public high schools of Texas with respect to the recent trends in rural and urban migration? Data collected by the Advisory Council for Technical-

Vocational in Texas provides some understanding of this problem. The Advisory Council's report analyzes the number of secondary vocational teachers by occupational area with respect to average daily attendances of students for 1968-69. Here average daily attendances is one measure used to differentiate between rural and urban high schools. The Council study notes that,

> The Bureau of the Census considers a community of 2,500 population or less to be rural. Size realtion of school and ocmmunity vary widely, but generally a communtiy of 2,500 will have approximately 300 students in high school.[14]

The data as broken down in Table XXVII illustrates student population, numbers of school districts that have various student populations, and teacher units by occupational area in the various population groupings.

Column I shows that secondary schools with less than 300 average daily attendance, i.e., rural schools, represent 66 percent of the school districts offering vocational education in the State. Yet, these schools account for only 13 percent of the student population in Texas. In addition, these rural high schools have 32 percent of all homemaking and 54 percent of all vocational agriculture teachers in the State. The rest of the teachers are located in the technical, office, and distributive areas. When considering only the teacher units in the rural areas, one sees that 47 percent are in vocational agriculture courses, 49 percent in vocational homemaking, and the rest, four percent, are in all other vocational offerings.

In the urban areas, as measured by high schools with 300 or more average daily attendance, we find 87 percent of the State's student population. Only 73 percent of the State's vocational teachers are located in these areas, however, and they specialize primarily in the industrial, office, and distributive occupations. In fact, 96 percent of distributive teachers, 97 percent of Industrial day teachers, and 98 percent of all office education teachers in the

TABLE XXVII

ANALYSIS OF SECONDARY VOCATIONAL UNITS TO HIGH SCHOOL ADA* IN TEXAS FOR 1968-1969

Group No. Dists. Percent	Total H.S. ADA	Group Percent of Total H.S. ADA	Total Voc Units for Group	Ratio: H.S. ADA/ V. Unit	AG** Units Percent	DE** Units Percent	HM** Units Percent	Industrial** Day Units Percent	Industrial** ICT Units Percent	OEC** Units Percent	CVAE** Units Percent
I 15,000 over 4 .42%	124,202	20.40	462	269	17 1.53%	50 14.75%	148 7.7%	160 24.02%	23 12.04%	32 15.31%	33 16.92%
II 2,500- 14,459. 40 4.22%	206,951	34.00	1152	180	66 5.95%	123 36.28%	462 24.16%	271 40.69%	75 39.27%	77 36.84%	79 40.51%
III 1,500- 2,499 23 2.43%	40,622	6.67	291	140	32 2.88%	27 7.96%	129 6.74%	44 6.61%	20 10.47%	22 10.53%	18 9.23%
IV 500-1, 499 137 14.47%	113,542	18.64	956	119	228 20.54%	102 30.09%	325 16.07%	128 19.21%	60 31.41%	65 31.10%	49 25.13%
V 300-499 114 12.04%	44,637	7.33	493	91	171 15.41%	25 7.37%	225 11.76%	40 6.0%	11 5.76%	9 4.31	12 6.15%
VI 150-299 226 23.86%	46,377	7.62	571	81	257 23.15%	11 3.24%	277 14.48%	20 3.00%	1 .52%	4 1.91%	3 1.54%
VII 100-149 128 13.52%	15,699	2.58	250	63	120 10.81%	1 .32%	126 6.58%	2 .30%	1 .52%	0	1 .52%

TABLE XXVII
(Cont'd.)

Group No. Dists. Percent	Total H.S. ADA	Group Percent of Total H.S. ADA	Total Voc Units for Group	Ratio: H.S. ADA/ V. Unit	AG** Units Percent	DE** Units Percent	HM** Units Percent	Industrial** Day Units Percent	ICT Units Percent	OEC** Units Percent	CVAE** Units Percent
VIII Under 100 275 29.03%	16,319	2.76	439	38	219 19.73%	0	220 11.05%	1 .15%	0	0	0
TOTALS + 947	608,849	100.00	4614	132	1110	339	1912	666	191	209	195
ACTUAL TOTALS 959			4791		1137	335	2044	667	175	217	217

\+ Inconsistencies of tabulated totals to actual totals is due to tabulation deficiencies, and do not alter the general objectives of the analysis.

* ADA (Average Daily Attendance) for High School in Texas average 93%+ of the enrollment.

** AG is Vocational Agriculture; DE is Distributive Education; HM is Homemaking; Industrial - Day is Day Trades in which the student spends approximately three hours in laboratory learning while ICT is Industrial Cooperative Training (three hours per day) working on the job; OEC is Vocational Office Education; CVAE is Coordinated Vocational Academic Education.

Source: The Advisory Council for Technical-Vocational Education in Texas.

State are located in urban areas. In the medium sized urban school of 300 to 1,499 average daily attendance, are found over 35 percent of all agriculture teachers, and over 27 percent of home economics teachers in the State. Industrial, office, and distributive courses are well represented in the medium sized cities as well. The data show that medium sized schools offer a comprehensive currriculum to students, in terms of teacher units, and that the larger schools 1,500 average daily attendance and over, offer courses in the more industrial, office, and distributive education areas, with virtually no agriculture offerings.

Thus, it is quite apparent that urban high schools in Texas offer a comprehensive course selection for its students, while rural schools do not have adequate offerings, as evidenced by the fact that only four percent of the vocational offerings are outside vocational agriculture and homemaking.[15] The Mangum study comments,

> Most of their students (of rural high schools) will ultimately seek urban jobs but have no preparation for urban life.... Generalized programs of orientation to the world of work could be provided within the resources of small rural schools, but a satisfactory solution will require consolidation of schools, and in some parts of the country, residential schools.[16]

For those students in the rural areas of Texas, vocational training must change to meet the manpower needs of the 70's. These students must not be left to fill the unemployment rolls of our State.

FOOTNOTES

1 Jacob J. Kaufman, "Occupational Training Needs for Youth," The Journal of Human Resources (Volume III, 1968) Supplement, p. 129.

2 Advisory Council on Vocational Education, Vocational Education, The Bridge Between Man and his Work, (Washington, 1968), p. 28.

3 Teh-wei Hu, Maw Lin Lee, and Ernest Stromsdorfer, A Cost-Effectiveness Study of Vocational Education (University Park, Institute for Research on Human Resources, The Pennsylvania State University, 1969), p. 11.

4 Evans, Mangum, and Pragan, Education for Employment: The Background and Potential of the 1968 Vocational Educational Education Amendments, (Ann Arbor, 1969), p. 27.

5 Advisory Council on Vocational Education, p. 39.

6 Ibid.

7 Ibid., p. 42.

8 Senate Committee on Vocational-Technical Education, To Bridge the Gap, (Austin, 1969), p. 19.

9 Evans, Mangum, Pragan, Education for Employment, (Ann Arbor, 1969), p. 49.

10 Advisory Council on Vocational Education, p. 30.

11 Dr. Fred S. Cook and Dr. Frank Lanham, Opportunities and Requirements for Initial Employment of School Leavers with Emphasis on Office and Retail Jobs, (Detroit, 1966), p. 119.

12 Texas Advisory Committee on Vocational Education, Guidelines for the Development of Vocational Education in Texas Through 1975-76, (Austin, 1968), pp. 35-42.

13 Department of Health, Education, and Welfare, Office of Education, Vocational and Technical Education, Annual Report for Fiscal Year 1967, (Washington, 1969), p. 87.

[14] The Advisory Council for Technical-Vocational Education in Texas Staff Analysis No. 1, "Analysis of Secondary Vocational Units as Related to High School ADA for 1968-69" (Austin, October 13, 1969), p. 1.

[15] Ibid., p. 2

[16] Evans, Mangum, Pragan, p. 45.

CHAPTER V

PLACEMENT AND FOLLOW-UP OF VOCATIONALLY TRAINED STUDENTS

Introduction

In the preceding chapters, the responsiveness of the vocational education system to the changing requirements of the labor market has been analyzed. In order to complete this analysis, a discussion of vocational graduate placement is necessary. As Gerald Somers notes:

> The acid test of responsiveness (of the vocational education system). . . must be sought in the fate of vocational school graduates. If very high proportions of the graduates obtain secure employment in the occupations for which they were trained, if private and public investment in their vocational training has a high rate of return, then it is reasonable to assume that they enrolled in courses well geared to the reali[illegible] of the labor market.[1]

On the other hand, if graduates do not secure employment in th[illegible]cations for which they trained for, and if investment in these students d[illegible] show high rate of return in terms of job pay, employer satisfaction, u[illegible] p[illegible]yment rates, and other measures, then one must assume that the system of voc[illegible]al instruction is not adequately meeting the needs of the labor market.

In Texas, the only comprehensive source of data availabl[illegible] to measure the placement of secondary vocational graduates is [illegible] the Texas Education Agency. In compliance with the Department of [illegible], Education, and Welfare and the Texas State Plan, local agencies are req[illegible] maintain follow-up records on their graduates "to determine the extent [illegible] programs, services, and activities continue to be. . .effective regard[illegible]acement and successful employment of students. . .in the occupation f[illegible] they were trained or in closely related occupations."[2] In reality, t[illegible]eping methods of local agencies are suspect in terms of reliabili[illegible]y a[illegible]vance. The Governor's Committee on Public School Education discovere[illegible]

> Most school districts do not keep systematic follow-up records of their graduates. Although vocational directors of local districts interviewed by the committee staff were agreed that the 'good' graduates of their programs were able to find attractive jobs, none maintained accurate records of placement. The estimates were based on personal knowledge of individual successes among their graduates and the stated intentions of graduates prior to leaving school.[3]

The writer's personal interviews with counselors in high schools led to the further conclusion that the numbers of returns on follow-ups are negligible because of the mobility of the students. Many times the follow-up forms sent out by the local schools are returned with the statement, "address unknown." At any rate, the procedures presently used by the education system in Texas for finding graduates are inadequate. Some information has been collected in the last five years on follow-ups and it is useful to see what the gathered information shows.

Follow-up of Vocational Graduates

In many parts of the nation, vocational education has proved inadequate and unsuccessful in the placement of its graduates in occupations for which they were trained. In 1964, the U.S. Senate Subcommittee on Employment and Manpower concluded that "it would be a serious mistake to concentrate educational resources upon specialized occupational preparation at the high school level."[4] Kaufman's follow-up study of high school graduates also concluded that "a clear case cannot be made that vocational education has a direct payoff in the occupational experiences of its graduates."[5] Even in studies evaluating trades and industry graduates, many courses were found ungeared to the specific occupational requirements of the labor market.[6] The question that must be asked at this point is, "Are the graduates of Texas' Secondary Vocational courses placed and employed in occupations for which they were trained?"

Table XXVIII shows those students who were available for employment after completing the vocational program in the years 1965-1969. The TEA categorizes

TABLE XXVIII

EMPLOYMENT INFORMATION ON TEXAS SECONDARY VOCATIONAL EDUCATION GRADUATES FROM 1962-1969

Year	No. Completed Secondary Program	No. Employed and/or Available	Employed in Occupation Trained	Employed in Related Occupation	Employed in Other Occupation	Employed Part-Time	Unemployed
1962-63	20,364	9.124	3,854	2,137	2,201	585	347
Percent			42.2%	23.5%	24.1%	6.4%	3.5%
1963-64	21,788	8,931	4,373	2,125	1,729	472	232
Percent			48.9%	23.8%	19.4%	5.3%	2.6%
1964-65	27,069	11,155	6,208	2,429	1,809	406	303
Percent			55.7%	21.8%	16.2%	3.6%	2.7%
1965-66	27,911	10,719	5,304	2,565	1,815	647	388
Percent			49.5%	23.9%	16.9%	6.1%	3.6%
1966-67	34,227	14,696	7,923	3,144	2,278	925	426
Percent			53.9%	21.4%	15.5%	6.3%	2.9%
1967-68	30,832	16,137	8,471	3,465	2,639	955	607
Percent			52.4%	21.5%	16.4%	5.9%	3.8%
1968-69	33,409	16,993	9,370	3,608	2,611	788	616
Percent			55.1%	21.2%	15.3%	4.6%	3.6%

Source: Office of Education 4045 Forms

full-time employed graduates in terms of the occupation for which they are trained, a related occupation, or other occupations.

At no point in the last seven years have over 52 percent of the graduates of vocational programs been employed or available for employment after completing their program. In most cases, the remaining 48 percent of vocational graduates have been unavailable for employment because of continued education on a full-time basis, entrance into the armed forces, or other reasons. The fact that a majority of vocational graduates do not enter into employment after completion fo their study is not critical if we assume that vocational training is a stimulus for students to further their education or enter the services. In 1968-69, over 13,000 of the 33,409 graduates continued full-time school or entered the armed forces. Many of these students will enter the labor force some time after graduation, but the occupations for which they will enter are unknown and unaccountable under the present system of follow-up research.

For those students who cannot afford continued education or who do not enter the armed services, what is the pattern of employment after graduation from the vocational program? In the last seven years, no more than 55.7 percent of those graduates employed or available for employment entered into the occupation for which they were trained. Of the total spectrum of graduates, including those who continued school and went into the armed forces, no more than 28 percent entered the occupation for which they were trained in this same period. In either case, the records of students filling jobs in occupations for which they trained are disturbing. If no more than 56 percent of graduates entering the labor force can find jobs in occupations familiar to them, the system of education has failed in training students for specific occupational employment. Vocational educators might claim that the primary purpose of training is to prepare students for jobs, regardless of occupation or course of study. If this is the case, however, these same educators should not operate

under the premise of trying to match labor market needs to occupational training.

Another important factor in the study of employment experiences of vocational graduates is the placement rates within courses for students entering the labor force. Tables XXIX through XXXII provide follow-up data by occupational area. In the years 1965-1969, no more than one out of three vocational graduates of agriculture courses had been employed in agricultural occupations. In 1968-69, 1,935 out of 3,330 agriculture graduates of agriculture courses had to find employment in related or other occupations. These students accounted for 77.7 percent of the graduates in this course area. Since secondary school enrollments in agricultural education accounted for 20.8 percent of the total enrollments in 1968-69, over 51,000 students, changes in the course make-up, the school's placement practices, or the student participation in agriculture education must be initiated if relevant training is to be achieved. The low rate of placement in the agricultural occupations is likely due to the slowness of the agriculture teachers and administrators in adopting new off-the-farm courses, and due to the decreasing demand in the labor market for farm-oriented workers.

Conversely, the distributive area of training has had a greater than 59 percent participation by graduates in the occupations for which they were trained in the 1965-1969 period. In the four year period, unemployment rates have been quite low for these graduates, with over 23 percent of eligible students going into related occupations in 1968-69. Sales courses have adequately placed trainees in jobs for which they were trained. Health occupations also have fared well in the last two years since 79.8 percent in 1967-68 and 69 percent in 1968-69 of these graduates entering the labor market were placed in occupations prepared for. The health courses offer the highest placement rates of all vocational courses offered, and the trend is likely to grow in the future. Hopefully, more than 526 students per year, the 1968-69 output, will be available for employment in health occupations in 1969-70.

TABLE XXIX

EMPLOYMENT INFORMATION ON TEXAS SECONDARY VOCATIONAL EDUCATION GRADUATES FOR THE YEAR 1965-66*

Courses	No. Employed and/or Available	Employed in Occupation Trained	Employed in Related Occupation	Employed in Other Occupation	Employed Part-Time	Unemployed
Agriculture	3,720	897	1,393	896	310	102
Percent	100%	24%	37%	24%	8%	2.7%
Distributive	2,426	1,437	388	256	162	26
Percent	100%	59%	16%	10.5%	6.6%	1%
Homemaking (gainful)	3	3				
Percent	100%	100%				
Office	954	585	238	28	25	45
Percent	100%	61%	23.8%	2.9%	2.6%	4.7%
Technical	140	87	15	10	5	6
Percent	100%	62%	10.7%	7.1%	3.5%	4.2%
Trades and Industry	4,257	2,295	541	625	145	209
Percent	100%	54%	12.7%	14.7%	3.4%	4.9%
TOTAL	11,500	5,304	2,565	1,815	647	388
TOTAL PERCENT	41%	19%	9%	6%	2%	1%

Out of 28,310 who completed the vocational program in 1965-66, 11,500 became eligible for employment. This is a 40.6% employable rate.
Source: Office of Education 4045 Forms.

*Percentages do not add to 100 because those students who left school prior to normal completion time with marketable skills are not shown in this Table.

TABLE XXX

EMPLOYMENT INFORMATION ON TEXAS SECONDARY VOCATIONAL EDUCATION GRADUATES
FOR THE YEAR 1966-67

Courses	No. Employed and/or Available	Employed in Occupation Trained	Employed in Related Occupation	Employed in Other Occupation	Employed Part-Time	Unemployed
Agriculture	4,595	1,255	1,563	1,294	296	120
Percent		27.3%	34%	28.2%	6.4%	2.6%
Distributive	4,547	2,807	783	222	447	137
Percent		62%	17.2%	4.8%	9.8%	3%
Home Economics (gainful)	49	9	21	9	9	1
Percent		18.4%	42.8%	8.4%	18.4%	2%
Health	1,943	1,414	331	76	68	22
Percent		72.7%	17%	3.9%	3.5%	1.1%
Office	1,964	1,145	411	137	158	113
Percent		58%	20.9%	6.9%	8%	5.7%
Technical	101	46	12	23	7	13
Percent		45.5%	11.8%	22.7%	6.9%	12.8%
Trades and Industry	4,467	2,788	697	630	123	153
Percent		62.4%	15.6%	14%	2.8%	3.4%
TOTAL	17,666	9,464	3,818	2,391	1,108	559
Percent of Total Graduates (38,915)	45.4%	24.3%	9.9%	6.1%	2.8%	1.4%

Source: Office of Education 4045 Forms

TABLE XXXI

EMPLOYMENT INFORMATION ON TEXAS SECONDARY VOCATIONAL EDUCATION GRADUATES FOR THE YEAR 1967-68

Courses	No. Employed and/or Available	Employed in Occupation Trained	Employed in Related Occupation	Employed in Other Occupation	Employed Part-Time	Unemployed
Agriculture	4,310	1,112	1,448	1.331	299	120
Percent		25.8%	33.5%	30.8%	6.9%	2.8%
Distributive	3,265	2,196	457	356	216	40
Percent		67.2%	13.9%	10.9%	6.6%	1.2%
Home Economics (gainful)	163	74	41	26	6	19
Percent		45.3%	25%	15.9%	3.7%	11.6%
Health	402	321	34	33	10	4
Percent		79.9%	8.5%	8.2%	2.5%	.9%
Office	3,196	1,645	799	189	327	236
Percent		51.4%	25%	5.9%	10.2%	7%
Technical	257	107	71	30	14	34
Percent		41.6%	28%	11.7%	5.4%	13.2%
Trades and Industry	4,541	3,016	614	674	83	154
Percent		66.4%	13.5%	14.8%	1.8%	3.4%
TOTAL	16,137	8,471	3,465	2,639	955	607
Percent of Total Graduates (30,832)	52%	27.4%	11.2%	8.5%	3.1%	1.9%

Source: Office of Education 4045 Forms

TABLE XXXII

EMPLOYMENT INFORMATION ON TEXAS SECONDARY VOCATIONAL EDUCATION GRADUATES FOR THE YEAR 1968-69

Courses	No. Employed and/or Available	Employed in Occupation Trained	Employed in Related Occupation	Employed in Other Occupation	Employed Part-Time	Unemployed
Agriculture	3,330	1,117	1,097	838	146	142
Percent		33.5%	32.9%	24.8%	4%	4.2%
Distributive	4,491	2,670	1,056	559	153	53
Percent		59%	23%	12%	3.4%	1.2%
Home Economics (gainful)	278	117	42	78	13	28
Percent		42%	15.1%	28%	4.7%	10%
Health	526	363	51	74	16	22
Percent		69%	9.6%	14%	3%	4.2%
Office	3,211	2,059	474	190	306	182
Percent		64%	14.7%	5.9%	9.5%	5.6%
Technical	332	129	91	53	26	33
Percent		38.8%	27%	15.9%	7.8%	9.9%
Trades and Industry	4,825	2,915	797	829	128	156
Percent		60.4%	16.5%	17.2%	2.6%	3.2%
TOTAL	16,993	9,370	3,608	2,611	788	616
Percent of Total Graduates (33,409)	50.8%	28%	10.7%	7.8%	2.3%	1.8%

Source: Office of Education 4045 Forms.

Further examination of the follow-up data shows that home economics (gainful) graduates have experienced high unemployment rates in the last two years. These homemaking courses are required by the Vocational Education Act of 1968, as amended in 1968, to:

(A) prepare students for employment or

(B) be necessary to prepare individuals for successful completion of such a program or

(C) be of significant assistance to individuals enrolled in making an informed and meaningful occupational choice.[7]

In 1968-69, only 42 percent of the home economics students available for employment were placed in the occupation for which they were trained, and 10 percent of the graduates were unemployed when the follow-up study was taken. These homemaking gainful courses were required to train students for jobs, while home economics useful courses do not even presume to do the same. There is no possible way to determine how many more students would fall in the unemployment rolls if the useful courses were included in follow-up data. Since the useful graduates are not included in the data, only educated guesses can be made concerning the placement on home economics students not trained for specific employment. Home economics administrators would find follow-up studies in the useful areas helpful for planning purposes. As of July, 1970 no comprehensive studies had been proposed or initiated to determine the benefits of useful home economics courses. Since over 139,000 students were enrolled in homemaking in 1968-69, the need for some study of benefits is obvious.

Two other areas of training, office and trades and industrial, have been very successful in placing graduates. In 1968-69, 64 percent of the office education graduates entering the labor force found jobs in office occupations. In this same year, 60.4 percent of the trades and industrial students found jobs in the trades in which they studied. Between 1965 and 1969, both areas have

placed most of their students in the occupations for which they were trained, and unemployment rates of these students has been low. Trades and industry graduates have experienced less than 3.5 percent unemployment rates from 1966 to 1969, while office education graudates have had rates below 7 percent in the same period. Students of technical skills have had decreasing placement rates in the 1965-1969 period, in terms of the occupations for which they were trained due to a shift in emphasis of the courses. In recent years, these courses have proven to be too general for the specific demands of industry in the technical areas. The four areas that have experienced efficient placement of graduates, that is the health, office, distributive, and trades and industrial courses, accounted for only 19.35 percent of total high school vocational enrollment in 1968-69. The two traditional areas of vocational training, agriculture and home economics, have not provided relevant enough training to students, relevant in terms of preparing graduates to find useful employment in the occupation for which they were trained. A job placement study conducted by the Texas Employment Commission in 1967 found that the high school graduates or drop-outs in Houston and Dallas found jobs an availability rather than on a training area basis. The study noted that:

> Consideration for employment was based on job availability more than anything else. Available entry or trainee openings in various manufacturing industries governed the selection of youth who met employer hiring requirements such as local office selection test scores, grade attained and physical requirements rather than the vocational courses the youth had taken in school. Youth were referred and placed on such jobs that were available. This does not necessarily mean that the youth would not eventually move into jobs covered by areas of high school vocational training at a later date. The study of these youth applications did not reflect any trends along this line.[8]

If jobs in the State are based on needs of industry, vocational education graduates should reflect these needs by the occupations in which they are placed. These occupations should correlate with the training that the student receives the high school.

Conclusion

The true test of the relevance and effectiveness of a system of vocational education is found in the proportions of those students seeking jobs, immediately after graduation, who obtain training related employment. From the results of follow-up studies in Texas, one can only conclude that the system of vocational training in Texas is, in many areas, inadequately preparing its students to find jobs in the occupations they were trained for. From the data presented, agriculture courses should be de-emphasized since they provide low placement rates in jobs, and the areas of health, trades and industry, office, and sales occupations should be re-emphasized so that students who train for a job can find a job. Home economics courses cannot presume to train students for jobs, and this fact in itself should eliminate these courses from a curriculum of vocational training. In sum, low placement rates and high unemployment rates should be the exception rather than the rule for those students participating in vocational education in Texas' high schools.

FOOTNOTES

1 Gerald G. Somers, "The Response of Vocational Education to Labor Market Changes," The Journal of Human Resources, (Volume III, 1968), Supplement pp. 33-34.

2 The Texas State Plan for 1971, Section 1.52 (Austin, Texas, 1970), p.34.

3 Governor's Committee on Public School Education, The Challenge and the Chance, Volume II (Austin, Texas, 1969), p. 110.

4 U.S. Congress, Senate Committee on Labor and Public Welfare, Subcommittee on Employment and Manpower, Toward Full Employment, (1964), p. 78.

5 Jacob J. Kaufman, et al., The Role of the Secondary Schools in the Preparation of Youth for Employment: Summary, Conclusions and Recommendations, (University Park, Pennsylvania: Institute for Research on Human Resources, Pennsylvania State University, 1967), pp.12-5.

6 Max U. Eniger, The Process and Product of T and I High School Level Vocational Education in the United States, (Pittsburgh: American Institutes for Research, 1965), pp. 5-19 to 5-24.

7 United States Congress, Vocational Education Act of 1963, (As Amended) (Washington, 1968) Public Law 90-576, Section 123 (a) (18), p. 13.

8 E.A. Merrell, "Special Analysis of Services to Youth," Texas Employment Commission (October 1967), p. 1 (typed).

CHAPTER VI

CONCLUSION

Grant Venn, a noted vocational educator, has commented:

> A facade of affluence and abundance hides the spreading blight of social crisis in America--a crisis compounded by insufficient economic growth, juvenile delinquency, swelling public welfare rolls, chronically depressed areas, an expanding ratio of youth to total population, and a growing disparity of educational opportunity. At the center of the crisis is a system of education that is failing to prepare individuals for a new world of work in an advanced technological society.[1]

The Texas Secondary Vocational education system, like other educational institutions, is failing to do its job for the thousands of students needing relevant occupational training.

This examination of the secondary vocational training system reveals little relationship between the enrollments, teacher units, expenditures, and placements of students and the changing occupational needs of Texas. The small enrollment in vocational education programs in the high school negates much of the impact that the program might have in meeting the manpower needs of Texas. The relationship between training and employment found by follow-up studies was, for many vocational programs, much lower than should be expected of an efficient and relevant system of occupational training. In sum, many deficiencies in the vocational education system were revealed by this study.

This is not to imply that the system should be abolished or de-emphasized. Rather, the solutions to the problems of the present vocational system lay in widespread and deliberate change in the total structure of vocational training. The change must be forthcoming and rapid so that students in vocational courses will not be stifled by the training they receive in high school at the present time. If widespread changes do not occur, then the system will fall into obscurity and irrelevancy.

What exactly are the changes needed to bring about a more effective vocational training program in Texas? In Chapter II, it was revealed that the present labor market data collection system is inadquate and irrelevant for comprehensive educational planning. The dynamic leadership, adequate financing, and trained personnel needed for an effective system of data collection were found to be missing in Texas. Since educational planning cannot operate effectively without manpower projections, the Texas Education Agency should hire a team of labor market consultants to evaluate the present labor trends in Texas. This type of operation could reveal present day occupational trends in Texas by sophisticated sampling of primary Texas industries. If the Texas Employment Commission cannot provide the information required by law, the education agency must take measures to evaluate the State's occupational needs. The Advisory Council on Technical-Vocational Education in Texas should institute research techniques so they will not be "handicapped by a lack of information and data concerning the needs of the economy for trained manpower."[2] The Texas vocational education system should not let itself be hindered by the inadequacies in the Texas Employment Commission's data collection.

Chapter III illustrated the discrepancies in student and teacher training enrollment in Texas. Agricultural and homemaking courses dominated enrollments in both areas. These courses have been shown to be ineffective in training students for gainful employment in Texas and the nation. To remedy the bias of the present system, two actions should be taken. Congress should reclassify homemaking as a general curriculum course so that high school administrators can offer other occupational courses with the funds they are allocated. Frequently, the only courses offered to students are agriculture and homemaking due to the abundance of teachers and materials in these courses. If homemaking is shifted to the general curriculum, then students and administrators can have greater choice and flexibility in the types of vocational courses offered. The

education system must prepare individuals for jobs which are relevant in the real world. Removing home economics from the vocational curriculum would greatly alleviate funding and course choice problems.

In order to change the agricultural bias in the system of vocational training, vocational administrators should tighten their approvals of such courses in the State. From the labor market data available on the agricultural industry, there can be no doubt that courses in farming are irrelevant and wasteful. More agri-business courses should be offered to students, and agricultural teachers should orient themselves toward such areas as landscaping, gardening, and other occupations with employment possibilities. Approval of any agricultural courses should be given much scrutiny in light of labor market needs of industry and business. Rural areas should move toward more industrial, clerical, health, and sales occupation offerings. Teacher training in the agricultural production area should be de-emphasized, with agricultural departments in colleges and universities re-orienting toward more technical courses.

In terms of expenditures and teacher units, the system of vocational education has reflected a bias against the occupations for which there is great demand. Minimum Foundation monies have continuously located in the agricultural and home economics areas. The Smith-Hughes Act of 1917 has left an image on the vocational system which must be changed if the system is to become more relevant. Since the Minimum Foundation funds are allocated under a Texas legislative act, the logical agency for initiating funding changes is the Texas Legislature. The Legislature should overhaul and evaluate the courses allocated under the Minimum Foundation Program, since the future of many of the State's youth depends upon the relevance of vocational training. Change in funding can only come about through changes from the funding source.

In my final chapter, follow up studies of graduates showed the placement experiences of students. There was no more than 80 percent placement in any areas

for the occupation trained, and less than 34 percent placement in agricultural courses. The inadequacies in the placement rates reflect the high school's inability to act as an employment agency, as well as the irrelevance of the courses taught. Very few schools in Texas have initiated adequate procedures for placing students.

The Houston Independent School District has established an occupational placement and follow-up service center to aid graduating students in arranging interviews, filling out applications, and finding resources that list job openings. The center will also evaluate courses taught in vocational programs by following students on the job for three, six, or 12 months.[3]

More schools should set up employment services of this type so that students are not "let loose" into the world of job hunting without proper guidance and preparation. Teachers, administrators, and parent-teacher groups should become more involved in finding jobs for the students in vocational courses. Again, if vocational training is to be relevant, rewards of training must be seen in the jobs that students take after leaving high school. Attitudes toward vocational training will greatly improve as students find meaningful work in business and industry.

On the whole, more new and innovative programs should be initiated in the Texas educational system. Elementary school children should be introduced to the world of work and its variety of occupations. Through field visits and role playing, students can become aware of the economy as well as the jobs within society. Academic and vocational training should not be separated in elementary or secondary schools, but should be fused to give students the benefits of both areas.

High school curriculums can be planned so that academic courses such as math, science, and English complement the projects carried out in vocational courses. The principles of the academic courses can easily be put into action

in vocational courses. Technical papers for vocational course can be written with the assistance of English teachers, and mathematical and scientific problems encountered in the industrial courses can be solved with the help of mathematics, physics, or chemistry teachers. The links that can be made between academic and vocational programs can be most beneficial. High school graduates with a wide range of both technical and academic skills will be better prepared for entry into the labor market or further schooling because of their training.

The co-operative program is perhaps one of the most effective programs in the Texas secondary vocational training system. Here, students receive instruction from both school and employers, alternating classroom study with on-the-job training experience. This type of program gives vocational educators a chance to discuss and evaluate vocational training with employers who hire vocational students. Students are also given a realistic opportunity to choose a specific profession if they must enter the labor market after graduation. The benefits gained from actual work experience are immeasurable and more programs of this type should be encouraged in the State.

In sum, many of the problems of youth unemployment and underemployment can be solved by relevant training in the secondary high school. Modern technology demands workers with skilled training, and to ignore these demands is to deny a student of a future livelihood. The Texas vocational system of education must take active measures to train its youth for a gainful livelihood. Young men and women must find employment not unemployment in today's society.

The Struggle for Relevance in Texas

Whether the recommendations set out in this study are implemented or not will depend upon the willingness with which the Texas Education Agency and the Advisory Council attempt to change the educational system. In Texas, the pitfalls are many when one is concerned with innovation, planning, change, and re-direction

of a long-established institution. The First Annual Report by the Advisory Council for Technical-Vocational Education in September, 1970 was less than evaluative. The Council admits that it "has not made an in-depth study of many aspects of technical-vocational education in Texas. . ."[4] The report, however, was too general when discussing the effectiveness of the vocational education system, and was also unnecessarily supportive of many courses which have been shown to be irrelevant in the Texas economy. For instance, the report states that redirected agriculture courses have been "well received and have grown continuously. During 1969-70 of the 1,162 units, there are 237 with re-directed programs enrolling 2,397 students."[5] What the report fails to note, however, is that well over 51,000 students were enrolled in agricultural courses in this year. This means that over 48,000 students are taking courses which have not been specifically geared toward a changing industrial structure in the State. Similar statements in the report show a biased and non-objective support of the present system of vocational education.

Based on personal interviews with members of the home economics profession, there is little indication that future homemaking programs will be re-directed to train students for jobs or that the system of home economics will be designed to do more than "encourage preparation for professional leadership," or prepare youth for the "dual role of homemaker and wage-earner." Preparing students for professional leadership is a vague and meaningless justification for a program spending over $15 million a year.

In their present form, State plans must be re-oriented to become a plan, in the true sense of the word. The methods used for planning in Texas are often outdated and irrelevant. In addition, there is great doubt concerning the effectiveness of the present system of vocational education in meeting the needs of the unemployed, underemployed, and disadvantaged members of the State.

In sum, the system of vocational education is inflexible, traditional, and out-of-date with the needs of this decade. The system has clung to the past with a history of agricultural and home economics dominated courses, of resistance to change, and of non-innovativeness. If the system is to renew itself in the next decade, then more new and innovative courses must be offered in rural and urban areas so that meaningful and relevant education can be provided to the youth of Texas.

A statement that Robert S. McNamara used in describing his reflections in office applies to the present system of vocational education:

> Man is the only creative animal on earth, though paradoxically his resistance to change sometimes can be heroically obstinate. He builds institutions in order to perserve past innovation, but in that very act often fails to promote the environment for growth of new ones. And so there are gaps that trouble our times.[6]

FOOTNOTES

1 Grant Venn, Man, Education, and Work, a report for the American Council on Education (Washington, D.C., 1964), p. 157.

2 Advisory Council for Technical-Vocational Education in Texas, First Annual Report, (Austin, Texas, 1970), p. iii.

3 The Southwesterner, November 11, 1970, p. 5.

4 Advisory Council on Technical-Vocational Education, First Annual Report, (Austin, 1970), p. 1.

5 Ibid., p. 10.

6 Robert S. McNamara, The Essence of Security: Reflections in Office (New York: Harper and Row, 1968), p. 107.

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