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Abstract

The University of Houston examined continuing educaticn programs in Texas, evaluated long range needs for them, and suggested methods of support. For the Texas College and University System, continuing education is defined as organized educational programs for adults appropriate to, and under the control of, the university, college, or junior college. Activities may be separated into three divisions: credit programs, for adults attending school part-time; credit-free (cr ncn-credit) programs; and community service programs. Increased coordination of the program is necessary; the appointment of an Assistant Commissioner for Higher Continuing Education to the Coordinating Boards staff is recommended; and to work with him, an Advisory Council. Regular faculty members must be encouraged to participate in continuing education; evaluation and compensation are recommended on a comparable basis with those involved in full-time resident instructicn and research. State support should be provided for administrative and operating costs of credit-free programs and some community service programs; private as well as public institutions should be eligible for support. (eb)

PERMANENT PARTNERSHIP

CONTINUING EDUCATION — THE LIFELONG ASSOCIATION OF ADULT TEXANS AND THEIR COLLEGES AND UNIVERSITIES

A Study for the Coordinating Board
Texas College and University System

CONTINUING EDUCATION
UNIVERSITY OF HOUSTON

1969

CONTENTS

Foreword 3
Preface 5
Summary 7
Economic Background 8
Continuing Education—Its Role and Scope 11
An Overview of Continuing Education 14
Credit Programs 16
  Continuing Education Bachelor's Degree 17
  Continuing Education Master's Degree 17
Credit-Free Programs 18
  Continuing Education for Occupational Competence 19
    Professional 19
    Managerial 24
    Clerical, Sales and Service 24
    Technical, Skilled and Semiskilled 26
    Unskilled 28
  Continuing Education for Personal Development 28
  Continuing Education for Civic Awareness 29
  Recognizing Continuing Education Achievement 30
Community Service Programs 31
Coordination of Continuing Education 33
Faculty and Staff for Continuing Education 34
Facilities for Continuing Education 36
Technological Aids to Instruction 39
Financing Continuing Education 40
Recommendations 42
References Cited 44
Selected Bibliography 45
Appendixes 47

FOREWORD

Apollo 11's successful landing on the moon has marked dramatically America's space-faring entrance into a new age of exploration, and the implications are as critical for education as were the implications of Columbus' voyage for government. In the wake of exploration in the New World came colonization and development, then came revolution, over a period of some three hundred years. But the flight of Apollo 11 is the very product of a revolution—a technological revolution that has swept the United States from Explorer I to Apollo 11 in less than twelve years. Change accelerates at a rate that challenges existing educational structures. Change makes the knowledge of graduates obsolete within an alarmingly short time and demands skilled workers for industries unknown when these students were freshman. Change is creating social blight and community problems; education is pressed for solutions. Change is producing income and leisure; education is looked to for help in enjoying these fruits of the new technology.

Higher education in Texas has not been unmindful of these needs, but accelerating knowledge has now marked the needs, "URGENT!" Deeper involvement and firmer commitment of colleges and universities to Continuing Education is imperative if Texas and its citizens are to continue to grow and prosper. Texas must see that a permanent partnership is reached between its institutions of higher education and its adults—to their mutual benefit.

James C. Taylor

James C. Taylor
Dean of Continuing Education
University of Houston

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PREFACE

To determine the dimensions and needs of Continuing Education in Texas colleges and universities through 1985, the Coordinating Board at its April 8, 1968, meeting approved a research project to be undertaken by the University of Houston. The study was authorized to examine the existing programs in Continuing Education, to evaluate the long-range needs for such programs in Texas, and to suggest methods of providing and supporting them.

To arrive at a consensus, a heterogeneous Planning Committee composed of four subcommittees of representatives from the state major colleges and universities, state senior colleges and universities, state junior colleges, and private colleges and universities was established. (See page opposite.) Each of these subcommittees met in Houston and discussed in specific terms definitions, present programs, long range needs, and methods of support. The composite report of these meetings formed the basis for subsequent study and exploration and for the formulation of recommendations included in this report.

Early study of the status of Continuing Education in Texas was undertaken by Jack Woods of the Coordinating Board in 1966. Through a public service activity questionnaire, he surveyed the state's colleges and universities to determine what they had been doing, were currently doing, and were planning to do in community service, extension service, enrichment programs, and Continuing Education. These questionnaires were made available to this project, and the data on types of programs and attendance are incorporated in this report. Overall statistics are not presented, however, because of the problem encountered in 1966 of assessment of activities without specific definition of the various areas. This valuable source of information is gratefully acknowledged.

In addition to the Woods Survey, the Coordinating Board also made available the Selected Adult Education Activities, 1967-68, Higher Education General Information Survey sheets prepared for the Department of Health, Education and Welfare. Although a minor sampling of institutions in the Texas College and University System is represented in this survey, these sheets have also been valuable sources of data.

To supplement the Planning Committee work, the surveys, and library research, a series

of fact-finding visits was made by the project director to a number of colleges and universities about the state and to Michigan State University. In addition to college and university faculty and staff, over 50 interviews were held with training and educational directors of local and national companies and institutions.

In the final stages of the study, the tentative recommendations were submitted to representatives from the four subcommittees. In this meeting, the final recommendations were formulated. As presented in this report, these recommendations have the general approval of the Planning Committee; however, time did not allow specific consideration of every point presented here. Final responsibility for this report must, therefore, rest with the project director and staff.

This study is limited to adult programs of the Texas College and University System and does not include related adult programs under the direct control of other state-supported agencies or federal agencies.

For their significant contributions not only at the planning meetings, but also in personal letters and discussions, I especially wish to thank the members of the Planning Committee. Their collective and individual contributions have been incorporated freely into this report.

Many others have given assistance by furnishing current data and background material and by supplying ideas and suggestions. To them I express my sincerest appreciation, particularly to the following:

Dean E. Griffith, Director, Continuing Engineering Studies, The University of Texas at Austin; Grant Taylor, Dean, Division of Continuing Education, Graduate School of Biomedical Science at Houston, The University of Texas; Charles A. Goolsbee, Secretary-Treasurer, Houston Chapter, Academy of General Dentistry; Charles A. Keilin, Chairman, Continuing Education Committee, Houston Bar Association; H. D. Bearden, Director, Engineering Extension Service, Texas A & M University; Joseph W. McKnight, Director, Texas Family Code Project, School of Law, Southern Methodist University; Kenneth Razak, Director, Kansas Industrial Extension Service, Kansas State University; Kenneth Haywood, Dean of Continuing Education, Cleveland State University; Alexander A. Liveright, Professor of Adult Education, Syracuse University; Robert Clinton, Assistant Commissioner, Junior College Division, Coordinating Board; Phillip R. Swartz, Director of Fiscal Affairs, Central Texas College, Killeen; Robert H. Brewer, Manager, Industrial and Commercial Development, Houston Chamber of Commerce; James E. White, Jr., Manager, Governmental Affairs Department, Houston Chamber of Commerce; Jack Renfro, Manager, Public Relations Department, San Antonio Chamber of Commerce; Marcus Vann, Manager, Urban Affairs and Human Resources Department, San Antonio Chamber of Commerce; Terence W. Travland, Labor Market Analyst, Texas Employment Commission, Houston; Donald A. Horn, Secretary-Treasurer, Harris County AFL-CIO; John W. Brandstetter, Assistant Superintendent, Community & Employee Relations, Houston Independent School District; J. B. Whiteley, Assistant Superintendent, Vocational and Adult Education, Houston Independent School District; Noel M. Ferguson, Dean, School of Pharmacy, University of Houston; John H. DeMichele, Director, Management Development Center, University of Houston; Joseph E. Champagne, Assistant Director, Center for Human Resources, University of Houston; Paul E. Purser, Special Assistant to the President, University of Houston; and H. Nugent Myrick, Associate Professor of Civil Engineering, University of Houston.

Throughout the project, members of the University of Houston-Continuing Education faculty have been indeed helpful, and their counsel has been most welcome. I am grateful to my project assistant, Miss Virginia Murray, and also to Mrs. Mary Hunter who reviewed the manuscript.

Finally, I am much indebted to Wilbur W. Hurt, Director of Community Services, Coordinating Board for invaluable aid and advice at all stages of the work.

Sherman L. Pease
Project Director

SUMMARY

Texas faces an exciting future. The state is in a position to benefit immeasurably from the mushrooming changes brought about by technology and science in terms of better lives for its citizens. An expanding economy, however, demands that the human resources of Texas be adequately educated and trained. For the adult this means strong commitment to Continuing Education. For the university, college, and junior college this means deep involvement, not only with the adult, but with his community as well. For the state this means proper recognition and financial support of the role to be played by Continuing Education.

Continuing Education is the concept that education in a world of fast-changing technology must be a lifelong series of learning experiences. Continuing Education as a term has broad usage in adult education activities; for the Texas College and University System, however, this report proposes to define Continuing Education as the organized educational programs for adults appropriate to, and under the control of, the university, college, or junior college.

In the traditional areas of endeavor for institutions of higher education—resident instruction, research and public service—Continuing Education is considered a public service. It is the viable link between higher education and the state's adult citizens. It provides learning experiences that are useful in helping them solve their problems, achieve their educational and occupational goals, and lead rewarding personal lives. Continuing Education activities organized to accomplish these objectives may be separated into three divisions: credit programs, credit-free (or non-credit) programs, and community service programs.

Credit programs considered to be Continuing Education are those specifically organized for adults attending school part-time.

To meet the total spectrum of the future educational needs of adults, the Continuing Education activities of the universities, colleges, and junior colleges in Texas must go well beyond the offerings of the credit programs. The credit-free (or non-credit) programs can provide the additional scope and variety of programs required, and already a strong base for growth has been established in the college and university Continuing Education organizations, the extension divisions, and the evening colleges.

Although obviously no credits are awarded, the problem persists of recognizing in some uniform manner the achievement of those who participate in credit-free programs. The establishment of a "Continuing Education unit" is suggested as a means of accomplishing this objective.

Community service is, in a general sense, the application of the resources of the university to the activities that strive to better community living. The Woods Survey of 1966 revealed the broad involvement of Texas institutions of higher learning in community service programs, and the current investigation confirms a sustained attack on community problems.

Increased coordination of the entire Continuing Education program is necessary if its full potential is to be realized. For effective coordination and representation at the state level, the appointment of an Assistant Commissioner for Higher Continuing Education to the Coordinating Board staff is recommended. To work with him, an Advisory Council for Higher Continuing Education is proposed.

Faculty excellence is the key to the success of Continuing Education. Regular faculty members must be encouraged to participate in Continuing Education activities. Evaluation and compensation are recommended on a comparable basis with those involved in full-time resident instruction and research.

Continuing Education has an unsound financial basis for growth if its credit-free programs must be self-supporting. To provide a feasible method of financing, this report recommends that state support be provided for the administrative and operating costs of credit-free programs (and some community service programs). This support would be based on a formula system similar to that involving semester credit hours now used for academic courses but utilizing instead the proposed "Continuing Education unit." Private as well as public institutions should be eligible for support, with ability to serve the need as the determining factor. Support for Continuing Education is an investment in mature people, the people who are determining the future of Texas.

Economic Background

Texas has emerged from the technological revolution of the last twenty years with a new economy. In the fifties, companies in Texas had rightly recognized the potential growth inherent in the inventions and innovations of the new technologies and had moved to capitalize on them. New companies joined the Texas complex. Manufacturing, especially the chemical, aircraft and electronics industries, grew at a spectacular rate *(Figures 2-5; Appendix A)* and began to overshadow the old economy of agriculture and oil. Then, in 1961, a major breakthrough came with the announcement that the National Aeronautics and Space Administration was establishing its Manned Spacecraft Center in the Houston Area. Spage-age industries opened offices and plants in Houston, and supporting industrial activity spread out into the state. In the space-age industries, a firm base has been found for the expansion of the economy. The coming of NASA may some day be considered as significant to the growth and prosperity of Texas as was the discovery of oil at Spindletop.[1]

To grasp the potential significance to the state's economy of new technologies, such as those identified with the space-age industries, it is enlightening to look back on three examples—television, jet travel, and computers. In 1945 these industries were commercially non-existent. Yet by 1965 these three technological industries alone contributed 13 billion dollars to the gross national product and added 900,000 new jobs to the nation's economy *(Figure 6)*[2].

Texas potential growth must come from increased industrialization, led by the space-age technologies. There is little prospect of discovering raw materials comparable to the oil and gas successes of the past. However, increased industrialization necessitates the attracting of new industries and the expanding of existing ones in the face of keen competition from other areas and from abroad. In attracting new industries (and holding the old ones), the quality of the manpower available becomes a critical factor. The quality demands of the modern economy are clearly shown by a comparison of the occupational spectrum of the national labor force for 1930 and 1970 *(Figure 1)*. The professional workers are estimated to double in this period, and the semiprofessional and technical groups to increase five-fold. At the other end of the spectrum, the percentage of unskilled workers is expected to drop drastically from 32 to only 5 percent of the total employment. The impact this rise in quality has on jobs and workers can be illustrated by a simple sketch of the "job dynamics" involved *(Figure 7)*. Accelerating changes in technology shift the manpower pattern higher and higher on the skill scale with the passage of time, creating job openings for the highly educated and highly skilled but leaving behind the underskilled as "technological dropouts."

Does Texas have the caliber of workers essential for space-age technologies?—and in adequate supply? Unfortunately, manpower surveys of the four largest Texas cities have revealed that sizeable shortages exist and will persist. Furthermore, many jobs are filled by poorly qualified people. The magnitude of the demand is shown by the occupation breakdown in *Appendix B*. The manpower survey for Houston stated, "The manpower shortage in skilled occupations is critical. . . . If this area needs any single thing to maintain its position of leadership during the next decade, that item is adequately trained manpower."[3] In both the Dallas and Fort Worth areas the situation is ". . . that heavier and heavier demands are being placed on already critical skills. These spiraling demands require an immediate and continuing plan of action to ensure a properly trained work force to sustain progressively the (communities') economic growth."[4, 5] And for San Antonio, of all the conclusions derived from their study, "certainly the one that outweighs all others is that the educational attainment of the area's work force must continue to improve—and improve rapidly."[6]

OCCUPATIONAL TRENDS IN U.S. LABOR FORCE—1930 and 1970

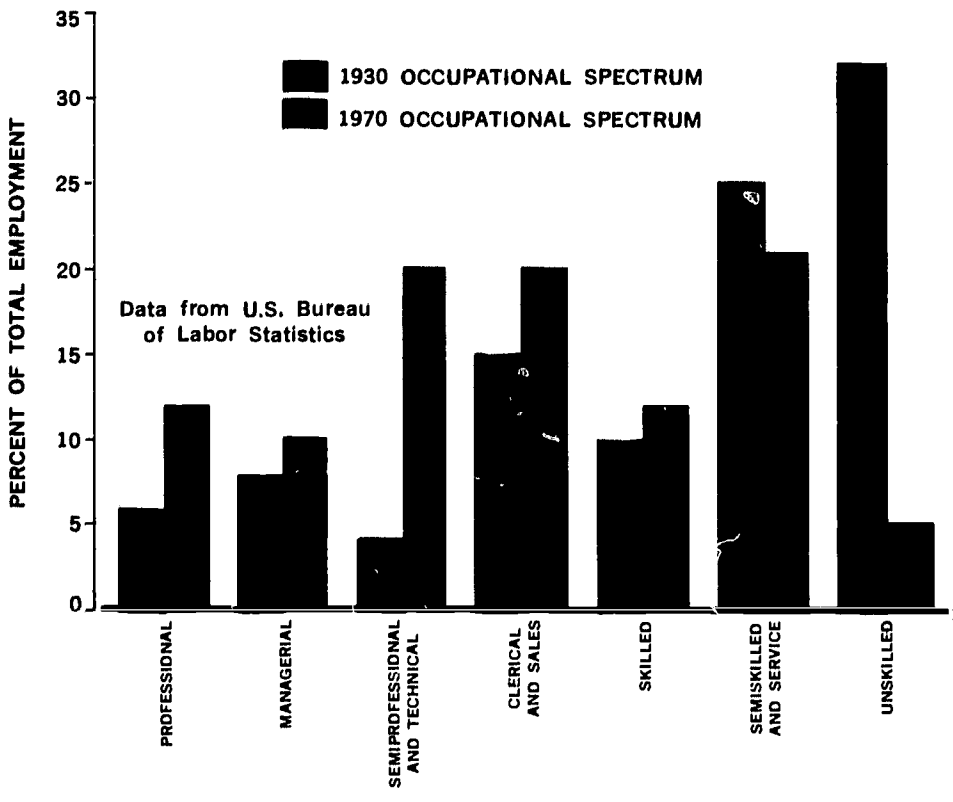


Figure 1

[1] References cited are listed on page 44.

ALL MANUFACTURING INDUSTRIES
VALUE ADDED BY MANUFACTURE
(IN CONSTANT 1957-1959 DOLLARS)

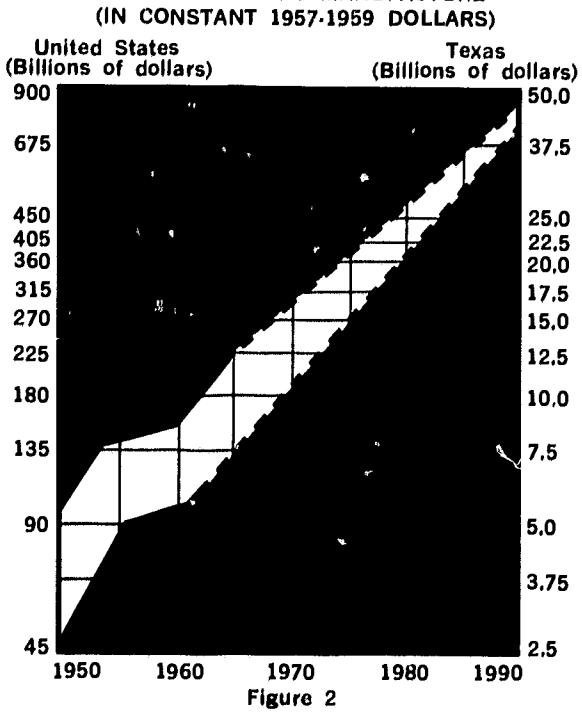


Figure 2

CHEMICAL AND ALLIED PRODUCTS
VALUE ADDED BY MANUFACTURE
(IN CONSTANT 1957-1959 DOLLARS)

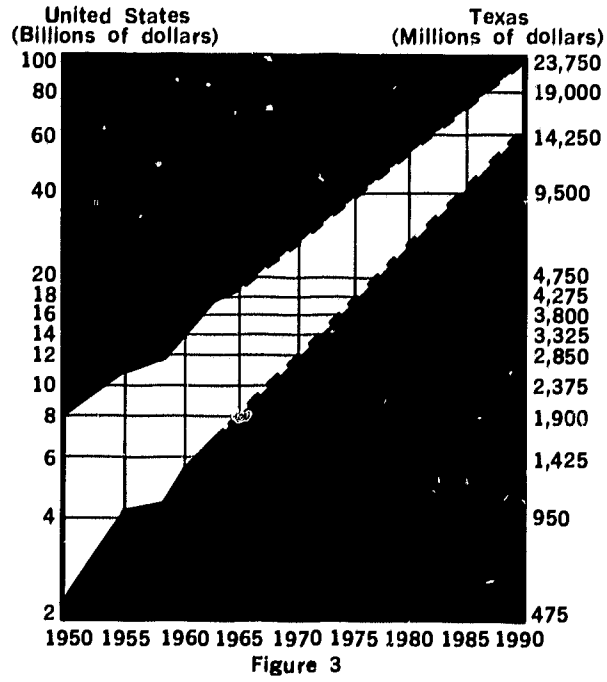
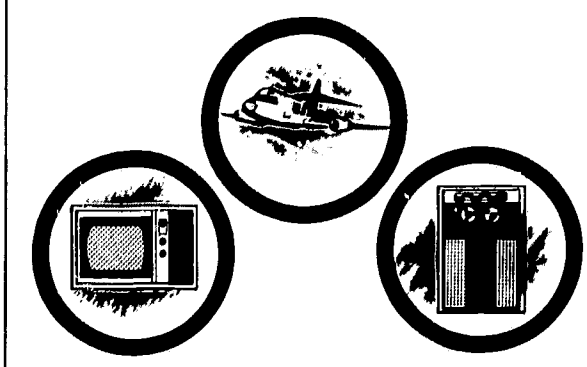


Figure 3

ECONOMIC EFFECTS OF
TECHNOLOGICAL INDUSTRIES



In 1945, the TELEVISION, JET TRAVEL, and DIGITAL COMPUTER industries were commercially non-existent.

In 1965, these industries contributed more than $13 BILLION to our GNP and an estimated 900,000 jobs . . . and very important, affected the QUALITY of our lives.

U.S. Department of Commerce

Figure 6

AIRCRAFT AND OTHER TRANSPORTATION
VALUE ADDED BY MANUFACTURE EQUIPMENT
(IN CONSTANT 1957-1959 DOLLARS)

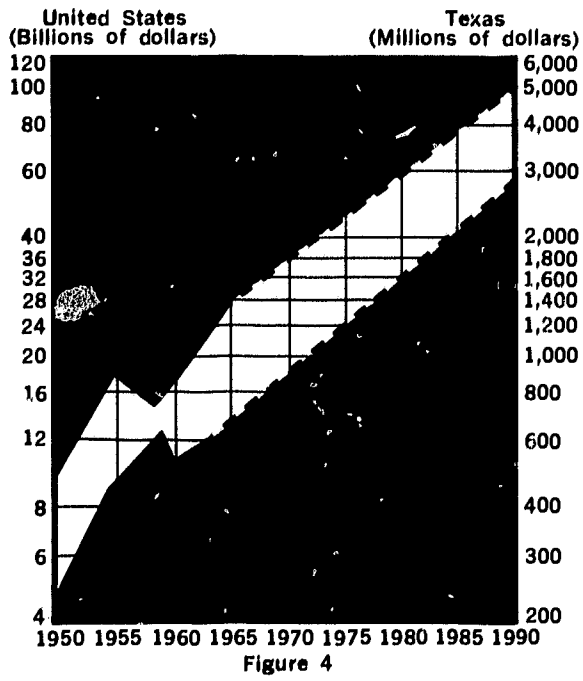


Figure 4

ELECTRONIC AND ELECTRIC EQUIPMENT
VALUE ADDED BY MANUFACTURE
(IN CONSTANT 1957-1959 DOLLARS)

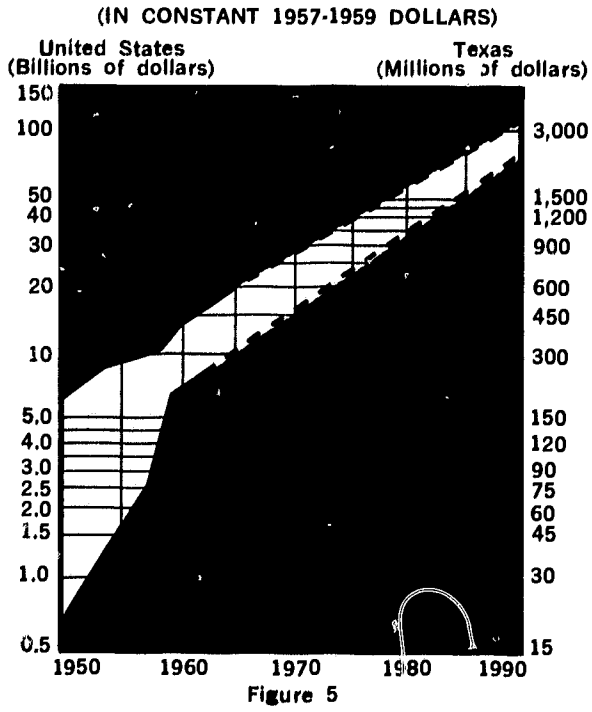
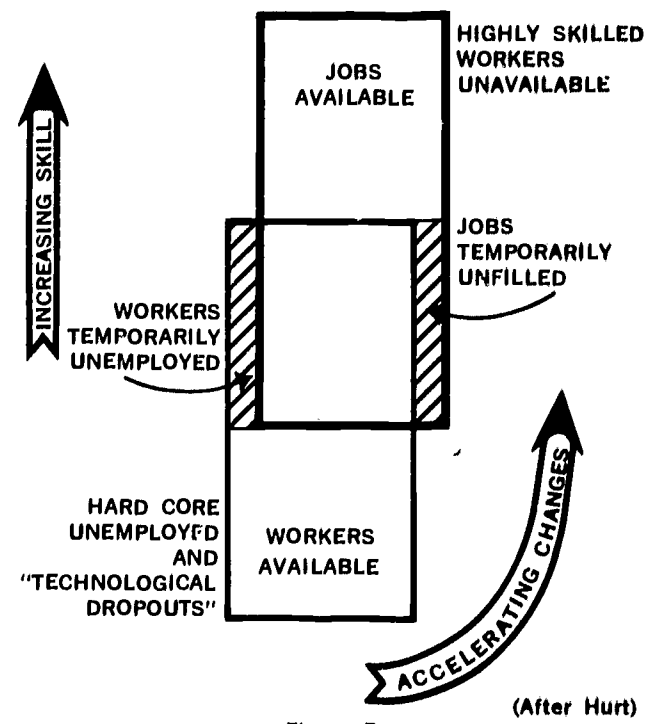


Figure 5

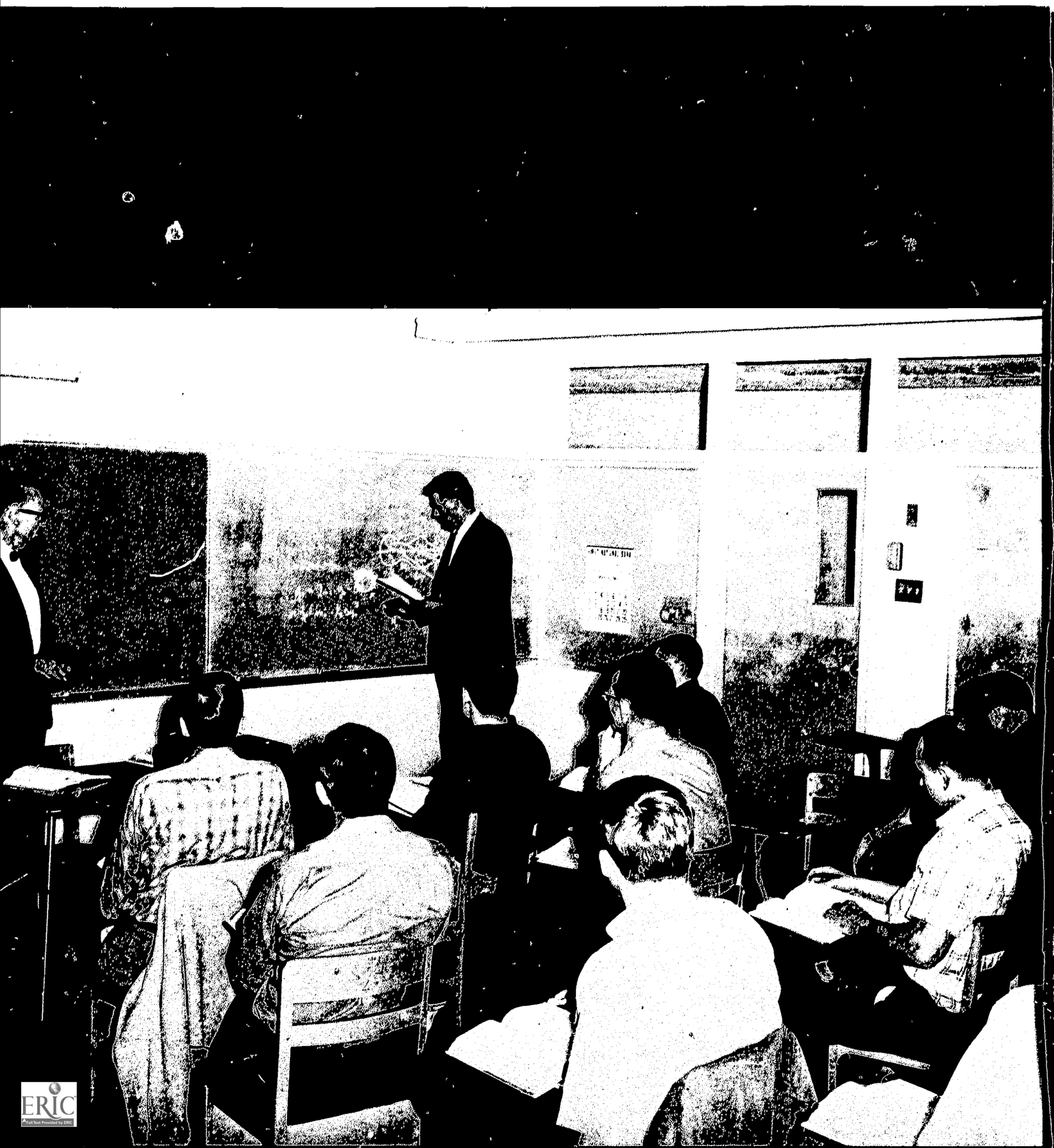
IMPACT OF TECHNOLOGY
ON JOBS AND WORKERS



(After Hurt)

Figure 7

Source: Texas 90



Continuing Education — Its Role and Scope

Continuing Education is the concept that education in a world of accelerating change must be a lifelong series of learning experiences for the individual citizen. No longer can a young man consider that he completes his education with graduation from high school or college. Rather, as he begins a career, he must also launch a continuing plan of higher education to stay abreast of the latest knowledge or newest skills. His alternative is to drop back sharply in capabilities and effectiveness—and to continue this decline as his business and personal worlds become more complex. A graphic indication of the problem is given in *Figure 8*.

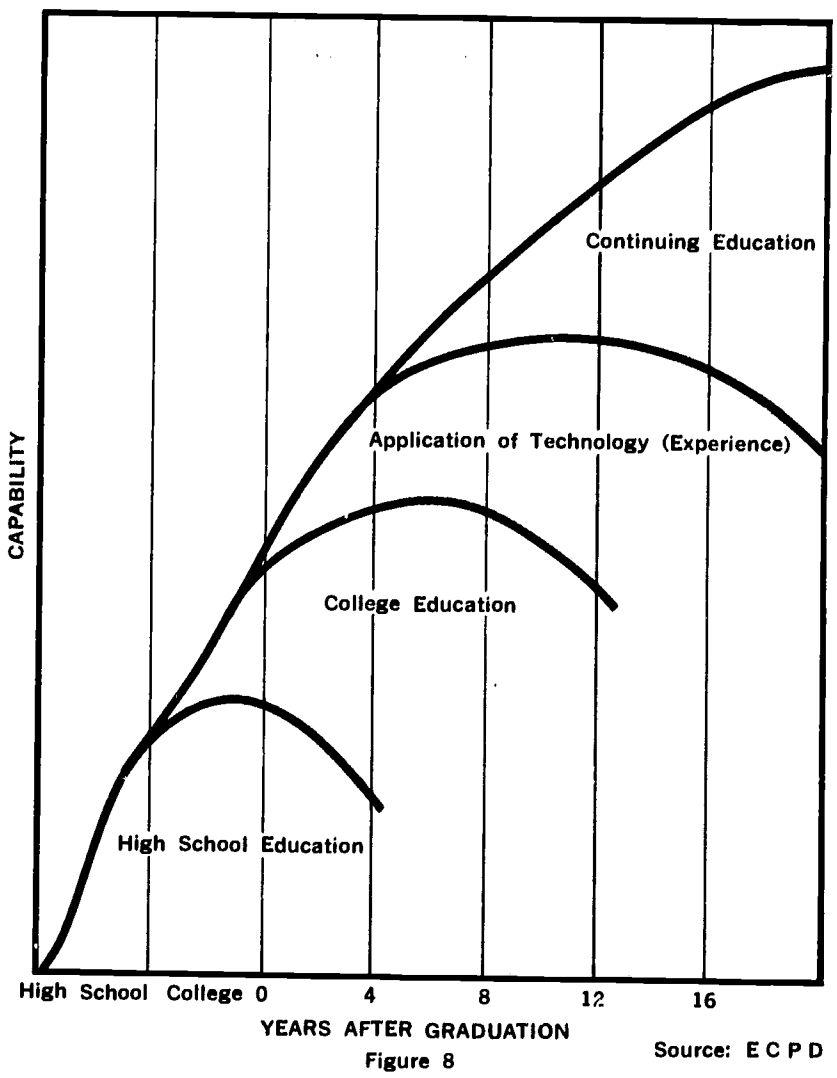
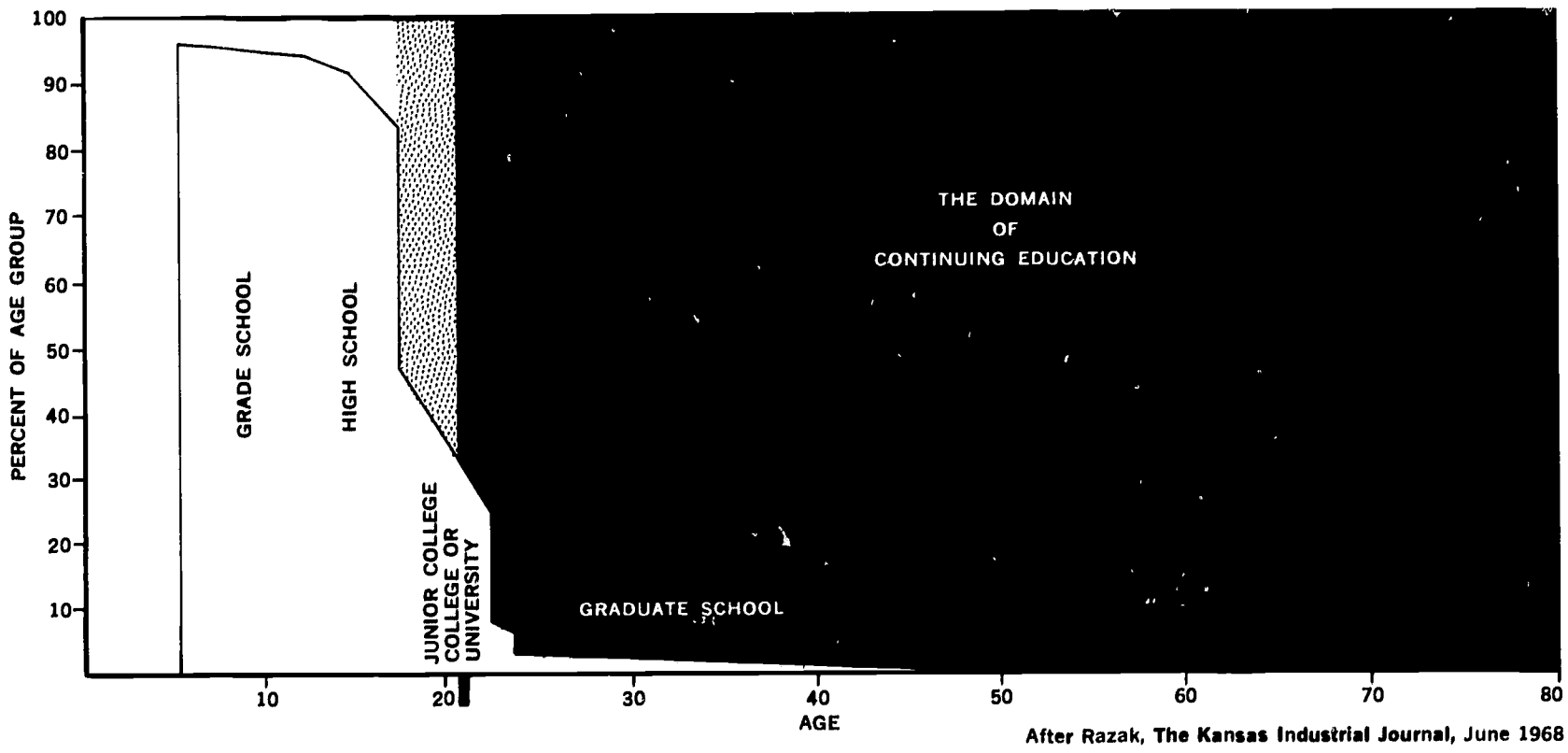


Figure 8 Source: E C P D

Continuing Education is a relatively new term for an evolving area of education. Until recently, the more general term **adult education** was used to describe the activities for adults up and down the academic scale. Continuing Education, by increasing usage in connection with college and university programs, denotes a higher level of instruction and subject matter. Also, it is a more specific term in that it recognizes the essential factor of time. Since the current growth of science and technology has put the scientist, engineer, doctor, businessman—and even the craftsman—under particular pressure to fight obsolescence, each, individually and through their professional, technical, and trade associations, turns to the university for assistance in keeping abreast. This demand for current education and



After Razak, **The Kansas Industrial Journal**, June 1968

Figure 9

training has further identified the concept. Finally, state and federal governments, concerned with the problems created by change, have encouraged colleges and universities to move into Continuing Education's community service programs to ameliorate community living, highlighting an applied and service facet of the concept and giving it financial support.

In a broad sense, Continuing Education includes adult education and training programs organized by business, industry, professional and trade societies, non-profit organizations, profit-oriented schools, and educational entrepreneurs, as well as those programs available through colleges and universities. Continuing Education activities outside the institutions of higher learning account for the majority of the programs offered today. This report, however, is based on the premise that Texas colleges and universities represent storehouses of knowledge that should be shared with its citizens. In this sharing the faculties receive reciprocal benefits; but, above all, the educational institution has a responsibility to help develop the number one resource of Texas—its adult citizens. This report outlines the needs of these citizens for Continuing Education through 1985 and suggests means by which they can be met by the Texas College and University System.

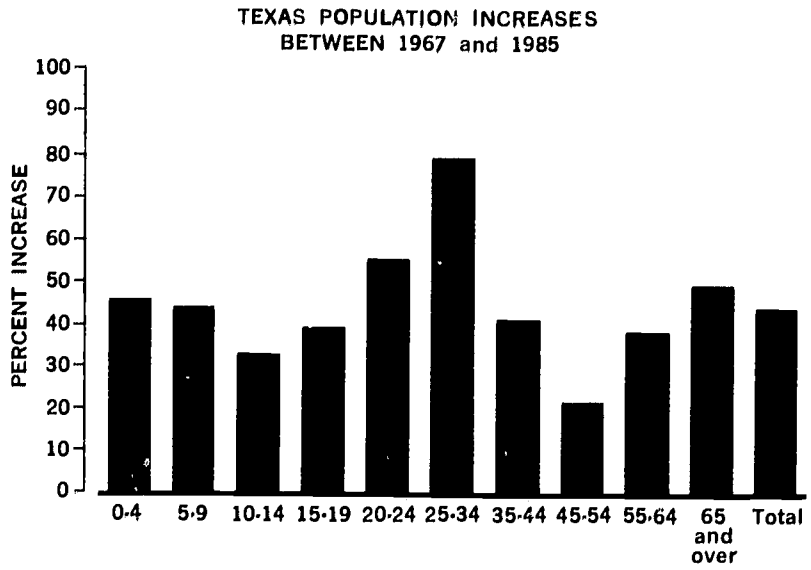
Within the Texas College and University System, the Planning Committee proposes to define Continuing Education as the organized educational programs for adults appropriate to, and under the control of, the university, college, or junior college. "Adults" generally are recognized as those who are no longer full-time students. As a general reference point, the age of 21 is accepted. Adults over 21 who are still regularly enrolled

as full-time students are excluded. Young people under 21 not so enrolled who carry mature responsibilities are included. The tremendous potential of Continuing Education is apparent from the diagram of its domain *(Figure 9)*.

In view of this potential, a minor amendment to the legislative mandate, written into the 1965 act which created the Coordinating Board, may be warranted. An additional clause (underlined below) would make Continuing Education the clear responsibility of the Coordinating Board:

> **"... to establish in the field of public higher education in the State of Texas an agency to provide leadership and coordination for the Texas higher education system, institutions and governing boards, to the end that the State of Texas may achieve excellence for college education of its youth and continuing education of its adults . . ."**

Some idea of the future participation in Continuing Education of Texas institutions may be derived by reference to the major study of adult education by John Johnson and Ramon Rivera. For the country as a whole they found that participation was greatest by adults under 35 years of age, by those who had college educations, and by those whose family incomes were $7,000 and above. Referring these factors of age, education, and income just to Texas, the future looks bright indeed for Continuing Education. The population of Texas, it is estimated, will increase about 45 percent between 1967 and 1985 *(Figure 10)*, but the 25 to 34 year age bracket will increase almost 80 percent *(Figure 11)*. Of the college-age residents in Texas, 40 percent will be attending college in 1980 as compared with 27 percent now. And total personal income will increase by almost 150 percent between 1965 and 1985 *(Figure 12; Appendix A)*.



Based on data from Bureau of Business Research
The University of Texas at Austin

Figure 11

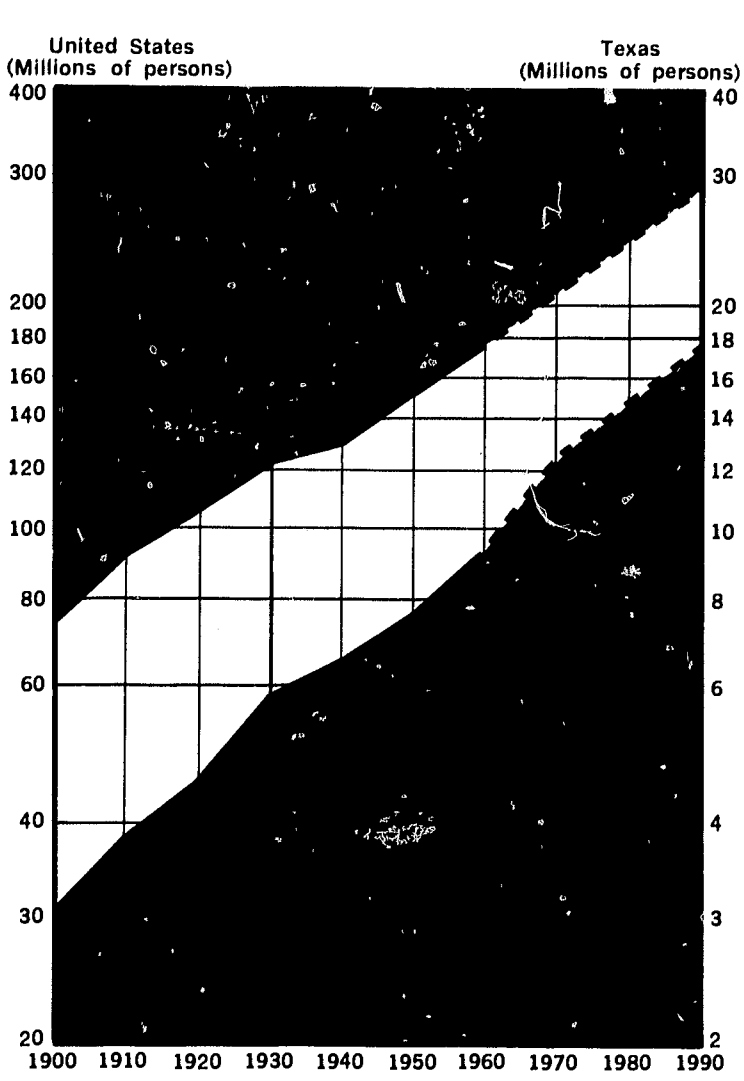


Figure 10

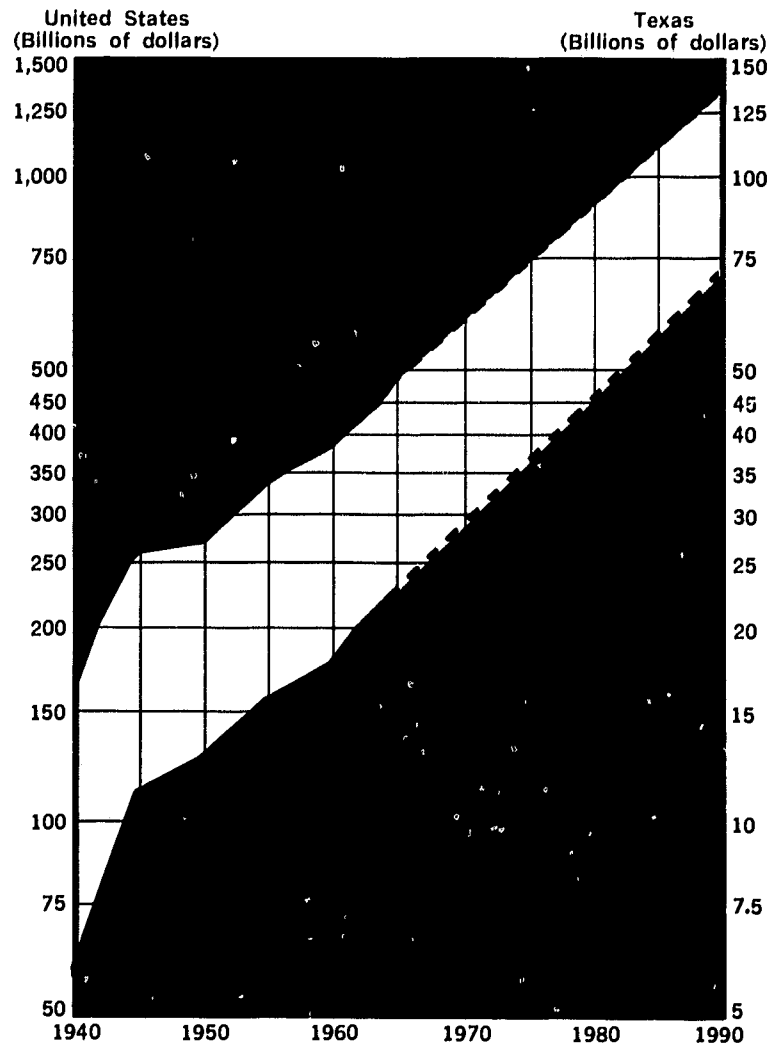


Figure 12

An Overview of Continuing Education

Where does Continuing Education belong in the traditional areas of pursuit of institutions of higher education—resident instruction, research, or public service? Continuing Education is a public service. It is a means of adapting higher education to meet the new and broader needs and demands of today's society. It is the bridge between "town" and "gown"; it is the opportunity the university has to afford to all people access to accumulated knowledge; it is the meeting of adults where they are, with the purpose of providing them with information and experiences that are useful in helping them solve their problems, achieve their educational and occupational objectives, and gain the wisdom to lead rewarding personal lives.

Continuing Education activities organized to accomplish these objectives may be separated into three major divisions: credit programs, credit-free (or non-credit) programs, and community service programs *(Figure 13)*.

Credit programs reflect the determination of many adults to accumulate credits towards an eventual degree, the desire to have evidence of accomplishment, or even the desire to accept the discipline imposed by graded assignments and examinations. Extension, evening, and correspondence courses have been presented for years for adults seeking credit hours without attending regular daytime classes. Those credit courses that are specifically organized for adults constitute the Continuing Education programs. Content is the main criterion here, but time and—to a lesser extent—place are additional considerations.

Credit-free (or non-credit) programs may constitute the major thrust of the Continuing Education activities in the near future and could be the fastest growing segment of higher education in the next decades. Although semester-length courses are offered, the short courses of one or two weeks have become the typical Continuing Education offering. In addition, the credit-free programs include conferences, seminars, workshops, and institutes. Short courses differ from the latter programs in offering a formal course of instruction planned to achieve instructional continuity, and usually staffed by one instructor, as contrasted to the panel of instructors or speakers who generally present the conferences, seminars, workshops, and institutes.

Community service programs are the third major division and the newest. Although the university has been engaged in various types of community service through the years, an organized effort to become involved directly in helping solve community problems is a relatively recent development. The accelerating changes of the technological revolution have adversely affected many communities. The university, through its community service programs, is moving into areas of obvious need.

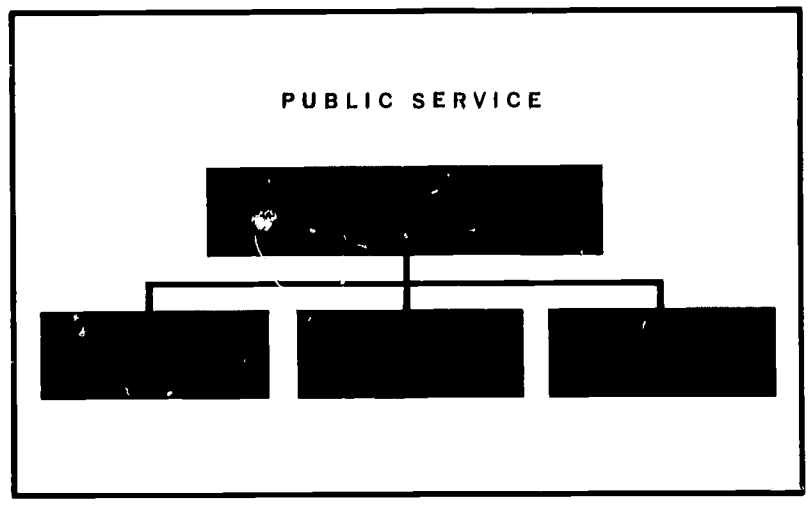


Figure 13

Credit Programs

Credit programs represent a vital area of Continuing Education, particularly for recent college graduates. Only credit courses which are specifically organized for adults attending school part-time are considered to be Continuing Education courses under the proposed definition. While content is the principal criterion here, times and places that are convenient for working people further distinguish Continuing Education courses. It is difficult to draw a sharp line in every case between academic and Continuing Education offerings, but the intent should be clear. Since there will be overlapping situations and gray areas, actual delineation is best left to the individual institution.

Specific academic admission requirements, prescribed course length, set degree plans, graded assignments, and examinations are normal features of this first division of Continuing Education activities. Some concessions are made for the maturity and experience of adults in a few Texas institutions; but, in general, an adult must abide by the same regulations as the younger students, and the courses are similarly regulated. Whether so rigid a pattern should persist generally through the years under study is problematical. As the anticipated increases in adult participation materialize, more attention and consideration will need to be given to the particular situation of mature adults.

Continuing Education Bachelor's Degree

One approach to meeting the particular situation of adults that has already been taken by some universities is the designing of a Continuing Education degree program especially for them. Such a degree is the Bachelor of Liberal Studies awarded by the College of Continuing Education of the University of Oklahoma. To start with, the major barriers are eliminated—the ordinary class schedules, the rigid prescriptive and resident requirements, and the lectures keyed to the limited experience of young people. The Oklahoma BLS awards credit, but not as credit hours; has summer three-week residential seminars, but not traditional semesters in residence; and treats broad areas in guided independent study, but not lectures on separate subjects. Its professors believe "knowledge is a seamless fabric, and a life of learning carries the mind on an unbroken excursion through a universe of ideas . . . The adult who devotes himself to continuing education must develop himself in a wide area of intellectual interests."[7]

A breakdown of the ages and occupations of BLS students, 1961-1963, reveals the majority are in the 31-50 age range and in the housewife, clerk-secretary, engineer, supervisor, manager, and teacher categories.

No Texas institutions have current plans for similar Continuing Education degrees at the bachelor level. As Continuing Education programs mature, however, the establishment of similar degrees is anticipated.

Continuing Education Master's Degree

A modification of the normal academic degree plan, rather than the complete departure of the BLS degree, is the new Master of Liberal Arts degree of Southern Methodist University. The degree, to be conferred through the School of Continuing Education, provides the equivalent of a year of graduate study (30 credits) spread out over five years of evening courses.

Neither a thesis nor a knowledge of a foreign language is required. The objective of the program is to enable adults "to acquire deeper insight and more perspective understanding of man's cultural heritage through study of the social, political, and scientific aspects of contemporary society." *(See Appendix C.)* Initial response to this program has been enthusiastic.

A technical degree program at the graduate level has been organized for the practicing engineer by Texas Technological College. This Master of Engineering degree is an off-campus interdisciplinary program in the field of general engineering. It consists of 33 hours of course work designed to fit the needs of the individual student. At present, instruction is furnished by "Flying Professors," but by 1970 classes will be conducted by closed circuit television over the Western Information Network *(Appendix D)*. Classes are arranged through business, industry, or professional societies whose engineers have mutual interests.

Credit-Free Programs

If Texas universities, colleges, and junior colleges are to meet the total spectrum of educational needs of individual adults in a fast-changing world, their programs must go well beyond the offerings of the credit programs. The credit-free or non-credit activities can provide the additional scope and variety of offerings required to fulfill these needs of a concerned citizenry. Already a strong base has been established in the programs of college and university Continuing Education organizations and of extension divisions and evening colleges; but, in general, credit-free programs need clearer identity, better coordination, and greater financial support. With these advantages and bold, innovative leadership, the credit-free programs can meet the challenge of change so clearly stated by John W. Gardner, "Our complex society cannot survive without a high percentage of able and educated persons who keep their skills abreast of the times."[8]

Continuing Education for Occupational Competence

Meeting the needs of the people as workers must be the prime aim of the credit-free programs. The dimension of their educational needs is best reviewed by occupational groups. How these needs are currently being met and proposals for the future will be discussed within these groupings.

Professional

Those largely responsible for the technological and scientific revolution are the persons most challenged with problems in keeping abreast of professional developments. With the staggering growth in technology *(Figure 14)*, engineers and scientists are daily faced with the need to learn new techniques, methods, and processes. To varying degrees, the danger of falling behind current practices confronts all professions, and Continuing Education in some form must serve the needs of doctors, teachers, and lawyers, as well as engineers and scientists. With a shortage of

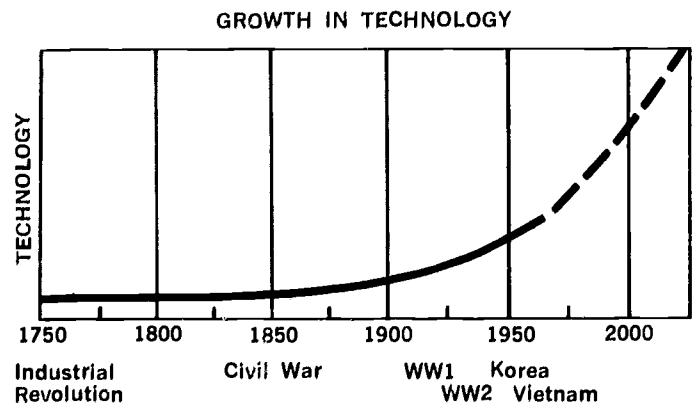


Figure 14

professionals in most categories, the state has a vital interest in the prevention of obsolescence. Even with the ever-increasing numbers of new graduates and the influx of professionals from outside of Texas, the demands are of such magnitude that the state cannot afford to lose the effectiveness of its practicing professionals through their loss of contact with new knowledge and skills.

City	Employed	Estimated Requirements		Percent Increase
	1965	1970	1975	1965 to 1975
Dallas	47,558	59,490	71,650	51%
Fort Worth	19,983	28,087	30,731	54%
Houston	71,515*	n.a.	n.a.	—
San Antonio	23,170**	27,115	30,960	34%***

*1966 (estimated) **1968 ***1968 to 1975

Source: Manpower Surveys [9, 10, 11, 12]

Fortunately, many universities, colleges, professional societies, companies, and individuals have recognized the need for Continuing Education and have worked together to establish effective patterns for its growth. Through reviewing the current programs for a number of professions, the progress that has been made can be illustrated. It must be recognized, however, that there is a note of urgency involved. The quicker Texas can solve the problem of reaching the vast majority of its professionals, the easier it will be to lessen the gap between yesterday's education and tomorrow's demands.

Engineers

The American Society for Engineering Education, which includes strong representation from Texas engineering faculties, has actively involved itself in Continuing Education. In its report, "Goals of Engineering Education,"[13] four objectives in Continuing Education are listed:

Upgrading the engineer's education (raising the level of professional performance)

Updating the engineer's education (bringing the level back up even with that of a current graduate)

Diversifying into new fields (studying in another technical field at about the same level or higher)

Broadening the engineer's education (adding a new perspective in same field by including, say, financial and political factors)

These objectives of upgrading, updating, diversifying, and broadening outline in a general way the scope of Continuing Education for all the professions.

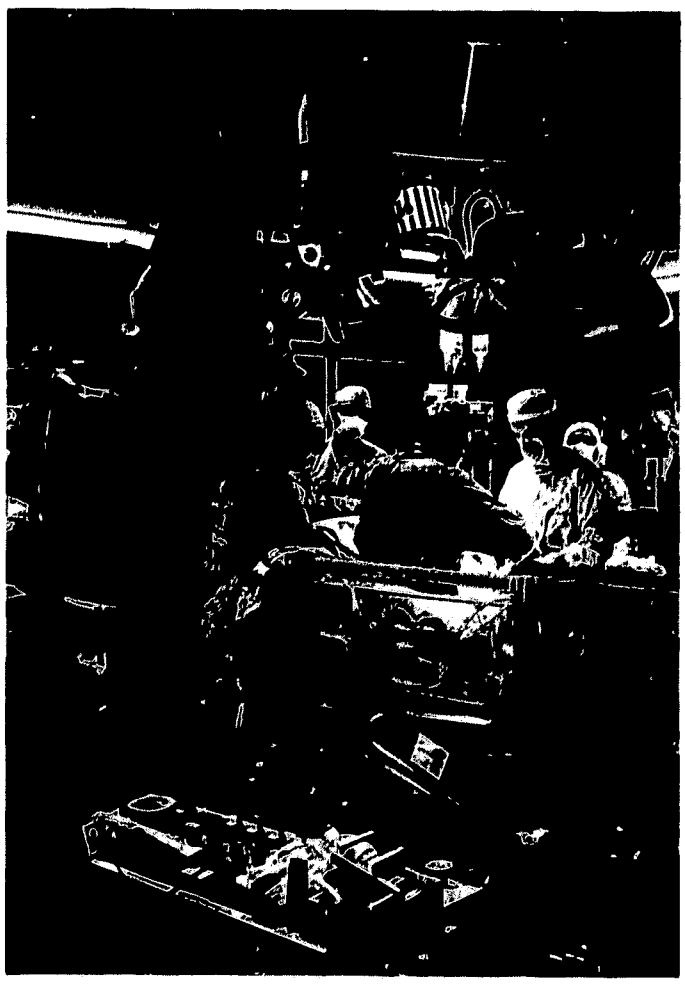
In line with these objectives and based on the indicated needs of practicing engineers, the College of Engineering of The University of Texas at Austin conducts a Continuing Engineering Studies Program each year in over 45 subjects in which the College considers it has unique competence. The presentations are in the form of conferences, seminars, short courses, and symposiums, most of which are held in Austin. Annual attendance has increased steadily from 1044 in 1964-65 to 3050 in 1967-68.

As an example of a single department's program, that of the Chemical Engineering Department of Texas A&M University may be considered. This department is teaching a series of seven different one-week courses at various locations throughout the state for the convenience of the participants. This program is for updating chemical engineers in industry on recent chemical processing. More than 200 attended last year. The Petroleum Engineering Department also has a series of professional refresher courses in which 85 persons were enrolled in 1968.

For a professional society's approach, the Continuing Education poll of the Permian Basin section of the Society of Petroleum Engineers provides material for interesting study. In *Appendix E* the results of an exploratory questionnaire are tabulated, and they give an insight into the engineers' thoughts about various facets of Continuing Education. A course in reservoir engineering was given as a result of the favorable response and a total of 208 attended the two sessions (225 had said they would if in their fields of interest). The course was prepared and presented by a college instructor, but credit was not given.

Engineers' participation in Continuing Education may be judged by the results of a random 2004-man sample of petroleum engineers, a third of whom are from Texas.[14] Based on the first 1000 returns, 18 percent have attended part-time college courses, and 44 percent have attended specialized seminars or short courses at colleges or universities.

Participation in Continuing Education is not required to remain a registered professional engineer in good standing in any state or to maintain membership in any professional engineering society. Questions of accrediting courses and of awarding professional credits are under discussion nationally, however. Accreditation of courses by a national organization is not supported by ASEE workshop groups, but some credit system for professional recognition of Continuing Education achievement appears "worthy of being encouraged."[15]



Physicians and Surgeons

Medical progress rivals the pace of technological change. Organ transplants have been dramatic news; but there have also been tremendous advances in such areas as molecular biology,* biochemistry, and genetics. To put recent developments in quantitative terms, doctors last year wrote 93,000,000 prescriptions for drugs that did not exist ten years ago.[16] Since new knowledge can affect not only health but life itself, Continuing Education has a vital function to perform in keeping practicing physicians and surgeons abreast of the latest developments.

* Since 1958 thirteen Nobel Prizes have been awarded to workers in molecular biology.

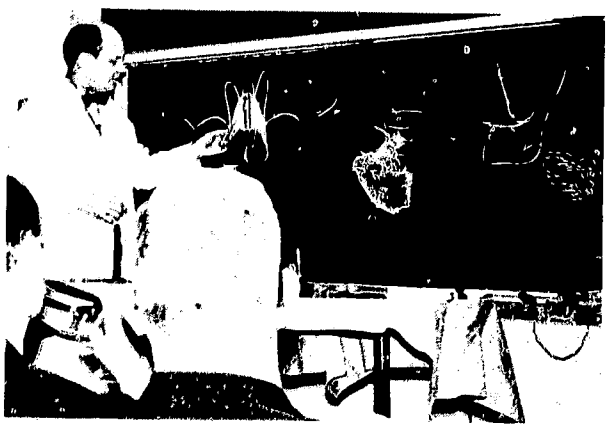
The Division of Continuing Education, The University of Texas Graduate School of Biomedical Sciences at Houston, organizes and coordinates an extensive program of courses, symposiums and seminars at the Texas Medical Center and neighboring hospitals, while offering a special speaker series in Houston and outside the city. The courses, for example, are held once a week for from three to ten months. Experimental late evening television programs for physicians have been tried, with favorable responses. Total attendance at Division of Continuing Education programs last year was 960 for the courses, symposiums, and seminars, plus an enrollment of 3060 for the speaker procurement programs.

Funding is a basic problem in view of the minor amounts allocated for Continuing Education, and support must be sought from other sources—grants, foundations, and government programs. Funds are available for heart, stroke, and cancer programs but are difficult to find for, say, diabetes, mental health, or arthritis.

The medical profession has been a pace-setter in accreditation and professional credit programs. The American Medical Association now has a system of review by survey teams for approval and accreditation of medical Continuing Education programs, which may well serve as a sound prototype for other professions.[17] The Academy of General Practice requires that, to remain in good standing, a member must complete a required number of prescribed "credit hours" within a specified period. And in Oregon, as a result of the passing of the Medical Practice Act last year, a doctor is required to show evidence of participation in Continuing Education to retain his right to practice. Looking ahead to 1985, increased professional participation in Continuing Education programs as a result of mandatory requirements is a distinct probability.

Dentists
The necessity for Continuing Education is increasing rapidly for all branches of medical science, and both the University of Texas Dental Branch and Baylor University College of Dentistry have active programs. Professional refresher courses, for example, were given at Baylor in seven areas last year, with a total attendance of 450.

The Academy of General Dentistry has concentrated on Continuing Education courses and workshops for dentists in general practice and has required completion of a specified number of "credit hours" of Continuing Education for a member to remain in good standing. The Academy provides a record-keeping center for verification of these professional achievements, for it is anticipated that government programs will require dentists to submit evidence of Continuing Education to be eligible to participate in them. This is already required in New York.



Pharmacists
To reach the practicing pharmacists of Texas, the Colleges of Pharmacy of The University of Texas and the University of Houston coordinate an annual Continuing Education program. Each college is responsible for six of the twelve districts that cover the state and works through a local pharmacy association to organize the meeting. This professional development opportunity is attended by some 1200 pharmacists annually.

On-campus activities for specialized groups are also conducted by The University of Texas. These include an annual Postgraduate Pharmacy Refresher Course, an annual Industrial Pharmacy Seminar and an annual Hospital Pharmacy Seminar.

Texas does not require evidence of Continuing Education to renew a pharmacist's license, but it is a possibility for the future. Florida, for example, does require a certain number of hours of acceptable Continuing Education for license renewal.

Lawyers
Traditionally, the legal profession is oriented strongly towards the past, yet the lawyers of Texas have a very dynamic Continuing Education program. This reflects not only the number of new laws being placed on the statute books and the frequency of significant decisions by the higher courts but also the constant change in the interests of the clients and in the ways they conduct their businesses. For example, more and more practitioners find their clients involved in conglomerates and other forms of merger and acquisition. Continuing Education follows the practicing attorneys' needs with in-depth, thorough presentations.

The Houston Bar Association's biweekly seminars are an example of such a program at the specialist's level. Institutes are also held twice a month on fundamental subjects, like probate and divorce, for specialists in other fields who on occasions must handle these cases for clients. Attendance at these institutes ranges from 200 to 700, averaging 350. The Continuing Legal Education Committee of this association includes three deans of law, and university and college faculty participate as speakers. The Dallas Bar Association has a similar active program; its meetings are held weekly. The state and national bar associations present occasional Continuing Education programs about the state as well.

Complementing the professional societies' programs are those of the colleges and schools of law. The University of Texas at Austin has an extensive Continuing Education program, and more modest schedules are offered by Southern Methodist University, Texas Technological

College, and the University of Houston. At Southern Methodist University, the separate Southwestern Legal Foundation is responsible for a series of institutes and short courses attended by some 3500 annually.

The legal profession has no requirement for Continuing Education participation, and there is no accreditation of programs.

Teachers

Much can be learned by the other professions from the field of teaching, which has long had a highly structured program of education and training for its graduates. Today's needs relate to the assimilation of relevant information about the new technological, social, and political changes and to the mastering of techniques for the effective presentation of this knowledge to students. Also, there is the constant need for school teachers to update themselves in the new concepts and adopted material of the established curricula if they are to maintain their professional competence.

In a cooperative effort to meet such needs, Lamar State College of Technology and the Southeast Texas public school districts have organized the Lamar Area School Study Council, dedicated to the improvement of instruction through a program of Continuing Education. The Council's program includes a series of about 20 evening workshops each year, attended by over 1,000 teachers, and and a number of special conferences and short courses.

Throughout the state, school districts in cooperation with local universities and colleges present in-service training programs for their school faculties. The institutional faculties are utilized both as instructors and as

consultants. The Houston Independent School District's in-service training program, which draws upon the University of Houston faculty, is an example of such a mutual arrangement by an individual district. In-service training is required in some districts, optional in others.

In a special category of credit-free programs for teachers is the vital service institutions of higher learning perform in providing adequately prepared and updated instructors for vocational/technical education. To meet the demand, Texas A & M University and The University of Texas at Austin jointly present a Vocational Industrial Teacher Training course each summer.

Managerial
At the managerial level, the responsibility is heavy for remaining alert to changes and new ideas. In the profit-oriented realm of business and industry, managers cannot afford to stop learning and thereby jeopardize the profit growth of their companies. It is this very growth of Texas companies in a competitive world that is required to maintain continuing economic prosperity with increased job opportunities for the state.

Management development programs are a long-established phase of Continuing Education in Texas colleges and universities. The executive development programs of the major universities are limited in attendance and intensive in presentations, often featuring national authorities as conference leaders. Emphasis is on the newer planning and analytical concepts, as well as on economic, environmental, and technological changes which affect business. Other management seminars serve a wide segment of business with occupational programs keyed to special groups in such areas as retail, hotel/motel, technical, hospital, and farm management. A unique program is Southern Methodist University's annual Management Seminar for Women Executives.

Not only do these programs strive to update a manager but also to provide him (or her) with numerous opportunities for informal exchanges and cross-fertilization of ideas with other managers and faculty to the benefit of all.

As an indication of the magnitude of programs pertaining to management development and principles, approximately 1100 attended credit-free offerings in this broad category last year at the University of Houston.

Clerical, Sales, and Service
Among occupational groups, the clerical category will have more jobs to fill by 1975 than any other group in Texas, judging by estimates for the four largest cities. *(See Appendix B.)* There would appear to be no shortage of job-seekers, however. Projected supply and demand figures through 1975 for San Antonio show that double the number are being trained that will be required.

Both Fort Worth and Dallas list all clerical classifications in high demand through 1975, but supply figures are not available. Houston estimates through 1966 showed a virtual balance between supply and demand. *(See Appendix B.)*

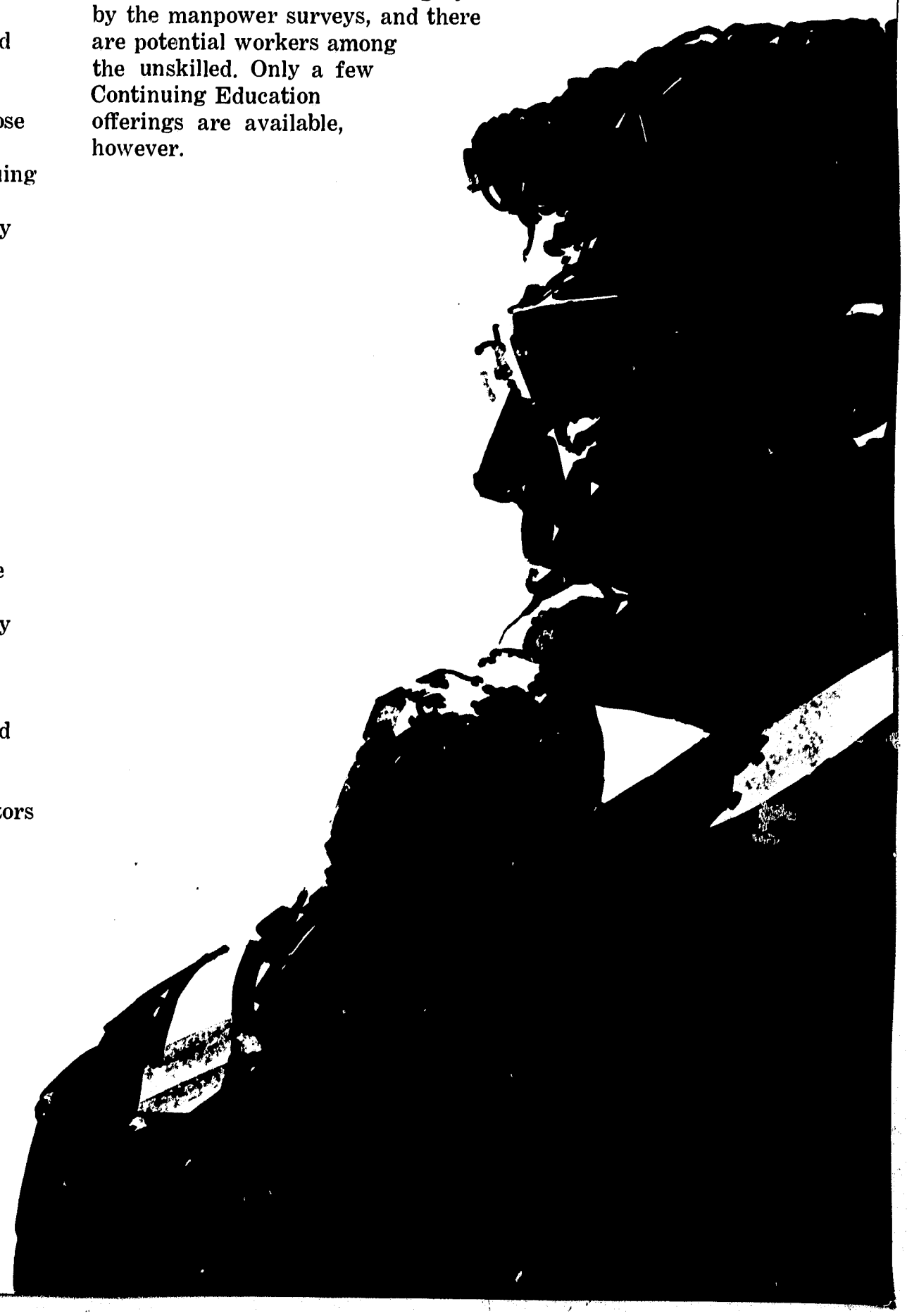
Credit-free programs for clerical personnel include special American Institute of Banking and Savings and Loan Institute programs, preparatory

courses for certified professional secretary examinations, and key punching, as well as basic courses in shorthand, acounting and typing. As an indication of interest in these programs, 760 attended the American Institute of Banking classes last year at the University of Houston, and 300 attended typing and shorthand classes at the College of the Mainland.

In the sales group, three of the most extensive Continuing Education programs are represented—retailing, insurance and real estate. These programs appear frequently in the reports of both the Woods Survey and the Higher Education General Information Survey. They represent excellent examples of the success close cooperation between business, trade and business associations and Continuing Education faculty can mean. The Institute of Retailing of the University of Houston has the strong support and active assistance in planning of the Houston Retail Merchants

Association as well as other local trade associations. The C. L. U. and the C. P. C. U. programs are sponsored by the Houston Chapters of the National Association of Chartered Life Underwriters and the National Association of Chartered Property and Casualty Underwriters, respectively. The real estate courses are a joint project of the Houston Board of Realtors and the University. It is of interest to note that the Texas Real Estate Commission requires proof of 30 classroom hours of Continuing Education courses in real estate in order for an applicant to renew his salesman's license, and 90 classroom hours before he can take the examination for his broker's license.

In the service category there are heavy demands for cooks, housekeepers, kitchen workers and janitors. Workers in sufficient numbers without the particular training required are shown to be available within the category by the manpower surveys, and there are potential workers among the unskilled. Only a few Continuing Education offerings are available, however.

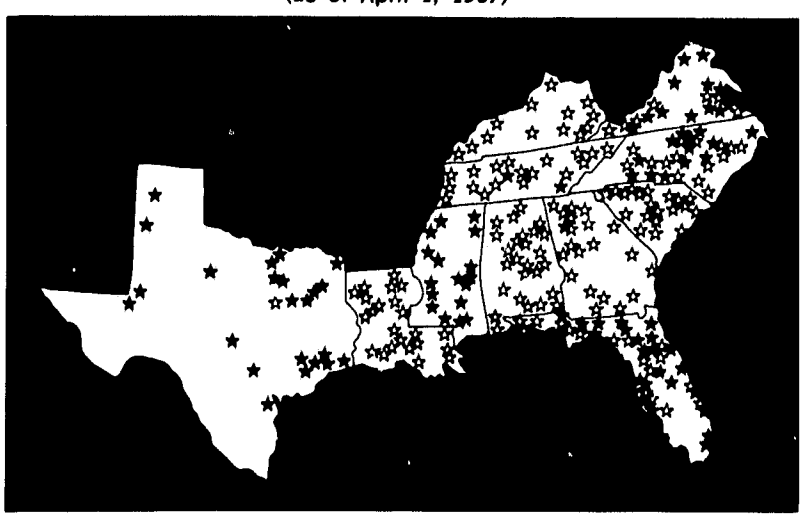


Technical, Skilled, and Semiskilled

The critical challenge for the Texas College and University System is not only to supply professionals and office staff for the future economy but also to provide the essential technical and skilled manpower. The latter categories are largely an assignment for the junior colleges, especially the community junior colleges. Generally speaking, motivation is not a major problem with adults in the more academically oriented categories. With the craftsmen and semiskilled, however, and to a lesser extent the technicians, there is a very real problem to enroll them in the first place. Also, there is a quite different group who are willing enough to take junior college work but avoid vocational/technical courses for the more prestigious academic work. The "divided" technical-academic campus has contributed to the stigma of vocational/technical courses as has the heavy concentration in most junior colleges of the general education courses.

Vocational/technical courses are scarce in the Continuing Education offerings of higher learning except for computer-related ones, which are certainly needed *(Figure 16)*, and supervisory training. This scarcity was apparent in the Woods Survey as well as in the Higher Education General Information Survey reports for 1967-68. There are noteworthy exceptions, however, such as the 31 credit-free short courses with an attendance of 543 at Odessa College last year, the 135 classes with 2,067 students of Del Mar College, the extensive curricula of James Connally Technical Institute, and the special programs of the Engineering Extension Service of Texas A & M University and the Division of Extension of The University of Texas at Austin. This scarcity of Continuing Education programs apparently reflects the relatively thin vocational/technical coverage in the regular curricula. In this connection, a comparison of the occupational education concentration in Texas with that in other southern states *(Figure 15)* is pertinent.

OCCUPATIONAL EDUCATION IN THE SOUTH [18]
(as of April 1, 1967)



☆ Area Vocational Schools and Technical Institutes (Non-Collegiate, Post High School)

★ Community Junior College Offering Vocational Programs

Figure 15

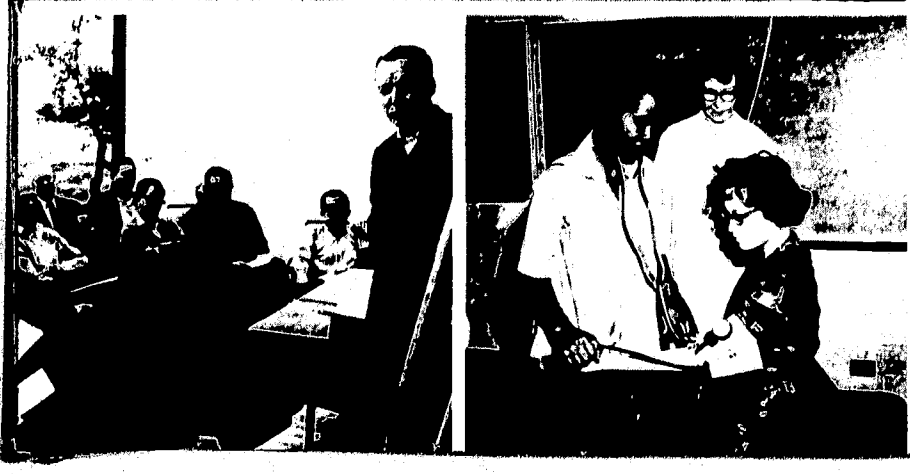
The current deficiencies are not necessarily valid indexes of the state's ability to meet the manpower demands of the future, for the situation is already improving. Greater recognition and stronger financial support are being given to regular vocational/technical programs, and Continuing Education should benefit from their added strength. Additional emphasis is desirable to ensure that junior colleges include vocational/technical offerings in future planning as an integral part of their Continuing Education programs, hopefully with dignity and respectability comparable to the general education portions.

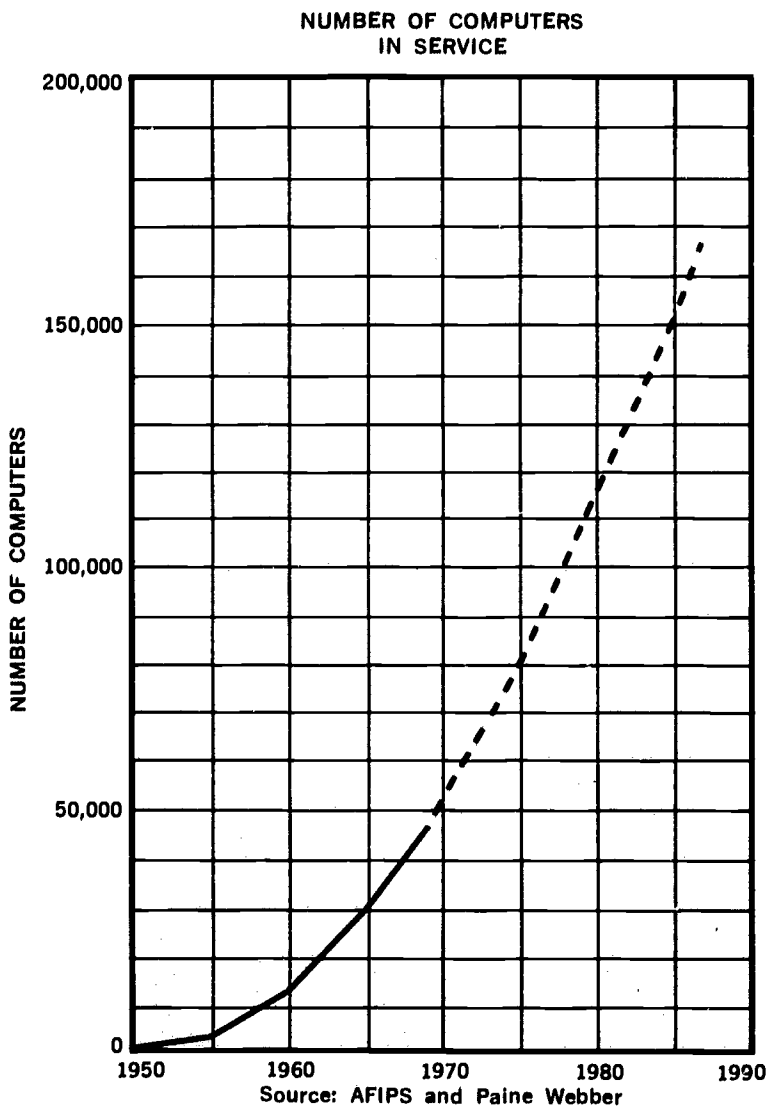
Financial support is probably the essential factor, but firm guidelines establishing the ratio of vocational/technical courses to general education courses are also needed. Whether the 40-60 split mentioned in connection with new community colleges is appropriate for Continuing Education programs requires further study, but a definite policy would minimize the possibility of de-emphasis of vocational/technical offerings at the expense of the more popular general education activities.

Farmers and ranchers are included in this skilled category for discussion purposes. Technological change has affected them as well as their industrial counterparts. Change has brought to their farms and ranches new equipment (such as mechanical harvesters), new products (such as agricultural chemicals), and new techniques (such as feedlot finishing).

For this segment of the economy, the Texas Agricultural Extension Service has an impressive record for effective adult instruction. The needs for updating knowledge are also being met by the colleges and schools of agriculture. At Texas A&M University, for example, short courses on beef cattle, agricultural aviation, and a commercial egg clinic were attended last year by a total of 820. Agricultural workshops and short courses at Texas Technological College in such areas as soils and use of fertilizers, swine production, entomology, and turf grass management also enrolled over 800. East Texas State University, Stephen F. Austin State College, and Sam Houston State College are among the institutions with local farm programs for Continuing Education.

A particular opportunity for Continuing Education to serve the economy is related to the very changes mentioned above. The mechanization of farming and the consolidation of farms have cut sharply the jobs available; then, too, rural wages cannot compete with factory pay. Consequently, thousands have left and continue to leave the rural areas for the cities. (In 1940, 2,150,000 Texans lived on farms and ranches; by 1966, only 560,000.)[19] Many of the adults leaving the farm have the ability and can do a good job but have had no work exposure except farming. The junior colleges, through their Continuing Education (or academic) programs, have the opportunity to reorient and train them for integration into the industrial labor force at a fairly high level. Those coming from the farms with minimal skills only add to the problem of the unskilled discussed below.





Source: AFIPS and Paine Webber

Figure 16

Unskilled

The tragic impact of accelerating technological development is found at the unskilled level. While the demand slackens, the supply of undereducated and undertrained workers continues to grow as the standards are raised. Those of the hard-core unemployables, who have never been qualified, will be joined by those who can no longer qualify as advancing industries require more knowledge and higher skills of their workers.

Texas must meet the challenge of upgrading these underskilled citizens—or see them swell the welfare rolls. By training or retraining them to perform at acceptable levels, both individual lives and needed workers are salvaged. The need is made clear by the Texas Employment Commission, "If the skilled and semiskilled workers are to be supplied to fill the vast need that has developed so rapidly, the utilization of these (unskilled) workers is mandatory."[20]

Supplementing the vocational programs of the high schools, the community junior college with an established vocational/technical program is in a strong position to meet the needs of unskilled adults for training, retraining, and upgrading through Continuing Education courses. Close college/industry coordination is essential to insure that the training is relevant to industry needs and is up to reentry standards.

Continuing Education for Personal Development

Meeting the needs of people as workers is accepted as the prime aim of the credit-free programs. Meeting the needs of people as individuals is a second aim, providing opportunities through Continuing Education for individual growth and fulfillment. Here is education for its own sake, education for understanding, wisdom, and truth. Max Lerner believes we are in a "leisure" revolution as well as a technological one, moving from a "leisure

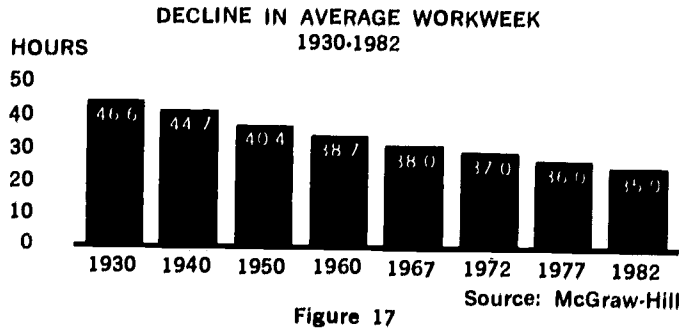


Figure 17

class society to leisure society with more and more time for more and more people."[21] It is true that the workweek grows progressively shorter *(Figure 17)*, incomes are rising, and retirement comes progressively earlier in life. In 1920, 57 percent of the men over 65 were employed; by 1962 this had dropped to 30 percent, and by 1970 it is estimated this figure will fall to 20-25 percent.[22] Continuing Education should provide constructive means of using this increased leisure and, in time, help people to enjoy their "golden" retirement years to the fullest. Continuing Education programs in this area serve to enlarge the individual's cultural horizons, satisfy his avocational interests, enhance his business acumen, and improve his personal skills.

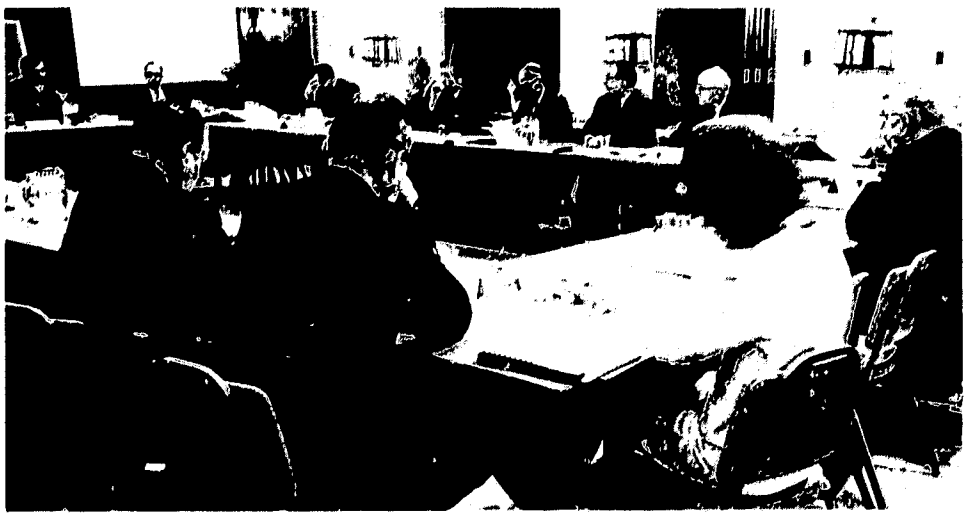
Cultural enrichment programs strive to keep the participants aware of the intimate relationships among the fine arts. These programs furnish both knowledge and information, resulting in the effective discernment of values. Mention of a number of short courses and lecture series will illustrate the scope of the cultural enrichment activities: Archaeology and Art in the Biblical World; Dialogues in Drama; Pre-Columbian, Spanish, and Latin-American Art; Visionary Architects; Shakespeare—Star of Poets and Dramatists; Avant-Garde Literature; and Look Back—The Development of Cubanism. Also, many

Texas institutes present concert series and theater productions for the general public. The Film as Art, a Cinema—Arts seminar, adds a new dimension to cultural enrichment through depth-study of the cinema as an art form.

With more leisure, adults typically desire to fulfill avocational interests or to broaden homemaking activities. A survey of Continuing Education courses currently available reveals opportunities for learning to paint in oil or watercolor, to SCUBA dive, and to cut and polish gemstones. Other avocational courses include gunsmithing, ceramics, antiques, photography and cabinet making. Furniture upholstering, interior decorating and design, entertaining, gourmet cooking, and landscaping are offerings for the homemakers—and then there is a course, Know Your Car—for women.

Adults frequently turn to Continuing Education courses for help in managing their personal finances. The Stock Market and How to Invest, Income Tax Returns, Real Estate Investments, and Estate Planning are informal courses listed in this category.

Finally, self-improvment courses such as creative writing, speaking in public, psychology and interpersonal relations, rapid reading, and foreign languages round out the Continuing Education programs for meeting the needs of people as individuals.



Continuing Education for Civic Awareness

Meeting the needs of people as citizens is the third aim of credit-free programs. In the United States "both theory and practice demand that citizens be taught how to think critically, how to judge political issues objectively; and this educational philosophy has been one basis of what is probably the most stable government in the world today."[23] Liveright points to the failures of municipal bond issues, the shortcomings of local governments and the generally inadequate understanding by citizens of local, national and international issues as evidence of the need for Continuing Education programs in this area.[24]

In cooperation with the Dallas Council on World Affairs and the Dallas United Nations Association, Southern Methodist University presents an eight-night International Insights series to furnish backgrounds for understanding the relations of other countries to the United States from many viewpoints. The Law School of St. Mary's University offers a series on Hemispheric Relations, and at East Texas State University both political affairs and world affairs are subjects in the informal courses program. Baylor University has presented a lecture series on The Soviet Jigsaw as a part of its credit-free program, and its Citizen's Seminar lecture series included topics such as The New Look in Domestic Politics. At Texas Christian University, programs that focus on the relation of the citizens of Fort Worth to their community are a regular presentation of the Division of Civic Affairs.

These examples indicate some effort is being made to meet the needs of people as citizens, but considerable strengthening of civic awareness programs is desirable. The objective of these programs can be summarized in the words of the **Houston Post** editorial of June 27, 1968, "We need . . . a new breed of Americans who will devote as much time and energy to being wise democratic citizens as they do to being good physicians, engineers or business men."

Recognizing Continuing Education Achievement

Although the programs under discussion are by basic concept credit-free or non-credit, the awarding of some evidence of the satisfactory completion of a program is not excluded. In fact, physicians and dentists, in general practice, must have certification of attendance at Continuing Education courses to remain in good standing. Companies with tuition refund plans normally require some evidence of attendance and completion of a course before payment will be made. Also, many who participate desire some confirmation of a satisfactory completion to justify their efforts. Certificates of achievement have been widely used to furnish this recognition, but the basis for granting them is not uniform. Consequently, they have only limited acceptance as a measurement of achievement.

The establishment of a "Continuing Education unit" in Texas as a basis for uniform recognition of achievement is a possible solution to the problem. Kenneth Razak, State Director of the Kansas Industrial Extension Service, has originated a "Continuing Education unit," a calculated number of which are awarded for the satisfactory completion of a particular course. The course is described with precision in the Razak system with consideration given to the length of the course, level of the subject matter, qualifications of the instructor, prerequisites and outside preparation required of the student, study material, student-teacher ratio, student cost and relative student performance. *(See Appendix F.)* "Continuing Education units" are definitely not convertible to academic credits. A transcript, however, for "Continuing Education units" is being kept for each participant of a Kansas Industrial Extension course.

Some effort is being made, Razak reports, to create a national "Continuing Education unit." Here the objective is to introduce some uniformity so that a man who, for example, is transferred about the country could continue to earn comparable units and have a transcript with some validity wherever he might be working.

The Planning Committee was in accord that a modified "Continuing Education unit" would be valuable for Texas Continuing Education in recognizing achievement, but wished the actual basis for determining the value of a unit to be decided after a separate study. Its use would not be confined to credit-free courses, but could be used for community service programs as well, where applicable.

The establishment of a "Continuing Education unit" might help in another area where problems have been encountered in this study, the reporting of Continuing Education statistics. A statewide system for reporting Continuing Education activities on a uniform and periodic basis is needed for the planning and evaluation of the state's program.

Community Service Programs

Because the Continuing Education activities are essentially inter-disciplinary, and since the Continuing Education organization has established rapport with the community through its credit courses and credit-free programs, this organization is in a strong position to perform its third major function, community service, in what currently is largely a coordinating role. Community service in a broad sense is the application of the resources of the university to activities that strive to better community living.

Under Title I of the Higher Education Act of 1965 the term "community service program" is defined as an educational program, act, or service designed to assist in the solution of community problems in rural, urban, or suburban areas. In practice, community service programs are largely urban oriented. It is important to note that the responsibility for solving community problems is not the university's, but the government's, be it local, state, or national; however, utilization of the institution of higher learning as a complement to other services is now a familiar pattern. The turning of government to the university for help in solution of military and outer space problems is by now accepted. In the case of the "community service program," the government is again turning to the unique competencies of the university and its faculty members, but this time it is to ask for help in solving inner-city and other community problems. If the university can help in opening lines of communication, in identifying the problems and in promoting understanding, a start has been made in arriving at solutions.

The Woods Survey of 1966 documented the deep involvement of many Texas universities and colleges in community service programs; to a lesser extent, junior colleges participated. Examples of the many activities reported have been summarized in Appendix G and include most of the types of community service in which higher education is currently engaged: supervisory and management development programs for public officials, technical and skill courses for public servants, attacks on environmental problems such as clean air and water, training of teachers and instructors of the disadvantaged, and special remedial and developmental programs for the illiterates, migrants and undereducated.

In the general area of opening lines of communications and promoting understanding, the Critical Issues television series of the University of Houston may be cited. This is a Title I project which is in its second year. A listing of its initial broadcasts is a poignant reminder of Houston's major community problems: Mass Transportation, Law Enforcement, Poverty, Racial Understanding, Juvenile Deliquency, Pollution and Urban Renewal.

In North Texas, the Joint University Center for Community Services has as the goal of its Seminars in Public Administration to improve the effectiveness of the public service of governments in that area. Faculties of both North Texas State and Texas Woman's Universities work closely with these programs.

Technical and skill courses bring the expertise of the faculties into the practical realm of police, firemen, water plant operators and other public servants. Those faculties also serve as catalysts to promote interchange of ideas and techniques among the participants. Texas A&M University, San Jacinto College, and Tarrant County Junior College are a few of the institutions reporting such programs.

Water Pollution in Perspective, Mobility and Mass Transportation, Solid Wastes in Urban Environments and Engineering the Control of Air Pollution are programs representative of the universities' concern and willingness to explore for solution to environmental problems created by accelerated urban growth.

Finally, people in the community have personal problems that need solving—the disadvantaged, the illiterates, the migrants and the 1.5 million adult Texans under age 50 who have not finished high school. The universities and colleges have teacher training and special program functions, but the junior colleges have the opportunity for tremendous service in these areas, especially the community colleges. Their close association adds realism and understanding to the problems of these neighbors.

Coordination of Continuing Education

Continuing Education today finds itself in somewhat the same position research was in a number of years ago. Research was being done, but it did not have a strong identity, institutional policy had not been clarified, and the responsibilities of the faculty and the financing were rather hazy.

Continuing Education lacks clear identity now at both the local level and, collectively, at the state level. A number of the institutions contacted had a statement of policy on Continuing Education. Where this has not been made, it is suggested as a starting point.

The committee approach adopted for this study has offered a direct benefit for the university, college and junior college representatives themselves. The meetings provided a unique opportunity for them to find out what each was doing in Continuing Education with regard to courses and programs, faculty, funding, use of newer media, and the other areas of common concern. That this interchange of experiences is valuable, especially in this period of growth, is the belief of the Planning Committee. If Continuing Education representatives were named for each institution of higher learning, periodic meetings would be facilitated. These eventually could lead to a more formal organization.

In considering the state-wide programs, the question of overlap and duplication arises. It was the consensus of the Planning Committee that the field is so broad and the opportunities are so great that there should be no limits imposed.

Dissemination of program information is a difficult problem; Continuing Education suffers from poor publicity. At present, mailouts by individual institutions to selected audiences and by professional or technical societies to their memberships are the most common methods. "WHAT GOES ON—in Texas Medicine and Dentistry" was a successful effort to compile program information for medical and dental personnel throughout the state (11,600 circulation), but it lost its private funding in 1968 and could not continue. It had established, however, the value of a directory with widespread coverage.

The periodical publication of a similar directory of all Continuing Education offerings throughout the state as a basic reference merits further study.

The individual adult should be helped to locate a specific activity to meet his needs, and the service should be available to business, industry, and professional groups, as well as to the individual for reference.

For Continuing Education to develop as an effective force state-wide, coordination and representation at the state level are highly desirable. To provide these functions, the appointment of a representative on the staff of the Coordinating Board appears warranted. His responsibilities would include,

- Conducting research and study on all facets of Continuing Education.
- Maintaining liaison between public and private universities, colleges and junior colleges, and their Continuing Education activities.
- Developing and recommending policy covering Continuing Education.
- Maintaining liaison with all pertinent state and federal agencies and suggesting ways and means of enlarging financial support for Continuing Education.
- Maintaining liaison with Continuing Education councils and committees of professional, technical, and trade associations.

To work with this staff member an Advisory Council is indicated. It would have broader scope than the present advisory group for Continuing Education, which is concerned primarily with Title I projects. Members of the Council should be concerned leaders from the professions, business, industry, labor, and the government—plus educational representatives. The Council would periodically review the efforts of the Texas College and University System in meeting the educational needs of the adult citizens and in serving the problem areas in the communities, identify major areas of future needs, and make suggestions regarding policy and programs for the Coordinating Board's consideration.

Finally, at the various levels of planning, local and regional, advisory committees have proved their value in relating programs to professional, business, and industrial needs and standards. Such cooperation and coordination between the university and the community should be encouraged to keep faculties aware of changes and trends and to insure that their Continuing Education programs continue relevant and timely.

Faculty and Staff for Continuing Education

Faculty excellence is undoubtedly the key to the success of Continuing Education. The mature adult demands quality and recognizes mediocrity. To this extent, quality control is no problem in Continuing Education; it is built-in. Whether the individual or a company is paying the tuition, the course or conference must be worth the time and the money. This is a part of the problem: how do you find a skilled and inspiring instructor of adults, knowledgeable in the latest technology of, say, oceanography, who is willing to stand before a "critical" group of mature students (often at a time that may be inconvenient for him)? Another part of the problem is the understandable competition with resident instruction and research for the best faculty.

Fortunately, the opportunity to teach mature audiences appeals to some faculty because of the feedback the contact provides with the progress taking place in business and industry. Further, instruction is enjoyable because the experienced students are more responsive, more communicative, and better able to relate the course material to personal experiences and to possible application in their work. Consequently, the problem reduces itself to compensation and questions of teaching load, advancement, and tenure. Ideally, those who instruct in Continuing Education, either full-time or in conjunction with resident instruction and research, should be evaluated and rewarded on a comparable basis with those involved in only resident instruction and research. This may involve the granting of extra compensation, but faculty participation in Continuing Education must be encouraged and made worthwhile.

For credit courses, the institution's own faculty is largely responsible for instruction, while in credit-free and community service activities somewhat more use is made of visiting faculty and key personnel from business and industry (as community faculty). This arrangement is effective and should continue to supply ancillary assistance to local faculty.

With limited faculty members available, conservation of their time is important. One possibility, in the case of those who are in the senior colleges and universities originating and also presenting programs, is to put general presentations in the hands of junior college faculty once the initial presentations have been made and the "course material" is available for larger distribution. Revisions, however, would still remain the prime responsibility of the originating faculty member.

The need for Continuing Education is not limited to the adult students; there is need to grow professionally on the part of the faculty members as well. Many, of course, are contributors to the new knowledge, but those who do not keep abreast of developments soon have decreasing effectiveness in resident instruction. Participating in Continuing Education programs brings the faculty in contact with new ideas, methods, and techniques from the practitioners and researchists of business and industry—a confrontation that can revitalize and make more meaningful the lecture material of academic courses, particularly at the graduate level.

In looking forward as far as 1985, a considerable growth in faculty and staff requirements is anticipated for the state. The provision for developing a Continuing Education professional group of well-qualified individuals to meet these requirements may well necessitate advanced degree programs with adequate resources for research.

Facilities for Continuing Education

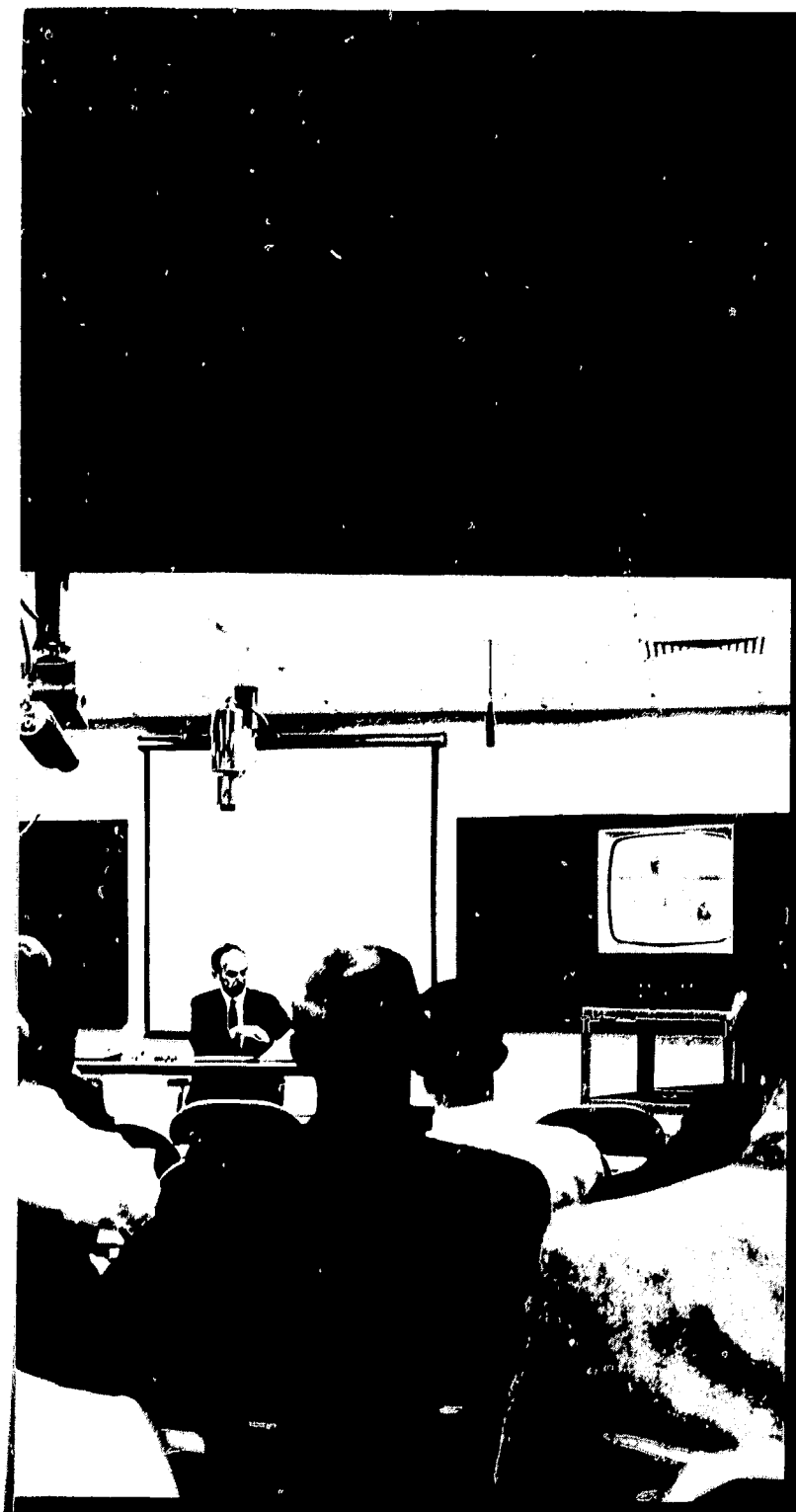
While adults normally use facilities designed for young people, Continuing Education organizations are working toward the goal of some facilities specifically designed for adult meetings. Requirements include reasonably comfortable chairs, good illumination (particularly of the chalk board and display area), good acoustics, room layouts that facilitate discussions, and effective arrangements for audio-visual equipment. Good design is needed for younger students, too; but for older people, whose sight and hearing may not be as sharp, who are more critical if unable to participate fully in the proceedings—these features become necessities. Also, there are ancillary considerations, such as more lobby space, coffee bars, and food and drink dispensers, which take into account the after-hour presentations and the need to relax at intervals during two, three, or four-hour sessions. Adequate parking, also, is essential.

From the preceding discussion it is a short step to the concept of a campus center specifically designed for Continuing Education—a concept embodied in the University of Minnesota Center for Continuation Study built in 1936, and in the centers built by the Kellogg Foundation, beginning with Michigan State University in 1951.[26] Not only are conference, auditorium and dining facilities included, but residential accommodations are available as well. Such centers have a remarkable record of serving successfully the Continuing Education needs of their areas.

Construction begins soon on the Center for Continuing Education (with residential accommodations) at the University of Houston, and the Joe C. Thompson Conference Center is being built at The University of Texas. An estimated 15,000 to 20,000 adults will meet to learn in the new Houston Center each year. Additional centers may be required for the larger programs, but the significant objective is that there be on each campus a focal point for the Continuing Education programs, a place that adults will recognize as being theirs.

In addition to special facilities, Continuing Education programs over the state will utilize classrooms and conference rooms at hours when they would otherwise stand idle, giving the taxpayer increased return for his educational dollar. This efficient use of the university and college plants also applies to laboratories, shops, and vocational/technical equipment.

In the case of some community service programs, an "inner city" location may be more feasible because of the convenience for the target groups and their familiarity with the environments.



Technological Aids to Instruction

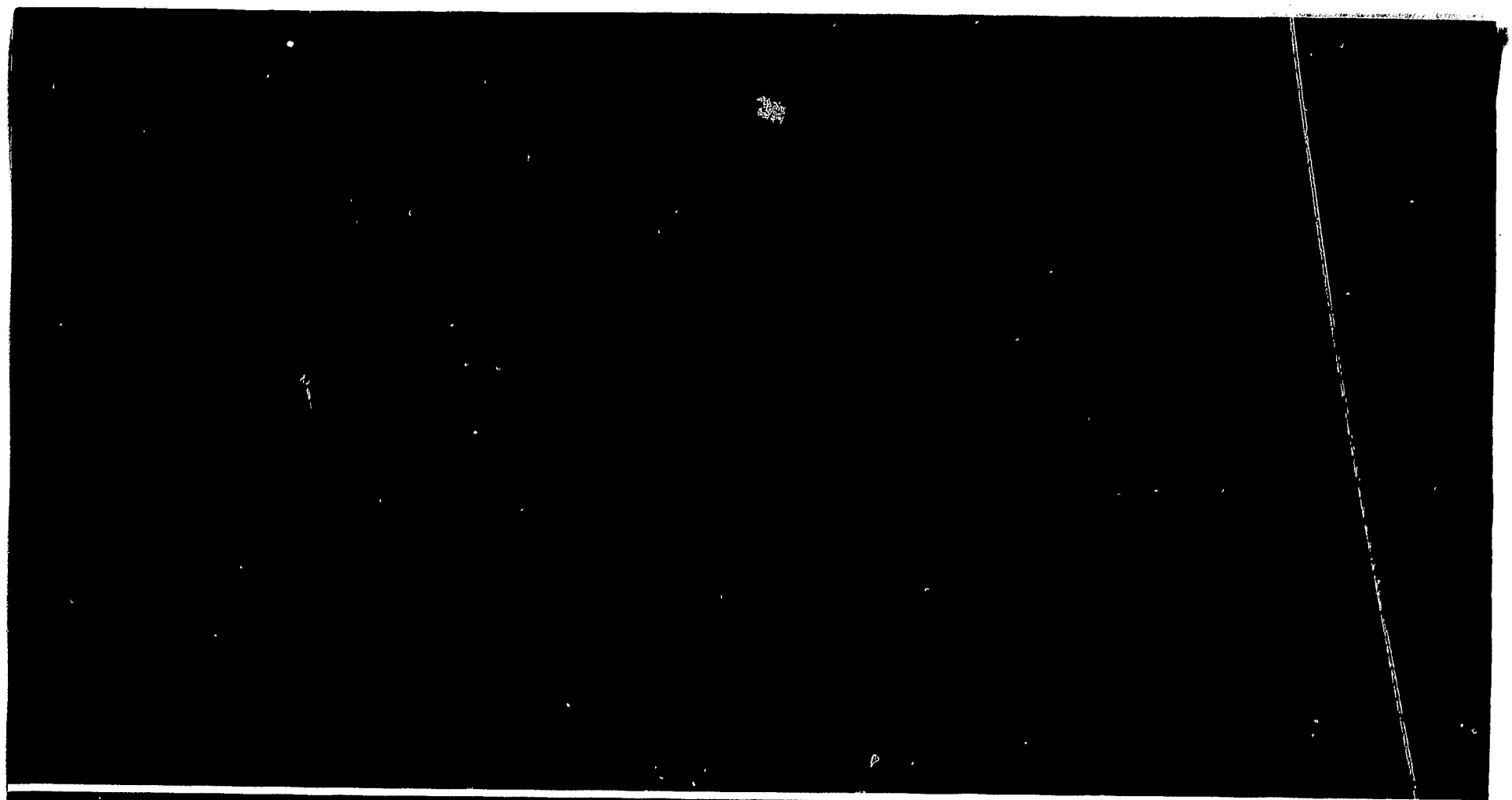
While the technological revolution is certainly creating problems for education, it is also contributing innovative solutions. Advances in communication and educational technologies offer Continuing Education unusual opportunities to conserve the time and amplify the outreach of its most valuable assets, the faculties of the universities, colleges, and junior colleges. Continuing Education organizations must give serious consideration as to how best to utilize these opportunities.

Already television courses, such as The Association for Graduate Education and Research (TAGER) program in both college and industrial locations of the Dallas-Fort Worth area, are becoming an accepted mode of advanced learning in metropolitan areas. On a regional basis, the new Western Information Network (WIN) will soon be in operation for West Texas colleges, junior colleges, and industrial locations, and the South East Texas Information Association Network (SETINA) has recently been approved. The first network for higher education was the Texas Educational Microwave Project centered at Austin *(Appendix D)*. As coverage of the state becomes more complete, the possibility arises of, say, a Continuing Education medical program beamed routinely to every physician in Texas at an established time. (Certainly a high caliber program production center would be required.) Teachers, policemen, parents, illiterates[27]—the mass medium of television furnishes Continuing Education with a means of reaching at work, at home, and at learning centers the adults who must become involved if Texas is to achieve the updating and upgrading required to keep the economy moving ahead.

With electronic interlinks established, Continuing Education programs can also take advantage of the remote access to computer facilities, libraries, and data storage and retrieval systems the networks will provide.

Self-instructional methods—computer-assisted instruction, programmed instruction, and various means of utilizing audio and video-tapes and films—should be included in future planning as more emphasis is placed on independent study. These methods, however, like television, must rely on the expertise of college faculties for the quality of the input.

Even though the potential is great for improving educational technology between now and 1985, with numerous applications envisioned for Continuing Education programs, it must be emphasized that there is no complete substitute for person-to-person contact. Consequently, while every advantage should be taken of the new technology in the adult learning process, such approaches must be regarded as complementary to the opportunities provided by Continuing Education activities on college and university campuses. Here men and women can meet with their counterparts in the business, professional, industrial and cultural communities to discuss with each other and to learn directly from faculty and guest instructors. This personal contact will always be the heart of true education.



Financing Continuing Education

Continuing Education has the public image of being self-supporting. Of necessity, this has largely been true of its credit-free programs, since no formula support is available from the state appropriations except for vocational courses and a number of special programs. In general, administrative and operating costs are borne by funded academic and extension sources and by outside contributions, with the direct instructional costs being met by fees. This is an unsound basis for growth. Credit courses in Continuing Education, on the other hand, are funded in the same manner as are the regular academic courses and do not represent an area of concern. As community service programs may qualify for federal funds under Title I of the Higher Education Act of 1965, they are in a somewhat different category. The needs and opportunities are much greater, however, and financing for them should be broader than the federal source.

Continuing Education has survived and grown under these restrictive financial arrangements because of the quality of the programs and the loyal support of trade associations, technical and professional societies, education-oriented companies, foundations and participants. The latter are, for the most part, of at least average income. This has meant that administrators and staffs not only have had to devote considerable time to soliciting financial support but also have been virtually restricted to offering those programs that would make expenses, ignoring more pressing problem areas and less affluent audiences. Furthermore, planning has of necessity been hand-to-mouth with regular scheduling impractical; and these uncertainties have hampered the effectiveness of able administrators. In this connection, it is well to emphasize that Continuing Education course costs usually are higher than those of most academic courses because Continuing Education courses are typically presented only one or two times. If presented oftener, extensive revision is normally required to keep them current with advanced concepts, particularly for scientific and technological subjects.

The time is overdue for Continuing Education to be recognized as an integral part of the college and university program with sustained state support for the administrative and operating costs of credit-free programs and of community service programs not supported by federal funds. Whenever possible, direct instructional costs, especially of credit-free programs, should be covered by the fees paid by the participant. Provision should be made, however, for state support of direct instructional costs as well for those credit-free and community service programs which involve students who could not reasonably be expected to pay their full share of these costs. This is a necessity if the most needful segment of the adult community is to be reached.

The education of young people has been accepted by citizens and Legislature as essential, but their potential contribution to the economy of Texas must be considered as a long-term investment. The education of adults, on the other hand, is no less vital, for it enables them to contribute to the state's economy almost immediately. The leverage of the education dollar is considerably greater in Continuing Education.

To provide a feasible method of financing, the Planning Committee proposes a formula similar to that now used for academic courses involving semester credit hours. The formula would utilize, however, the new "Continuing Education units" discussed under credit-free programs. Hopefully, these units would be acceptable both as a basis for formula financing and for achievement recognition. The creation of such a unit in no way implies any attempt to equate credit-free courses with academic courses, except for financing.

The "Continuing Education unit" would also be applicable in most cases for financing community service programs not supported by federal funds.

From the adult's financial standpoint there may be problems of paying tuition and fees just as there are for the regular undergraduate. Continuing Education organizations should see that scholarship and loan procedures recognize the adult needs as well as those of young people for financial assistance.

Recommendations

Based on the findings of this study and the consensus of the Planning Committee, the following recommendations are made to the Coordinating Board so that the long-range needs of adult Texans for Continuing Education can be met:

1. That Continuing Education for the Texas College and University System be defined as the organized educational programs for adults appropriate to, and under the control of, the university, college, or junior college.
2. That the Texas Legislature be requested to amend its mandate to the Coordinating Board so as to make it clearly responsible for Continuing Education in the Texas College and University System. The legislative mandate, written into the 1965 act which created the Coordinating Board, is given below with the suggested amendment:

   ". . . to establish in the field of public higher education in the State of Texas an agency to provide leadership and coordination for the Texas higher education system, institutions and governing boards, to the end that the State of Texas may achieve excellence for college education of its youth *and continuing education of its adults . . .*"
3. That three divisions of Continuing Education be recognized: namely, credit programs, credit-free programs, and community service programs.
4. That the probable evolvement of additional Continuing Education degree plans be recognized in the state and that their inclusion be provided for in the Continuing Education programs, upon application for and approval by the Coordinating Board.
5. That the vocational/technical education of adults be strengthened by emphasizing such education as a vital part of the Continuing Education programs, particularly in the junior colleges.
6. That firm guide lines be established regarding the vocational/technical education program to insure that it remains an integral part of the Continuing Education activities of the junior colleges and is not de-emphasized for the benefit of the academic programs.
7. That a "Continuing Education unit" be established to serve as a uniform means of recognizing and recording achievement in credit-free and community service programs, the actual basis for determining the value of the unit to be decided by further study. Creation of such a unit would not be an attempt to

equate any credit-free program with an academic program. "Continuing Education units" would definitely not be convertible to credit.

8. That communities be encouraged to take full advantage of Continuing Education's unique interdisciplinary role to help identify, understand, and solve community problems.

9. That the strategic local position of junior colleges be utilized for community service by strengthening programs in these institutions, e.g., remedial and developmental education for those who lack qualifications for college work or skill training. Also, bilingual and literacy programs might well be justified as community service projects, though not normally considered "appropriate" as college courses.

10. That each institution be encouraged to write out its policy for Continuing Education, including community service.

11. That each institution be requested to name a representative for its Continuing Education activities, if someone does not have this responsibility at present.

12. That the coordination of university, college, and junior college programs be encouraged through at least one annual meeting of representatives of Continuing Education from Texas institutions for the purpose of discussing their successes (and failures) and probing for solutions to common problems.

13. That Texas be kept constantly aware of Continuing Education activities and, through providing "directory service," make it easy for adults to locate the specific activities available that will meet their needs. This service should be available to business, industry, professional groups, etc., as well as to the individual citizen.

14. That a reporting system be initiated to develop and maintain on a periodic basis statewide data on the Continuing Education activities for use in planning and evaluation.

15. That an Assistant Commissioner for Higher Continuing Education be appointed to the Coordinating Board Staff.

16. That an Advisory Council for Higher Continuing Education be appointed. Members of the Council should be leaders from professional, business, industrial, agricultural and other endeavors, plus limited governmental representation. The Council would continually review the efforts of the Texas College and University System to meet the educational needs of the state's adult population and would make suggestions regarding policy for the Coordinating Board's consideration.

17. That local professional/business/industry advisory committees be encouraged to work closely with faculty and staff in the planning of Continuing Education programs. It is imperative that such activities are relevant to professional/business/industry needs, and that the standards meet professional/business/industry entry and reentry requirements.

18. That participation of regular faculty members in Continuing Education activities be encouraged through evaluating and rewarding them on a comparable basis with those involved in full-time resident instruction and research.

19. That the growth of a professional group of adult educators be encouraged through the provision of opportunities and funds for advanced study and research.

20. That, in planning for adequate facilities for Continuing Education activities, recognition be given to the particular requirements of adults. While centers for Continuing Education may be required for the larger programs, the significant goal should be the establishment of a focal point in each institution for educational activities that adults recognize as being theirs.

21. That the institutions capitalize on the potential benefits to the Continuing Education programs offered by advances in communication and educational technologies, and that this technological development and application be encouraged in adult activities, both institutional and regional.

22. That the Legislature be requested to undertake measures to supplement the financing of credit-free programs in Texas universities, colleges, and junior colleges, both public and private. This support could be offered by means of an approved formula system similar to that involving semester-credit hours but utilizing the "Continuing Education units." Whenever possible, the direct instructional costs of credit-free programs should be covered with the fees paid by the participants.

23. That the Legislature also be requested to undertake measures to supplement the financing of community service programs in Texas universities, colleges, and junior colleges, both public and private, when federal funds are not available or are inadequate. The proposed formula system for credit-free financing could be used.

24. That scholarships and loan procedures recognize adult needs as well as those of young people for financial assistance.

References Cited

1. John R. Stockton, "The Economic Potential of Texas," **Texas Business Review**, XLI, No. 5 (May 1967).

2. "Technological Innovation: Its Environment and Management," US Department of Commerce (Washington: Government Printing Office, 1967) p. 4.

3. "Manpower Patterns through 1966 in 8-County Houston-Gulf Coast Area," Texas Employment Commission (Austin, 1962) p. 4.

4. "Metro Dallas Manpower Outlook to 1975," Dallas Chamber of Commerce (1965), p. 3.

5. "Metro Fort Worth Manpower Outlook to 1975," Fort Worth Chamber of Commerce (1965), p. 3.

6. "San Antonio Manpower Profile," Texas Employment Commission (Austin, 1968), p. 3.

7. J. E. Burkett and Paul G. Ruggiers, eds., **Bachelor of Liberal Studies: Development of a Curriculum at the University of Oklahoma**, Thurman White, "Introduction." (Center of the Study of Liberal Education for Adults at Boston University), p. ix.

8. Stanley J. Drazek, Nicholas P. Mitchell, Hugh G. Pyle, and Willard L. Thompson, eds., **Expanding Horizons . . . Continuing Education,** National University Extension Association (Washington, 1965), p. vii.

9. "Metro Dallas Manpower Outlook to 1975," Dallas Chamber of Commerce (1965).

10. "Metro Fort Worth Manpower Outlook to 1975," Fort Worth Chamber of Commerce (1965).

11. "Manpower Patterns Through 1966 in 8-County Houston-Gulf Coast Area," Texas Employment Commission (Austin, 1962).

12. "San Antonio Manpower Profile," Texas Employment Commission (Austin, 1968).

13. "Goals of Engineering Education—The Preliminary Report," American Society for Engineering Education (Washington, 1965), p. 44.

14. Robert L. Whiting and J. E. Kastrop, "The Engineers' Viewpoint," **Petroleum Engineering** (November 1967), p. 53.

15. "Continuing Engineering Studies Series: Monograph No. 2," American Society for Engineering Education (Washington, 1968), p. 72.

16. Statistic from Dr. Grant Taylor, personal interview.

17. A. A. Liveright and David L. Mosconi, "Continuing Education in Institutions of Higher Education" (Initial chapters of report by Academy for Educational Development, Inc. not finally published).

18. "We Shall Not Rest . . . Report on Occupational Education in the South," **Proceedings** of the Southern Association of Colleges and Schools, XIX, No. 8, (May 1967), p. 13.

19. "Texas Almanac and State Industrial Guide 1968-1969," Dallas Morning News (1967), p. 344.

20. "Manpower Patterns through 1966 in 8-County Houston-Gulf Coast Area," (Austin, 1962), p. 6.

21. **Houston Chronicle**, Part I (March 28, 1969), p. 24.

22. "Key Stocks for Retirement," **Standard and Poor's Corporation Stock Reports**, Vol. 35 (1968).

23. Renee and William Petersen, **University Adult Education** (New York, 1960), p. 31.

24. Alvin C. Eurich, ed., **Campus 1980** (New York, 1968), p. 160.

25. Compiled by The University of Texas, Graduate School of Biomedical Sciences at Houston, Division of Continuing Education.

26. Harold J. Alford, **Continuing Education in Action** (New York, 1968), p. 21.

27. R. R. Schenkkan and John W. Meaney, "The Knowledge Network," A Report to the Coordinating Board, Texas College and University System, on the Feasibility of a State Educational Communications System in Texas (Austin, 1967).

Selected Bibliography

"An Advisory Report on Engineering Education in Texas," Council of Engineering Deans and Their Industrial Counterparts, 1968.

Alford, Harold J. **Continuing Education in Action.** New York: McGraw-Hill Publications Economics Department, 1968.

Bell, Daniel, and others. "Toward the Year 2000: Work in Progress," **Daedalus,** Journal of the American Academy of Arts and Sciences (Summer 1967).

Bradford, John R. Talk to Annual Board of Directors Meeting, Southwest Center for Advanced Studies, Dallas, Texas, October 25, 1967.

Bruce, Grady B. "The Future Texas Economy: An Overview," **Texas Business Review,** XL, No. 5 (May 1966).

Burkett, J. E. and Paul G. Ruggiers, eds., **Bachelor of Liberal Studies: Development of a Curriculum at the University of Oklahoma.** Center for the Study of Liberal Education for Adults at Boston University, 1965.

Calhoun, John C., Jr. "The Possibilities in Engineering Extension," Paper for Seventy-Second Annual Meeting of the American Association of Land-Grant Colleges and State Universities, Washington, D.C., November 1958.

"The Challenge and the Chance," Report of the Governor's Committee on Public School Education, Austin, 1968.

"Challenge for Excellence, A Blueprint for Progress in Higher Education," Coordinating Board, Texas College and University System, Austin, 1969.

"College and University Extension: A Statement of Role, Purpose and Function with Guidelines for Member Institutions," National University Extension Association Miami Conference Draft, June 15, 1968.

College-Level Examination Program: Description and Uses, 1968. College Entrance Examination Board. New York.

"Continuing Education Programs and Services for Women," U.S. Department of Labor, No. 10, Washington, Government Printing Office, 1968.

Continuing Education Report. University of Chicago, Nos. 1-18, 1965-1969.

"Continuing Engineering Studies: A Report of the Joint Advisory Committee," Engineers Council for Professional Development, New York, 1965.

"Continuing Engineering Studies Series: Monograph No. 1," American Society for Engineering Education, Washington, 1967.

"Continuing Engineering Studies Series: Monograph No. 2," American Society for Engineering Education, Washington, 1968.

"Continuing Engineering Studies Series: Monograph No. 3," American Society for Engineering Education, Washington, 1969.

Drazek, Stanley J., Nicholas P. Mitchell, Hugh G. Pyle, and Willard L. Thompson, eds. **Expanding Horizons . . . Continuing Education,** National University Extension Association Washington: North Washington Press, 1965.

Dickinson, Gary. "The Learning Abilities of Adults," **Training in Business and Industry,** VI, No. 5, (May, 1969) 54-76.

Edgar, Arlen, R. E. Eddy, and B. H. Caudle. "A Reservoir Engineering Continuing Education Course for the Permian Basin Section," SPE 1806, Paper presented at Society of Petroleum Engineers of AIME, Fall Meeting in Houston, Texas, October 1-4, 1967.

Education in Industry: A Study by Joint ECAC-RWI Feedback Committee, American Society for Engineering Education, Washington, 1968.

Eurich, Alvin C., ed. **Campus 1980.** New York: Delacorte Press, 1968.

"Goals of Engineering Education—The Preliminary Report," American Society for Engineering Education, Washington, 1965.

"Houston 1990," Houston City Planning Commission, 1968.

Johnstone, John W. C. and Ramon J. Rivera. **Volunteers for Learning.** Chicago: Aldine Publishing Company, 1965.

Landis, Fred. "Continuing Education—Who Really Needs It?" Paper at ASEE Annual Spring Meeting, Gulf-Southwest Section, Houston, Texas, March 20, 1969.

Landrum, H. M. "A Feasibility Study for the Establishment of a Community Junior

College System for the Greater Houston Area," Houston, 1968.

Liveright, A. A. and David L. Mosconi, "Continuing Education in Institutions of Higher Education" (Initial chapters of report by Academy for Educational Development, Inc., not finally published).

Liveright, A. A. **A Study of Adult Education in the United States**, Center for the Study of Liberal Education for Adults at Boston University, 1968.

"Manpower Patterns through 1966 in 8-County Houston-Gulf Coast Area," Texas Employment Commission, Austin, 1962.

McIlahon, Ernest E., Robert H. Coates, and Alan B. Knox. "Common Concerns: The Position of the Adult Education Association of the U.S.A.," **Adult Education Journal,** XVII (1968), 197-213.

"Metro Dallas Manpower Outlook to 1975," Dallas Chamber of Commerce, 1965.

"Metro Fort Worth Manpower Outlook to 1975," Fort Worth Chamber of Commerce, 1965.

Miller, Paul. "Reaction to Statement of Role, Purpose, and Function of University Extension," Speech at 53rd Annual Meeting, National University Extension Association, Miami Beach, Florida, July 22, 1968.

Nicholson, Robert A. "A Study of Continuing Education Needs of Selected Professional Groups and University Extension Contract Programs in Wyoming." Unpublished Doctor's thesis, Wyoming University, Laramie, 1966.

Peterson, Renee and William. **University Adult Education.** New York: Harper & Brothers, Publishers, 1960.

Ryan, Robert H., Grady D. Bruce, John R. Stockton, Stanley A. Arbingast. "Texas 90: An Economic Profile of Texas to 1990," Bureau of Business Research, The University of Texas at Austin, n.d.

"San Antonio Manpower Profile," Texas Employment Commission, Austin, 1968.

Schenkkan, R. R. and John W. Meaney. "The Knowledge Network," A Report to Coordinating Board, Texas College and University System, on the Feasibility of a State Educational Communication System in Texas, Austin, 1967.

Stockton, John R. "The Economic Potential of Texas," **Texas Business Review,** XLI, No. 5 (May 1967).

"A Study of the College and University Level Continuing Education Needs for the Dallas Metropolitan Area," Dallas Chamber of Commerce, Spring 1967.

"A Survey of Policies and Practices in Various Evening Colleges and Divisions of Colleges and Universities in the United States," Report sponsored by the Research Committee of Association of University Evening Colleges, 1968-69.

"Technological Innovation: Its Environment and Management," U.S. Department of Commerce, Washington, Government Printing Office, 1967.

"Texas Population Projections to 1990," Report for Coordinating Board, Texas College and University System, Bureau of Business Research, The University of Texas at Austin, 1967.

"Texas Almanac and State Industrial Guide, 1968-1969," Dallas Morning News, 1967.

Van Hise, Charles R. "The University Extension Function in the Modern University," Speech for First National University Extension Conference, Madison, Wisconsin, March 10, 1915.

Verner, Coolie and Alan Booth, **Adult Education.** New York: The Center for Applied Research in Education, Inc., 1964.

"We Shall Not Rest . . . Report on Occupational Education in the South," **Proceedings** of the Southern Association of Colleges and Schools, XIX, No. 8 (May 1967).

White, Thurman J. "The Future of American Adult Education," **The Tennessee Survey,** III. No. 6 (February 1968), 1-11.

Whiting, Robert L. and J. E. Kastrop. "The Engineers' Viewpoint," **Petroleum Engineering** (November 1967), 50-60.

Williams, Jack K. "The Challenge of Enforced Coordination," **College and University Journal,** VI, No. 4 (Fall 1967), 52-55.

Appendixes

A. Table 1. Population, Personal Income, and Total Value Added by Manufacture, Texas and the United States 1900-1965, with Projections to 1990.

   Table 2. Value Added by Manufacture in Production of Chemicals, Aircraft and Other Transportation Equipment, and Electronic and Electric Machinery, Texas and the United States 1950-1963, with Projections to 1990.

B. Comparative Manpower Requirements for Dallas, Fort Worth, Houston, and San Antonio.

C. The Master of Liberal Arts Degree Program, School of Continuing Education, Southern Methodist University.

D. Information Networks for Higher Education in Texas.

E. Summary of Responses from the Continuing Education Poll, Permian Basin Section, Society of Petroleum Engineers of AIME.

F. Determination of Continuing Education Units, Kansas Industrial Extension Service.

G. Examples of Community Service Programs, Texas College and University System, Woods Survey of 1966.

Appendix A

TABLE 1

POPULATION, PERSONAL INCOME, AND TOTAL VALUE ADDED BY MANUFACTURE TEXAS AND THE UNITED STATES, 1900-1965, WITH PROJECTIONS TO 1990

Year	Total population (thousand of persons)		Total personal income (millions of constant 1957-1959 dollars*)		Total value added by manufacture (millions of constant 1957-1959 dollars†)	
	Texas	United States	Texas	United States	Texas	United States
1900	3,049	76,212	.....	.....	.....	.....
1910	3,897	92,228	.....	.....	.....	.....
1920	4,663	106,022	.....	.....	.....	.....
1930	5,825	123,203	.....	.....	.....	.....
1940	6,415	132,165	5,689	161,410	.....	.....
1950	7,711	151,326	12,516	270,767	2,737	108,262
1955	.....	.....	15,486	331,417	5,070♦	142,252♦
1960	9,580	179,323	17,990	386,737	5,742	161,898
1963	.....	.....	.....	.....	6,764	189,072
1965	.....	.....	22,521	480,337	7,805	225,365
1970	12,134	208,996	28,296	588,661	10,731	270,753
1975	13,501	225,870	35,551	721,413	14,813	354,649
1980	14,927	245,313	44,667	884,103	20,643	467,144
1985	16,412	266,322	56,120	1,083,482	28,959	618,748
1990	17,957	288,219	70,510	1,327,825	40,932	824,207

* Original data deflated for price changes as indicated by the Consumer Price Index (All Items), U. S. Bureau of Labor Statistics.

† Original data deflated for price changes as indicated by the Index of Wholesale Prices of All Commodities except Farm and Foods, U. S. Bureau of Labor Statistics.

♦ Data for 1958.

Sources: U. S. Bureau of the Census (data on population, 1900-1960, and data on value added by manufacture, 1950-1965); Office of Business Economics, U. S. Department of Commerce (data on personal income, 1940-1965).

TABLE 2

VALUE ADDED BY MANUFACTURE IN THE PRODUCTION OF CHEMICALS, TRANSPORTATION EQUIPMENT, AND ELECTRICAL MACHINERY TEXAS AND THE UNITED STATES, 1950-1963, WITH PROJECTIONS TO 1990

(Thousands of constant 1957-1959 dollars*)

Year	Chemicals and related products		Transportation equipment		Electrical machinery	
	Texas	United States	Texas	United States	Texas	United States
1950	545,714	8,270,421	221,337	10,309,804	16,917	6,869,278
1955	996,643	11,529,394	458,932	18,474,957	.....	9,481,121
1958	1,050,627	12,224,288	611,370	15,361,514	93,832	10,374,620
1960	1,340,662	14,351,330	538,156	18,190,884	194,283	12,896,383
1963	1,728,674	18,261,825	611,337	22,517,300	254,417	17,464,748
1965	2,021,127	20,689,955	685,886	27,726,911	301,540	20,079,043
1970	2,987,409	28,268,187	914,491	33,113,455	461,147	28,457,368
1975	4,415,661	38,622,143	1,219,290	43,615,304	705,237	40,331,693
1980	6,526,747	52,768,504	1,625,678	57,447,789	1,078,526	57,160,783
1985	9,647,125	72,095,336	2,167,515	75,667,212	1,649,400	81,012,100
1990	14,259,326	98,503,487	2,889,945	99,664,879	2,522,444	114,815,790

* Original data deflated for price changes as indicated by the Index of Wholesale Prices of Chemicals and Allied Products (for chemicals); and the Wholesale Price Index for All Commodities except Farm and Foods (for transportation equipment); and the Index of Wholesale Prices for Electrical Machinery and Equipment (for electrical machinery). U. S. Bureau of Labor Statistics.

Source: U.S. Bureau of the Census (1950-1963 and U.S. 1965 data).

Tables from "Texas 90"

Appendix B

COMPARATIVE MANPOWER REQUIREMENTS FOR DALLAS, FORT WORTH, HOUSTON, AND SAN ANTONIO

TABLE 1. TOTAL EMPLOYMENT

OCCUPATION	CITIES AND DATES							
	Dallas		Fort Worth		Houston		San Antonio	
	1965	1975	1965	1975	1962	1966	1968	1975
Professional	47,558	71,650	19,983	30,731	57,865	71,515	23,170	30,960
Semiprofessional and Technical	20,711	32,758	8,628	12,548	15,930	20,995	7,810	11,375
Managerial	54,028	69,757	18,972	24,124	63,780	68,705	15,390	17,735
Clerical	119,612	158,594	56,058	77,567	102,020	120,725	49,105	60,645
Sales	39,748	53,767	24,650	30,115	44,575	55,965	19,960	27,905
Service	51,098	67,144	28,978	40,464	64,170	74,405	30,275	41,895
Skilled	70,614	112,143	43,603	61,340	109,190	129,535	37,440	48,045
Semiskilled	51,800	93,441	25,126	35,995	80,835	94,990	26,770	33,355
Unskilled	33,315	46,293	14,393	16,548	56,585	65,215	24,430	31,130
Totals	488,484	705,547	240,391	329,432	594,950	702,050	234,350	303,045

TABLE 2. JOBS TO FILL VS. JOB SEEKERS

OCCUPATION	CITIES AND DATES			
	Houston 1962-1966		San Antonio 1968-1975	
	Demand	Supply	Demand	Supply
Professional	21,290	20,345	13,785	6,670
Semiprofessional and Technical	6,270	7,610	5,080	8,465
Managerial	11,430	10,935	5,455	290
Clerical	38,535	38,315	26,830	57,700
Sales	17,645	17,130	13,040	14,355
Service	20,830	20,410	20,420	9,340
Skilled	28,215	15,105	16,015	5,770
Semi-skilled	20,150	17,960	11,205	9,575
Unskilled	12,655	14,615	10,915	9,195
Total	177,020	162,425	122,745	121,360

Sources of Data:

"Manpower Patterns through 1966 in 8-County Houston-Gulf Coast Area," Texas Employment Commission (Austin, 1962).
"Metro Dallas Manpower Outlook to 1975," Dallas Chamber of Commerce (1965).
"Metro Fort Worth Manpower Outlook to 1975," Fort Worth Chamber of Commerce (1965).
"San Antonio Manpower Profile," Texas Employment Commission (Austin, 1968).

Appendix C

THE MASTER OF LIBERAL ARTS DEGREE PROGRAM
SCHOOL OF CONTINUING EDUCATION
SOUTHERN METHODIST UNIVERSITY

THE MASTER OF LIBERAL ARTS DEGREE PROGRAM

THE NEW CONCEPT

Under traditional concepts, continuing education has primarily been directed to men and women who wish to acquire greater skills in their chosen profession or to those who wish to train themselves to enter a new profession. While this concept has been important to an expanding professional and technological world, it has not served to satisfy the needs of a growing number of college-trained men and women who wish to extend their cultural scope.

Beginning in September, Southern Methodist University introduces a special type of graduate program. It leads to the degree of Master of Liberal Arts (M.L.A.). The significance of the program is that it will meet the needs of many college-trained persons in the community—doctors, lawyers, dentists, business executives, ministers, engineers, teachers and attorneys, among others—who desire to widen their educational experience into fields that may have been denied them during their earlier training as they attained their professional skills.

WHAT THE PROGRAM IS

The program provides the equivalent of one year of graduate study and enables adults to acquire deeper insight and more perceptive understanding of man's cultural heritage through study of the social, political and scientific aspects of contemporary society.

The curriculum is both broad and diversified, with major emphasis on the study of ideas. The degree is planned for those whose undergraduate majors were in professional areas as well as for liberal-arts majors. For those with advanced professional degrees, it provides an opportunity for new intellectual enrichment.

The courses for this degree are to be taught on the SMU campus in the evenings. The degree is conferred by Southern Methodist University through its School of Continuing Education.

REQUIREMENTS FOR THE DEGREE

The Master of Liberal Arts degree requires the equivalent of one full year of graduate study (30 credits), taken on a part-time basis, usually not more than two courses (six credits) per semester. The degree requirements should be completed within five years.

The student may choose any of the courses offered, since no sequence of studies or areas of concentration is necessary. Great emphasis will be given to independent study.

Neither a thesis nor knowledge of a foreign language is required.

SYSTEM OF GRADING

Honors, for those students who excel;

Pass, for those who do acceptable work;

Incomplete, for those whose work does not successfully complete all the requirements of the course by the close of the semester; and,

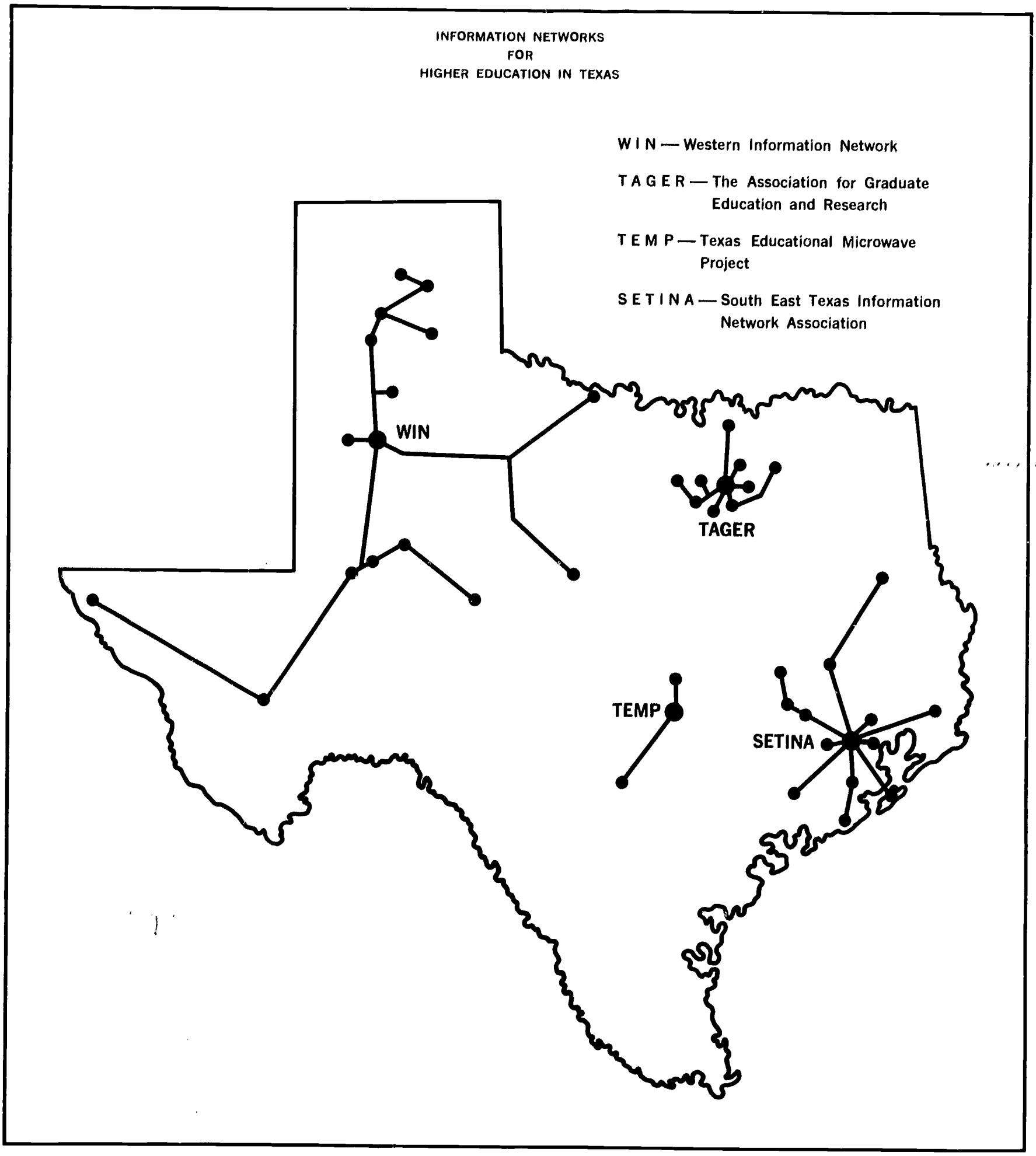
W (or "withdrawal"), for all others.

ELIGIBILITY FOR ADMISSION

The Master of Liberal Arts degree program is open to all persons holding a bachelor's degree (or higher professional degree) from an accredited college or university. Limited graduate credits (up to six) may be considered by the committee toward satisfying the requirements of the M.L.A. degree when such credits have not been used in attaining a previous degree.

Those wishing to enroll must file an Application for Admission and submit and official transcript from the school which awarded the degree. Applications, obtained in the office of the Dean of the School of Continuing Education, should be filed in advance prior to entrance for the first semester into the School of Continuing Education and, after the fall of 1968, by all former students in the M.L.A. program who were not registered or who did not complete the immediately preceding semester.

Appendix D


INFORMATION NETWORKS
FOR
HIGHER EDUCATION IN TEXAS
WIN — Western Information Network
TAGER — The Association for Graduate Education and Research
TEMP — Texas Educational Microwave Project
SETINA — South East Texas Information Network Association
WIN
TAGER
TEMP
SETINA

Appendix E

SUMMARY OF RESPONSES FROM THE CONTINUING EDUCATION POLL*

PERMIAN BASIN SECTION

SOCIETY OF PETROLEUM ENGINEERS OF AIME

MARCH 1966

	Yes	No
1. a. Should the Section offer a continuing education program?	233	8
b. Would you participate if the program was in your field of interest?	225	15

2. The program should offer the following topics:

a. Reservoir Engineering: 1st choice 73. 2nd choice 23. 3rd choice 18.	Total	114
b. Secondary Recovery: 1st choice 27. 2nd choice 18. 3rd choice 9.	Total	54
c. Mathematics: 1st choice 16. 2nd choice 10. 3rd choice 6.	Total	32

	Votes by Choice				
	1st	2nd	3rd	4th	5th
3. The offered course should be:					
a. Taught by college instructor for graduate credit	95	47	12	36	4
b. Taught by college instructor but not for graduate credit	47	52	41	19	0
c. A series of lectures by local experts	43	45	43	24	1
d. A series of lectures by local experts based on SPE literature	41	43	34	32	1
e. Other	3	0	2	3	1
4. The offered course should include:					
a. About 20 hours of instruction time	87	31	50	1	
b. About 40 hours of instruction time	71	88	6	0	
c. About 60 hours of instruction time	52	21	66	0	
d. Other	8	0	2	2	
5. The best time to hold the course would be:					
a. All day Saturday	6	7	89	11	
b. Saturday morning	27	106	8	0	
c. One night per week for 3 hours	182	21	9	0	
d. Other	11	9	4	1	
6. The cost of the offered course should be:					
a. $20 per person	85	17	9	5	2
b. $40 per person	82	49	5	2	1
c. $75 to $100 per person	35	13	42	0	0
d. $100 to $150 per person	3	5	4	44	0
e. $150 to $200 per person	3	0	2	1	45

	Yes	No
7. Are you interested in teaching a course?	11	230

730 Questionnaires Mailed 241 Replies Received

* Arlen L. Edgar, R. E. Eddy, and B. H. Caudle, "A Reservoir Engineering Continuing Education Course for the Permian Basin Section," SPE 1806, Table 1, Paper presented at Society of Petroleum Engineers of AIME, Fall Meeting in Houston, Texas, Oct. 1-4, 1967.

Appendix F

Kansas Industrial Extension Service

Continuing Education Units Worksheet

Class _____ Location _____

Instructor _____ Dates _____

Factors and Computation Procedures	Units Assigned
1. Course length Clock hours _____; Number of meetings _____; Clock hours per meeting _____; K factor (from graph on reverse) _____. Continuing Education Units = K x Clock hours	
2. Level of subject matter Graduate, 10 units; College, 8 units; Post high school, 6 units; High school, 4 units	_____
3. Qualification of instructor	
a. Work experience 0-5 years, 4 units; 6-10 years, 6 units; more than 10 years, 8 units	_____
b. Teaching experience None, 0 units; 1-3 years, 2 units; More than 3 years, 5 units	_____
c. Academic preparation Non-degree, 0 units; Bachelors degree, 3 units; Graduate, 5 units	_____
4. Outside preparation required of student Much (1 hr/class hour), 10 units; Some (less than 1 hr/class hour), 5 units; None, 0 units	_____
5. Prerequisite required of student None, 0 units; General, 3 units; Specific, 6 units	_____
6. Study material (outline, syllabus, text, study guide provided). Yes, 3 units; No, 0 units	_____
7. Student/teacher ratio 1 to 10, 6 units; 10 to 20, 4 units; More than 20, 2 units	_____
8. Student cost None, 0 units; Less than $1/hr, 2 units; More than $1/hr, 4 units	_____
Quality Factors (add 2 through 8)	_____
Quality Coefficient = _____ (see table on reverse)	_____
Total Continuing Education Units (Q x 1)*	

*See class record for student performance units which are to be added to this total.

_____ (Date)

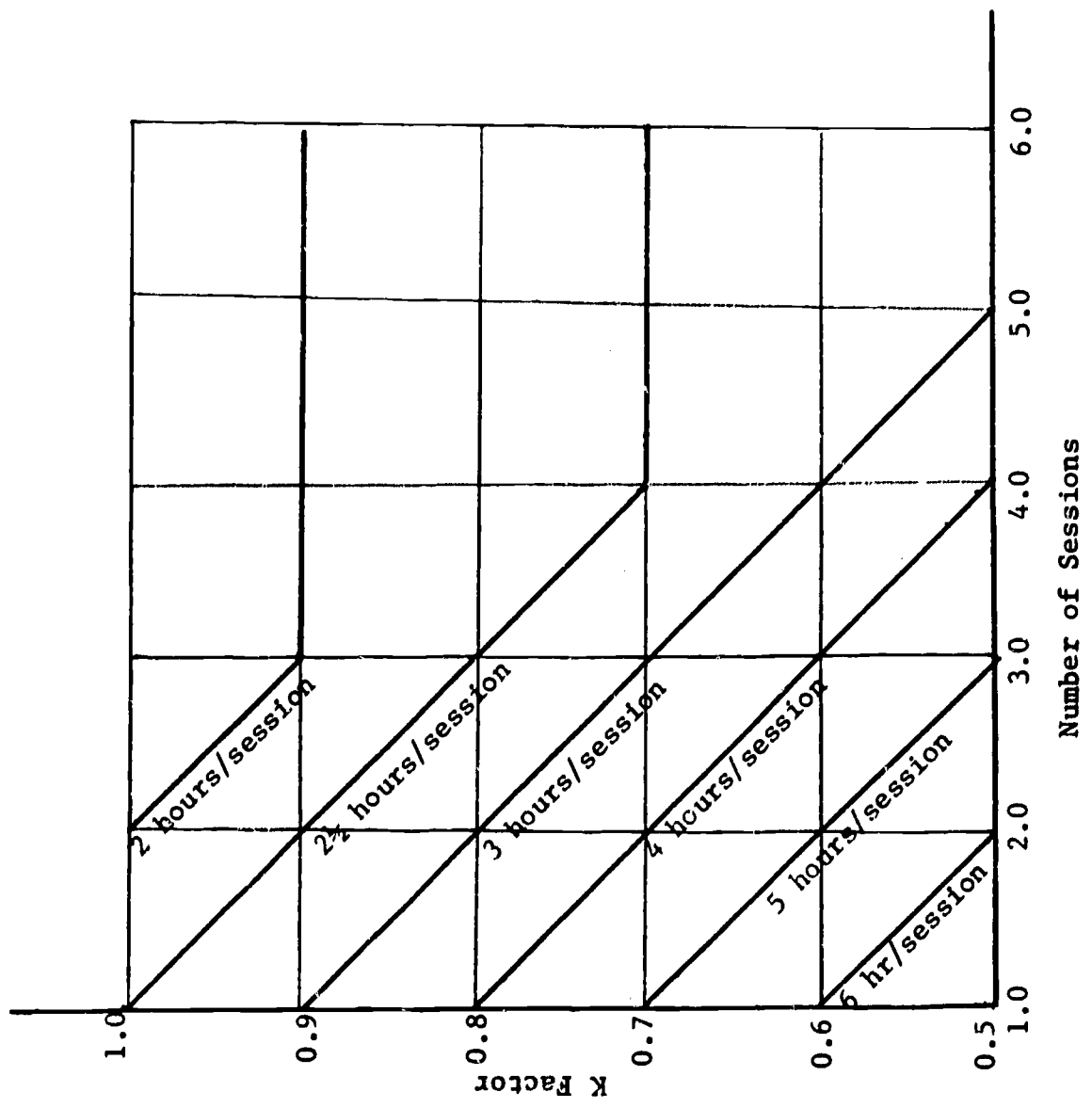
_____ Kenneth Razak, Director

Evaluation of Continuing Education Course
(Effect of Length of Session)

Multiply total class clock hours by factor determined from this graph. Factor is 1.0 for all session lengths of less than 2 hours.

Example: Class meets 3 hours per session, 2 nights per week for 2 weeks. Factor = 0.6. Continuing Education Units = (0.6)(3)(4) = 7.2 (round off to nearest whole number) = 7.

Table for Determining Q Coefficient	
Quality Factors	Q
11 - 25	1
26 - 42	2
43 - 51	3
52 - 57	4



Kansas Industrial Extension Service

Office of State Director
125 Seaton Hall
KANSAS STATE UNIVERSITY
Manhattan, Kansas 66502

MEMO

TO: All Students of KIES Classes

SUBJECT: Determination of Continuing Education Units

Continuing Education Units are awarded to all persons who complete any course, workshop, conference, seminar, or other educational program sponsored by the Kansas Industrial Extension Service. The following is a tabulation of the factors which are considered in determining the number of Continuing Education Units assigned to each activity:

1. Length of Course
   a. Number of hours
   b. Hours per session
2. Level of Subject Matter
   a. Graduate
   b. College, post high school
   c. High school
3. Qualification of Instructor
   a. Working experience
   b. Teaching experience
   c. Academic preparation
4. Outside Preparation Required of Student
5. Prerequisite Required of Student
   a. None
   b. General
   c. Specific
6. Study Materials (outline, syllabus, textbook, study guides)
7. Student-Teacher Ratio
8. Student Cost
9. Relative Student Performance

Continuing Education Units are a measure of the value of a continuing education activity and are not to be interpreted as a rating or "grade." They are not transferrable or convertible to high school or college credits.

Additional details concerning these units, including the method of assigning, can be secured from the Director, Kansas Industrial Extension Service, 125 Seaton Hall, Kansas State University, Manhattan, Kansas 66502.

Appendix G

EXAMPLES OF COMMUNITY SERVICE PROGRAMS
TEXAS COLLEGE AND UNIVERSITY SYSTEM
WOODS SURVEY OF 1966

Seminar for Public Administrators—Joint University Center for Community Service (North Texas State University and Texas Woman's University)

Institute for Teachers of Disadvantaged Children—East Texas State University

School Lunchroom Workshop—Lamar State College of Technology

School Board Workshop—Midwestern University

Summer Workshop for Teachers of Migrant Children—Pan American College

Interagency Workshop of Institutes of Contemporary Corrections and Behavioral Sciences—Sam Houston State College

Fireman Training—Texas A & M University

Water Utilities Operator Training—Texas A & M University

Traffic Engineering Short Course—Texas A & M University

Municipal Electric Short School—Texas A & M University

Intergovernmental Workshop Conference—Texas Christian University

Head Start Teacher Training Program—Texas Southern University

Civil Defense Seminars—Texas Technological College

Public Administration Seminars—Texas Technological College

Southwest Park and Recreation Training Institute—Texas Technological College

Training Program for Careers in Public Service—Texas Technological College

Advanced Counseling Seminar: Texas Employment Commission—University of Houston

Crime Prevention Program—University of Houston

Houston Police Academy—University of Houston

Water Pollution in Perspective—An Executive Workshop—University of Houston

County Auditors Institute—The University of Texas at Austin

Executive Seminars for the Texas Employment Commission—The University of Texas at Austin

Southwestern Homicide Investigators Seminar—The University of Texas at Austin

Migratory Teacher Training Program—The University of Texas at Austin

Urban Affairs Conference—The University of Texas at Arlington

Public and Police Administration—The University of Texas at El Paso

Southwest Academy for Law Enforcement—Howard County Junior College

Workshop for Managers—Department of the Army—San Antonio College

Fireman Administration—San Jacinto College

Government Employees Management—Supervisory Training—Amarillo College

Firefighting Technology—Tarrant County Junior College