

PARTICIPATIVE MOTIVATIONAL FACTORS  
IN OKLAHOMA'S TECHNOLOGY  
EXTENSION PROGRAMS

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IN OKLAHOMA'S TECHNOLOGY  
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TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION. . . . .	1
Statement of the Problem . . . . .	2
Need for the Study . . . . .	3
Purpose of the Study . . . . .	3
Research Questions . . . . .	4
Assumptions. . . . .	4
Limitations. . . . .	5
Definition of Terms. . . . .	5
II. REVIEW OF LITERATURE. . . . .	8
Results of Previous Research . . . . .	10
Methodology of Previous Research . . . . .	18
Summary. . . . .	19
III. METHODOLOGY . . . . .	21
Selection of the Subjects. . . . .	21
Development of the Instrument. . . . .	22
Collection of the Data . . . . .	22
Analysis of the Data . . . . .	23
IV. RESULTS OF THE STUDY. . . . .	25
Introduction . . . . .	25
Background . . . . .	25
Data Summary . . . . .	29
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS . . . . .	72
Summary. . . . .	72
Conclusions. . . . .	76
Recommendations. . . . .	86

Chapter	Page
SELECTED BIBLIOGRAPHY. . . . .	88
APPENDIX A - QUESTIONNAIRE FOR ADULT EDUCATIONAL PROGRAM . . . . .	91
APPENDIX B - NORTH-HATT PRESTIGE SCALE . . . . .	98
APPENDIX C - COMPUTER CARD COLUMN RESERVATION. . . . .	107
APPENDIX D - RAW DATA. . . . .	109
APPENDIX E - OCCUPATION BY PROGRAM . . . . .	126

## LIST OF TABLES

Table	Page
I. Importance of Objectives in Getting Additional Education or Training Among 4,400 Technical Professionals. . . . .	12
II. Subject Breakdown. . . . .	27
III. Respondents by Credit/Non-Credit Programs. . . . .	28
IV. Respondents by Technical/Non-Technical Programs. . . . .	28
V. Respondents by Credit/Technical Level of Program . . . . .	28
VI. Type of Course Enrolled in by Marital Status . . . . .	33
VII. Type of Course Enrolled in by Sex. . . . .	34
VIII. Type of Course Enrolled in by Age. . . . .	35
IX. Type of Course Enrolled in by Years in Present Occupation . . . . .	36
X. Type of Course Enrolled in by Employment Status. . . . .	37
XI. Type of Course Enrolled in by Race . . . . .	38
XII. Type of Course Enrolled in by Size of Organization . . . . .	39
XIII. Type of Course Enrolled in by Where Job Training Was Received . . . . .	40
XIV. Results of Chi Square Test of Type of Course by Demographic Factors Effecting Attendance . . . . .	41
XV. Type of Course Enrolled in by Reasons. . . . .	43
XVI. Results of Chi Square Test of Reason for Attending by Type of Class. . . . .	44
XVII. Type of Course by Reason with the Most Influence on Attendance . . . . .	45
XVIII. Results of Chi Square Test of Type of Course by Reason With the Most Influence on Attendance. . . . .	46

Table	Page
XIX. Type of Course by Reason with Second Most Influence. . .	47
XX. Results of Chi Square Test of Type of Course by Reason with Second Most Influence . . . . .	48
XXI. Type of Course by Reason with Least Influence. . . . .	50
XXII. Results of Chi Square Test of Type of Course by Reason with the Least Influence . . . . .	51
XXIII. Comparison of Social Status to Reason for Enrolling. . .	53
XXIV. Results of Chi Square Test of Reason for Attending by Social Status. . . . .	54
XXV. Comparison of Years Formal Education to Reason for Attending. . . . .	55
XXVI. Results of Chi Square Test of Reason for Attending by Years of Formal Education. . . . .	56
XXVII. Comparison of Yearly Income to Reason for Attending. . .	57
XXVIII. Results of Chi Square Test of Reason for Attending by Yearly Income. . . . .	58
XXIX. Results of Chi Square Test of Type of Course to Social Characteristics . . . . .	58
XXX. Type of Course Enrolled in by Yearly Income. . . . .	60
XXXI. Type of Course Enrolled in by Years of Formal Education.	61
XXXII. Type of Course Enrolled in by Social Status. . . . .	62
XXXIII. Comparison of Yearly Income to Percent of Expenses Paid.	63
XXXIV. Comparison of Yearly Income to Who Paid Expenses . . . .	64
XXXV. Comparison of Yearly Income to Pay for Time in Courses .	65
XXXVI. Comparison of Yearly Income to Distance Traveled to the Course . . . . .	66
XXXVII. Results of Chi Square Test of Yearly Income by Limiting Factors. . . . .	67
XXXVIII. Prediction Results of Non-Credit Course Participants . .	69
XXXIX. Prediction Results of Credit Course Participants . . . .	71



Table	Page
XL. Educational Level of Oklahoma's Engineering Technicians and Respondents. . . . .	78
XLI. Age of Oklahoma's Engineering Technicians and Respondents. . . . .	78
XLII. Yearly Income of Oklahoma's Engineering Technicians and Respondents. . . . .	79
XLIII. Race of Oklahoma's Engineering Technicians and Respondents. . . . .	79
XLIV. Sex of Oklahoma's Engineering Technicians and Respondents. . . . .	80

## CHAPTER I

### INTRODUCTION

With the rapid technological advances of the last few decades, the level of existing educational programs has been upgraded and new programs have been created to keep pace with the need for highly trained workers. Technical institutes, junior colleges, and universities have initiated and expanded programs to prepare workers for the semi-professional, engineering technician positions created by this country's ever-changing technology.

During the working years of semi-professional employees, a high degree of competence must be maintained to withstand the damaging affects of time. The technician, therefore, must constantly renew his knowledge. Not only must he retain the knowledge acquired during the period of his formal education, he also must keep updated constantly on the new knowledge being added daily through research.

In order to prevent obsolescence over a period of time due to the high rate of increasing knowledge, educational institutions are offering continuing education programs designed to keep trained technicians abreast of technological advancements. Instructional programs also are being offered to upgrade technical workers who are unable to return to traditional programs for the advanced training necessary to compete in today's technological society.

Individuals responsible for the identification, development, and implementation of continuing education programs for engineering technicians should base their program planning on information gained from studies of adult motivation and participation in other programs. Careful review of such studies will provide adult educators with the knowledge and insight necessary for developing programs with appeal for engineering technicians.

#### Statement of the Problem

As the adult educator responsible for the development of continuing education programs for engineering technicians begins reviewing studies about motivations which lead people to participate in voluntary educational programs, two facts become readily apparent. One is that there are many volumes of literature reporting on studies related to motivational factors influencing participation in continuing education programs. The other fact, which the technical adult educator must face, is that almost all of the research has been made on programs for teachers, professionals, vocational training, or general education and basic education programs.

The adult educator responsible for continuing education programs for engineering technicians will find few, if any, studies related to motivational factors for those in programs for semi-professional personnel. Thus, the adult educator is faced with the responsibility of implementing programs for preparing or updating the semi-professional based upon information obtained from the study of programs for non-professionals and/or professionals.

The problem which this study deals with is the lack of sufficient information to guide adult educators in the implementation of continuing education programs for engineering technicians.

#### Need for the Study

One of the most difficult problems facing adult educators in their attempts to implement continuing education programs for engineering technicians is that of participant motivation. The semi-professional must be highly motivated in order to maintain an adequate level of competence throughout his career. While the motivation for participating in continuing education programs must come from personal initiative, employer encouragement, and other sources; it is incumbent upon the adult educator to be aware of the motivational factors which tend to effect the degree of participation in continuing education programs. Information available about motivational factors which influence participation of continuing education programs for engineering technicians is sadly lacking.

#### Purpose of the Study

The task for adult educators is not to concentrate on sales techniques, but rather to develop a comprehensive curriculum which is based on research and which meets the needs of the participants.

The purpose of this study was to identify motivational factors which influence participation in continuing education programs for engineering technicians.

## Research Questions

Even the highest quality (in terms of content) continuing education program is of no value if participation is low or nonexistent because of poor program planning. Many factors other than content influence the degree of participation in continuing education programs. While much information exists regarding participation in programs for non-professionals and professionals, little is known about factors which influence participation in programs for semi-professional personnel.

The purpose of this study was to identify motivational factors which influence participation in continuing education programs for engineering technicians. It was expected that the desired information would be obtained by collecting data to answer the following questions:

- 1) What are the demographic factors which influence attendance in continuing education programs designed for engineering technicians?
- 2) What are the reasons given by the participants for attending?
- 3) How are participants in continuing education programs designed for engineering technicians grouped when compared by social status, level of income, and level of education?
- 4) What are the limiting factors which influence attendance in continuing education programs?

## Assumptions

The design of this study was based on the following assumptions:

- 1) The participants of adult education programs for engineering technicians offered by Oklahoma State University are

representative of participants of similar programs offered by other institutions.

- 2) The participants of adult education programs for engineering technicians during 1976 are representative of individuals who will be participating in similar programs in the next five years.
- 3) The participants surveyed in this study gave accurate responses to questions in the instrument.

#### Limitations

- 1) This study may not be applicable to colleges or other schools in other regions of the United States with differences in perceived values of education by administrators or by local residents.
- 2) While the adult education programs within this study met in urban and rural communities, Oklahoma State University is located in a rural community. Therefore, this study may not be applicable to colleges or universities located in urban areas with the majority of adult education programs being conducted on-campus.

#### Definition of Terms

Adult Education Director--The person responsible for the development, planning, scheduling, and implementation of adult education programs. The Adult Education Director must develop programs based on the needs and interest of his clientele. The ability of his

institution to deliver appropriate faculty, facilities, and equipment must be selected and the program offered at a time and place convenient to the intended participants.

Adult Education Participant--Any person voluntarily enrolled in and attending an adult education program.

Adult Education Program--An educational program designed for and offered to persons not enrolled in a formal educational curriculum. These programs are offered to allow participants the opportunity to continue their education and include courses for collegiate credit as well as non-credit courses.

Continuing Education Program--An adult educational program which has the same meaning except the participants of continuing education programs are expected to have a significant level of education and the programs are designed to build upon the educational competences already possessed.

Engineer--A person employed in an occupation which requires competence in math, science, and engineering principles normally associated with a minimum educational level of a baccalaureate degree.

Engineering Technician--A person employed in an occupation which requires competence in math, science, and engineering principles normally associated with the educational level of an associate degree or two years of post-high school specialized training.

Non-Professional--A term used in this study to describe occupations or programs which require no specialized training beyond that of general education.

Professional--Used to describe occupations or programs which require specialized training at or beyond the baccalaureate degree.

Semi-Professional--Used to describe occupations or programs which require post-high school specialized training beyond that of general education, but less than the four years required of the professional occupations or programs.



## CHAPTER II

### REVIEW OF LITERATURE

#### Identification of the Need

Peter Drucker (1) has pointed out that one of the greatest challenges confronting all organizations is that of dynamic change. The effects of such change can be a threat not only to the organization's effectiveness but also to its very survival. One of the more visible changes is the specialized knowledge level of the employees needed to keep up with the rapid advancements made in our technology. According to National Science Foundation (2) figures, the number of engineers and scientists almost doubled between 1950 and 1960 and by 1970 engineers, scientists, and mathematicians numbered almost 1.7 million in the American work force (3).

Oklahoma Employment Security Commission (4) statistics show that almost 13,860 engineers were employed in Oklahoma in 1976 and that there will be a 23 percent increase between 1970 and 1980. The number of engineering technicians employed in 1976 was 11,140 with a growth between 1970 and 1980 of 35.7 percent. These statistics show that Oklahoma is faced with the same changes in work force as is the rest of the nation. The number of engineering technicians employed in Oklahoma is approximately the same as the number of engineers, but the growth rate of technicians is larger than that of the engineering profession.

A rapidly changing technology is one of the highly visible changes creating this demand for engineers and technicians. Technological change is also one of the major contributors to technical obsolescence. According to Shumaker (5), obsolescence is defined as a reduction in technical effectiveness resulting from a lack of knowledge of the new techniques and of entirely new technologies that have developed since the acquisition of an individual's education. A measure of obsolescence often used is "half-life", a term taken from nuclear physics. The "half-life" of a technical person's competence is the point in time which his competence is roughly one half of what it was at graduation. Lukasiewicz (6) estimated that the "half-life" of an engineer who graduated in 1940 was 12 years while the "half-life" of today's engineering graduate is five years.

The concern of companies over technical obsolescence is indicated by the estimation that by the mid 1960's, industry had spent \$17 billion for educational activities (7).

In a paper presented to the National University Extension Association, Dubin (8) referred to motivation as being one of the toughest problems in combating professional obsolescence and that the motivational process at the adult and professional level is a major undeveloped area and one which continuing education should explore. Berry (9) defined motivation as a drive which causes a person to seek or accomplish an objective or to seek satisfaction of a need. When a person enters a job-related educational situation, he has a predetermined motivational state which has a pre-established and limited motivational force. Boshier (10) concluded that the

reasons for non-participation and dropout do not reside exclusively with the participant. The responsibility for matching participants and educational environments rests with administrators organizing educational experiences for adults. Educators need to be aware of formal and informal environmental aspects and to modify procedures and methods that are inappropriate and create incongruence for certain groups.

Alan Knox (11) found that adult participation is broadly distributed throughout the adult population with most adults participating for reasons primarily related to occupation. Knox believes it is important for each educational institution to do a clientele analysis in order to identify the target group.

#### Results of Previous Research

The purpose of this study was to identify motivational factors which influence participation in continuing education programs for engineering technicians. Achievement of this purpose was accomplished by answering the following questions:

- 1) What are the demographic factors which influence attendance in continuing education programs designed for engineering technicians?
- 2) What are the reasons given by the participants for attending?
- 3) How are participants in continuing education programs designed for engineering technicians grouped when compared by social status, level of income, and level of education?
- 4) What are the limiting factors which influence attendance in continuing education programs?

A review of the literature was made in order to report results and conclusions of previous research which was related to each of the four questions. A report is given on the results of previous research as related to each question attempted by this study.

#### Demographic Factors Effecting Attendance

Johnstone and Rivera (12) conducted a very detailed study on adult motivation and participation in education programs. They concluded that the average adult participant is about 36 years old, younger than the general population, and could be either male or female. The participant is better educated than the average adult and most likely a white collar worker. Otherwise, there was no personal characteristics which set the adult student apart from the general population. Knox (11) found that adult participation is broadly distributed throughout the adult population. Anderson and York (13) compared characteristics of students taking extramural classes in 1960 with those taking extramural classes in 1971. They found that a larger percentage of urban students and female students was reported in 1971 than in 1960. The annual mean salary of students in 1971 was \$11,526; approximately, double that of students in 1960. Simon's (14) study of students enrolled in extramural courses offered by Louisiana State University revealed that the majority of the students were between the ages of 26 and 45 and that most of them had a degree. According to Dalton and Thompson (15), it is primarily the younger professionals who enroll in graduate level courses and not those who have been out of school for many years. Older professionals prefer in-hours or non-credit courses which do not involve grades or examinations.

Reasons given for Participation

Johnstone and Rivera (12) found that the major reasons for attending adult education programs were for the practical rather than the academic; on the applied rather than the theoretical; and on skills rather than on knowledge. Rench (16), making a survey of 4,400 technical professionals, found that the most important objective in taking courses was to keep from becoming obsolete and to prepare for increased responsibility, as presented in Table I.

TABLE I  
IMPORTANCE OF OBJECTIVES IN GETTING  
ADDITIONAL EDUCATION OR TRAINING  
AMONG 4,400 TECHNICAL  
PROFESSIONALS

Objective	Percent Who Said of Utmost Importance
To keep from becoming obsolete	64.3
To prepare myself for increased responsibility	62.8
To perform my present assignment better	44.8
To remedy deficiencies in my initial training	38.8
To obtain an advanced degree	34.2
To enable me to become an authority in my field of specialty	34.1
Because my manager expects his people to take additional course work	6.6

Simon's (14) study of students enrolled in the extramural teaching program at Louisiana State University found that the majority of the students participating in continuing education were goal oriented. Salary increases and promotions seemed to be the prime motives for participation. It was also pointed out that these were not the only motives. As age increases, persons tend to be motivated more by desire for knowledge, a new experience, and the social aspect of participating in educational programs. Anderson and York's (13) survey found that in 1971 extramural students at Illinois University were more inclined to take courses for (1) advancement and (2) to improve performance, and less inclined to take courses (1) to become better citizens, (2) for personal satisfaction, (3) for advanced degrees, or (4) for teachers certificates than were the 1960 students.

In spite of the fact that there is a large number of people employed as engineering technicians and the growth rate of these semi-professionals is rapid, and the fact that most of the research agrees that the occupational adult education programs are the most popular, almost all research on motivation and participant characteristics has been on professional and non-professional participants. The literature available does give some characteristics of the engineering technician as a college student. Van Hall (17) gave this description of the technical student:

The technical student is work oriented, pragmatic, has an unquenchable sense of curiosity, and comes to school with clearly established career goals. The technical student will show a strong aptitude in the mathematical, scientific, and mechanical areas, but will show little interest in English and social studies. The technical student's scores on standardized intelligence tests may

not be a good indication of his true potential as a student, since these tests are largely verbal based. Finally, the technical student does not possess a deep social consciousness concerning what some students consider the great issues of the day. Club activities which are directly related to the technical student's curriculum are the only ones in which he is likely to show an interest.

A research study conducted by Hoyt (18) designed to study students attending post-high school trade, technical, and business schools revealed that the specialty-oriented student was one whose motivations toward educational achievement are built largely around a desire to acquire a specific occupational skill or set of skills. Courses designed to broaden his potential for avocational living have little or no appeal to this student. He may be described as expressing relatively more interest in being "trained" than in being "educated".

Whitfield (19) investigated the student's reasons for attending trade, technical, and business schools and found that the most popular reason was the curriculum and facilities. Phillips (20) found in a study of the personal and social background characteristics of entering technician education students that 91 - 99 percent of the post-high school technician students at four institutions responded that they were either "interested" or "very interested" in the occupation for which they were training.

How are the Participants Grouped When  
Compared by Social Status, Level  
of Income, and Level of  
Education?

Booth (21) established that the proportion of participants over non-participants in all forms of adult education rises as such

indicators of socioeconomic level as occupation, income, and education rise. Booth's ratio of participants to non-participants in adult education by occupation revealed that the ratio of professional and technical attending was 0.309 compared to the next highest ratio of 0.130 for clerical sales and was far ahead of the 0.042 ratio for labors. Dickinson (22) found that while previous education levels did not solely account for participation, it was the most powerful single explanatory factor.

London (23) pointed out that there is a direct relationship between social class and education. Formal education plays a crucial role as the "certifying and selecting agency of our manpower agencies" and to study the participation in adult education without reference to the concept of social class and, in particular, to the role of education is to ignore important dimensions of the impact of existing life conditions upon the behavior of our adult population.

The effects of previous formal education on participation in adult education has been documented by many studies, but none so authoritatively as in Johnstone's and Rivera's (12) national survey, which showed the annual rate of participation was six percent among those with only a grade school education, 20 percent for those who had completed high school and 38 percent for those who had been to college. The Johnstone and Rivera study on the influence of socioeconomic factors revealed that, in general, the lower classes place less emphasis on the importance of higher educational attainment and that the average lower-class person is interested in education in terms of how useful and practical it can be to him.



Although education is widely recognized as an appropriate channel for social mobility, the average lower-class person is less ready than the average middle-class person to engage in continuing education even if tangible economic rewards are at stake.

According to Knox (24), the interests of the middle-class man are dominated by his career. In his twenties, dominant concerns are clarifying his self-concept and focusing his life largely through his career. In his thirties, a primary concern is in collecting his energies for a major drive towards his highest career goal. It is during this period that the rate of participation in adult education is highest, with much emphasis on education in anticipation of assumption of more major responsibility.

What are the Limiting Factors Influencing  
Attendance of Continuing Education  
Programs?

Johnstone and Rivera (12) found that seven out of ten people have an interest that could lead to participation in adult education programs. However, less than one half of these can be seriously regarded as potential students. There are many factors that influence participation in adult education programs besides course content and participant motivation. Johnstone and Rivera found that there is a marked difference in the way people find out about adult education programs. People with the highest amount of formal education have the greatest knowledge of available facilities. Influence for taking courses and knowledge of available courses are greatly dominated by

interpersonal contacts. Accessibility seems to increase participation only for those who were already disposed towards taking the course.

Simon (14) found that the participants in an extramural teaching program at Louisiana State University sometimes drove several miles to class, but that the majority of the students drove less than fifteen miles round trip. He concluded that convenience seemed to be a factor in attendance.

Another factor to be considered when studying participation in adult education programs is the cost of the program to the participant. According to Kaufman (25), to help professionals stay abreast of the latest developments in their field, most organizations provide partial or full reimbursement for university-sponsored courses taken on a part-time basis, and many also provide released time from work to attend class. A significant number of organizations provide leaves to do full-time resident graduate work. Most frequently the leaves are without pay, but some organizations do provide for partial or even full pay while the professional is engaged in study. Regardless of the type incentive provided, most organizations require that the courses be work-related to qualify for support.

A study by Ulmer and Verner (26) stressed the need for identifying causes of discontinuance and finding ways to alter the dropout rate. This study identified some factors affecting persistence and discontinuance. They concluded that marital status, type of diploma, distance traveled, age, course load, and successful prior completion of a course have no significant influence on persistence. Veteran status and fewer number of class meetings per week increased persistence while female status decreased persistence.

### Methodology of Previous Research

In 1971 the Carnegie Commission (27) pointed out that much greater attention would be given to the education of adults during the decade of the seventies. As a result of the trends in adult education, the Oklahoma State Regents for Higher Education (28) in 1976 made the following statement regarding extension and public service programs:

Even though the traditional pool of college-age students (18 - 24) will decline by 20 percent during the 1980's, there will be a substantial increase in the 25 - 34 year old segment of the population, creating a pool of nontraditional students considerably larger than any other time in history. This population bulge occurs simultaneously with the need for adults to continue their formal learning in order to remain current in the labor market and to participate as citizens. These trends in combination are expected to produce a boom period in adult and continuing education unlike anything which has yet taken place in higher education.

The increased attention given to adult education has created a continuing increase in the motivations which lead people to participate in voluntary educational programs and a substantial amount of research dealing with the question. Most of the research has been completely empirical. The studies have gathered data from one group of participants and studied whatever seemed appropriate for that group of participants. There are many examples of these empirical studies such as Simon's (14) study of extramural students at Louisiana State University; Anderson's (13) study of extramural students at Illinois State University; Dowling's (29) study of adult education participants in Wisconsin; Davis' (30) study of Great Books participants, which exhibits careful sampling techniques, the development of some

ingenious measuring devices, and a series of interpretations vitally connected to recent sociological theory.

A widely quoted study on adult motivation and participation in education programs was done by Johnstone and Rivera (12) as a National Opinion Research Center's general inquiry into the nature of adult education in America. The methods used to collect the data included: a national survey of the educational activities of the adult population based on a survey of the activities of members of 12,000 American households; an intensive study of the reactions of adults to continuing education based on the personal interviews of 1,800 randomly selected adults and 1,000 recent adult education participants; case studies of adult education facilities in four middle-sized American cities (field interviews were conducted with 550 adults); and an inquiry into the post-school educational experiences of youth, based on personal interviews with a national sample of 700 young adults. Parameter control in this study was limited to partial random sampling. After the data was collected and the percentages calculated as to how participants responded, these percentages were used to predict national trends in adult education in America.

#### Summary

The review of available literature indicates that there is a concern in our society about the affect of our rapidly advancing technology on the obsolescence of the work force required to maintain the new innovative equipment developed. While most of the literature dealt with the obsolescence of professionals, the semi-

professional engineering technician is closely related to the engineer and is subject to the same problems created by a changing technology.

Much of the literature was concerned with the motivational factors which influence participants to seek out continuing education programs and characteristics of those that are motivated in hopes of assisting the adult educator in his task of developing programs which would increase participation. While the studies on participant motivational characteristics were primarily concerned with the general public and the professional engineer, there were some studies which gave some insight into the characteristics of engineering technicians attending school full time. No research was found which was orientated to the motivational factors and characteristics of participants in continuing education programs designed primarily for engineering technicians.

Almost all of the research encountered in this review used empirical data collected from specific samples to base their conclusions and recommendations. Little effort was made, outside of a few attempts at randomization, to control the variables.

Without a search for significant relationships, data collected in motivational studies is of little value in making tentative predictions about future trends in adult education participation and in developing plans for increased participation in desirable educational programs which will relieve the problems in obsolescence created in our technical workforce.

## CHAPTER III

### METHODOLOGY

The purpose of this study was to identify motivational factors which influence participation in continuing education programs designed for engineering technicians. To accomplish this purpose, it was necessary to identify a group of participants to be studied, design a test instrument to gather the needed information on participants and then to determine the correct statistical technique for analysis of the accumulated data obtained from the test instruments.

#### Selection of the Subjects

Subjects selected for this study were the participants of adult education programs designed for engineering technicians offered by Oklahoma State University's Technology Extension during the 1976 calender year. Only the programs which had voluntary participation were utilized. Programs under contract to individual industries which required attendance were omitted from this study. All of the programs selected for this study were designed for persons employed in technical positions requiring specialized training related to the major fields of engineering.

### Development of the Instrument

The questionnaire developed for this study was designed to collect data on the demographic factors influencing participation in adult education programs for engineering technicians. Questions were also designed to provide information on why participants attended programs and the limiting factors influencing attendance.

The instrument was designed to provide a questionnaire that could be completed quickly by checking appropriate blocks yet comprehensive enough to provide the information necessary for this study. The only question requiring a written answer was the question designed to obtain the respondent's occupation.

The questionnaire was pretested on a class enrolled in a non-credit short course and then modified to correct questions which appeared to be confusing to these participants. The final design of the instrument resulted in a questionnaire (Appendix A) which could be completed in less than five minutes, was self-explanatory, and resulted in the data vital to this study.

### Collection of the Data

The collection of the data for this study was accomplished by the instructor of the program from which the data was taken. Copies of the questionnaire were given to the instructor to be passed out to the subjects at a time which would be least disruptive to the class. Normally, this was just before a break or quitting time. No directions were given except those on the questionnaire. The questionnaires were taken up immediately after completion.

Since most people enroll in adult education programs with little or no counseling, some will find themselves in programs entirely unsuited to their needs and quickly drop out. For this reason, the questionnaires were not passed out until after the class had met a few times. Some of the programs lasted only four meetings and others lasted 16 meetings. Therefore, the questionnaires were given at various class meetings depending upon the nature of the program.

Many of the participants were known to be employed full time and to have family responsibilities. Therefore, attendance by the participants was not perfect. No attempt was made to collect data from subjects who were not present when the questionnaires were given nor was any attempt made to insure that all subjects present returned the questionnaire.

These procedures were followed in order to obtain results from as many participants as possible, with as little disruption to the class as possible, and without violating the rights to privacy of those not wishing to respond to the questionnaire.

#### Analysis of the Data

After the questionnaires were collected, the question concerning the participant's occupation was converted to numerical data in accordance to the North-Hatt Prestige Scale (Appendix B). The numerical scores ranged from 60 to 93 on this scale. The participants were then divided into three equal groups. The group with the lowest numerical scores were defined as being in the lower social class, the next group were defined as being in the middle social class, and the highest group were defined as being in the upper social class. The



data obtained from the questionnaires was tabulated on computer cards to aid in sorting and statistical analysis. For a complete description of the questionnaire items and the assigned card column number refer to Appendix C.

Responses to individual questions were grouped in order to present a more accurate description of the individuals participating and a clearer picture of the characteristics of the participants as a whole.

A computer analysis was then made utilizing the Statistical Package for the Social Sciences (SPSS) intergrated system of computer programs to determine the descriptive statistics, simple frequency distributions, cross-tabulations, and Chi Square tests. A level of significance of .05 was set for the results of the Chi Square tests. In addition, the SPSS subprogram "DISCRIMINANT" was used to calculate the effects of a collection of interval-level independent variables on nominal dependent variables. Linear combinations of independent variables were found that best distinguished between cases in the categories of the dependent variables.

The DISCRIMINANT function was used to calculate function coefficients for each variable. These coefficients gave both direction and weight to the respondents' variables as marked on the questionnaire. A centroid was also calculated for each group. Each individual's responses were then analyzed to determine to which centroid he was closest for predicting group membership. The predicted membership was then compared to actual group membership to determine predictive accuracy.

## CHAPTER IV

### RESULTS OF THE STUDY

#### Introduction

The purpose of this study was to identify motivational factors which influence participation in continuing education programs designed for engineering technicians. This chapter is devoted to presenting and analyzing the data collected in the study.

The chapter is divided into four major sections. The first section will review the background of collection procedures and return rates, the second section will present a summary of the data and the third section will outline the results of the data analysis. The fourth section is entitled "Discriminant Prediction" and is the results of a discriminant analysis of selected characteristics.

#### Background

The questionnaires for this study were distributed to the participants of 19 programs conducted by the Technology Extension Department of Oklahoma State University during the calendar year of 1976. These programs were made up of 11 non-credit short courses and eight courses for college credit. Both the credit and the non-credit programs consisted of courses which were technical in nature and were designed to apply directly to the participants' major field of occupation. Both credit and non-credit programs also had courses

which were non-technical in nature and were designed to broaden the participants' ability to function in their occupation.

As the questionnaires were distributed, the participants were informed that the study was being conducted to assist Technology Extension in providing programs more efficiently designed to meet the needs of participants in the technical programs. No detailed explanations of the questions were given and as little guidance was given for completion of the questionnaire as possible.

The questionnaires were distributed and collected in such a manner as to obtain results from as many participants as possible, and without violating the rights to privacy of those not wishing to respond to the questionnaire. The acceptance of the instrument by the participants and their willingness to cooperate was demonstrated by the fact that 385 of the 449 subjects completed and returned the questionnaire for a return rate of 91.9 percent. Table II presents a listing of all programs utilized, the number of subjects involved, the number of subjects who responded, and the relative frequency of respondents. Tables III - V demonstrate the frequency and relative frequency of respondents by type of program.

TABLE II  
SUBJECT BREAKDOWN

Program	Subjects	Respondents	Relative Frequency of Respondents
Auto Maintenance	20	17	4.4%
Geometric Dimensioning	20	17	4.4%
Electrical Motors	8	8	2.1%
Hydraulics	9	7	1.8%
National Electric Code	37	34	8.8%
Petroleum Industry	45	40	10.4%
Principles of Supervision	32	29	7.6%
Project Engineering	10	7	1.8%
Electronic Controls	12	9	2.3%
Welding	8	5	1.3%
Radiation Safety	10	8	2.1%
Advanced Electronics	20	16	4.2%
Basic Electronics	60	51	13.2%
Electronic Amplifiers	16	14	3.6%
Electronic Communications	36	34	8.8%
Aeronautical Technology	47	40	10.4%
Algebra and Trigonometry	17	13	3.4%
Construction	12	9	2.3%
Report Writing	30	27	7.0%
TOTAL	449	385	100%

TABLE III  
RESPONDENTS BY CREDIT/NON-CREDIT PROGRAMS

Type of Program	Respondents (N = 385)	
	<u>Frequency</u>	<u>Relative Frequency</u>
Credit	205	53.2%
Non-Credit	180	46.8%

TABLE IV  
RESPONDENTS BY TECHNICAL/NON-TECHNICAL PROGRAMS

Type of Program	Respondents (N = 385)	
	<u>Frequency</u>	<u>Relative Frequency</u>
Technical	255	66.2%
Non-Technical	130	33.8%

TABLE V  
RESPONDENTS BY CREDIT/TECHNICAL LEVEL OF PROGRAM

Type of Program	Respondents (N = 385)	
	<u>Frequency</u>	<u>Relative Frequency</u>
Non-Credit/Non-Technical	90	23.4%
Non-Credit/Technical	90	23.4%
Credit/Non-Technical	40	10.4%
Credit/Technical	165	42.8%

## Data Summary

A complete listing of responses to all questions by frequency and relative frequency is presented in Appendix D. Before analysis of the data began, some of the responses to individual questions were combined to present a more realistic view of the respondent's characteristics and to allow more meaningful analysis of factors influencing attendance of adult programs designed for engineering technicians.

After selective summarization of the data collected in the questions related to demographic factors, the following question responses provide the modified data as shown:

<u>Question 6</u>	<u>Frequency</u>	<u>Relative Frequency</u>
Size of Organization (Local)		
100 or less	92	23.896%
100 to 1000	156	40.519%
1000 and over	117	30.390%
<u>Question 8</u>	<u>Frequency</u>	<u>Relative Frequency</u>
Number of Years in Your Present Occupation		
5 or less	207	53.766%
5 to 10	68	17.662%
10 to 15	41	10.649%
15 to 20	31	8.052%
Over 20	35	9.091%
<u>Question 9</u>	<u>Frequency</u>	<u>Relative Frequency</u>
Yearly Income		
Less than \$5,000	50	12.987%
\$5,000 to \$6,999	70	18.182%
\$7,000 to \$9,999	88	22.857%
\$10,000 to \$14,999	95	24.675%
\$15,000 to \$19,999	43	11.169%
Over \$20,000	32	8.312%

<u>Question 10</u>	<u>Frequency</u>	<u>Relative Frequency</u>
Approximate Number of Years of Formal Education		
11 years or less	14	3.537%
12 years	148	38.442%
1 to 3 years of college	149	38.701%
4 years of college	49	12.727%
Over 4 years of college	23	5.974%

The responses to question 25 relating to reasons for attending were modified as follows:

Reasons Defined as Avocational

1. It applies to my hobby.
2. To do my own repair work at home.
3. Curious about the subject matter.

Reasons Defined as for Certification of Training

1. To earn college credit towards a degree.
2. To prepare for a certification or licensing examination.
3. To retain a certification or license.

Reasons Defined as for Job Advancement

1. To help get promoted.
2. To earn more money.
3. To prepare for a different job.
4. My employer asked me to enroll.

Reasons Defined as Job Enrichment

1. To keep updated on my job.
2. To get a deeper understanding of my job.
3. To get a broader understanding of my job.
4. To be able to do my job better.

Reasons Defined as Social and Other

1. It was the only course available and I wanted to enroll in something.
2. To get out of the house more.
3. My spouse asked me to enroll.
4. Other

After these combinations were made, the responses to the following questions were tabulated as follows:

<u>Question 26</u>	<u>Frequency</u>	<u>Relative Frequency</u>
Which of the Answers in Question 25 had the <u>Most</u> Influence on Your Decision to Enroll in the Course?		
Avocational	39	7.129%
Certification	133	34.545%
Job Advancement	54	14.026%
Job Enrichment	105	27.273%
Social and Other	10	2.597%

<u>Question 27</u>	<u>Frequency</u>	<u>Relative Frequency</u>
Which of the Answers in Question 25 had the <u>Second Most</u> Influence on Your Decision to Enroll in the Course?		
Avocational	44	11.429%
Certification	75	19.481%
Advancement	57	14.805%
Job Enrichment	155	37.563%
Social and Other	8	2.077%

<u>Question 28</u>	<u>Frequency</u>	<u>Relative Frequency</u>
Which of the Answers (Which You Checked) in Question 25 had the <u>Least</u> Influence on Your Decision to Enroll in This Course?		
Avocational	62	16.104%
Certification	26	6.744%
Advancement	57	14.805%
Job Enrichment	98	25.454%
Social and Other	63	16.963%

The questions related to limiting factors which had responses modified are as follows:



<u>Question 13</u>	<u>Frequency</u>	<u>Relative Frequency</u>
What Part of the Expense of This Course was Paid for You or Reimbursed to You?		
85% to 100%	162	42.078%
50% to 75%	145	37.662%
15% to 25%	16	4.156%
0%	51	13.247%

<u>Question 16</u>	<u>Frequency</u>	<u>Relative Frequency</u>
How Far Did You Travel to Attend This Course? (One Way Distance)		
Less than one mile	59	15.325%
1 to 5 miles	133	34.545%
5 to 30 miles	123	31.689%
30 miles or more	61	15.844%

#### Results of the Analysis

The purpose of this study was to identify motivational factors which influence participation in continuing education programs designed for engineering technicians. Achievement of this purpose was accomplished by answering the four research questions presented in Chapter 1. Analysis of the data related to each research question is presented here in the order of the questions.

#### Research Question 1.

What are the demographic factors which influence attendance in continuing education programs designed for engineering technicians?

Comparisons of each of the questionnaire items identified as demographic were compared with the type of course enrolled in and the Chi Square test was performed to test significance level. Results of the comparisons and the Chi Square test are shown in Tables VI

through XIV. The only demographic factors excluded were social status, years of formal education, and yearly income. These three demographic items will be covered in greater detail in the response to question 3.

The only demographic data which had no detectable pattern to enrollments and when tested for significance had no significance was the marital status of the participants. All other demographic factors were significant at or below the 0.01 level.

TABLE VI  
TYPE OF COURSE ENROLLED  
IN BY MARITAL STATUS

Marital Status	Non-Credit Non-Technical		Non-Credit Technical		Credit Non-Technical		Credit Technical	
	#	%	#	%	#	%	#	%
Married	68	23.1	73	24.8	30	10.2	123	41.8
Single	14	20.3	10	14.5	9	13.0	36	52.2
Divorced	7	38.9	6	33.3	1	5.6	4	22.2
Widowed	1	100.0	0	0.0	0	0.0	0	0.0

Males comprised 90% of the participants and over 71% of the men were in the courses with technical content. Over 46% of the male participants were in the technical credit courses. While the women accounted for only 10% of the total participants, 65.8% of this group were in the non-credit courses with non-technical material. Less than 16% of the women attended credit courses.

TABLE VII  
TYPE OF COURSE ENROLLED IN BY SEX

Sex	Non-Credit Non-Technical		Non-Credit Technical		Credit Non-Technical		Credit Technical	
	#	%	#	%	#	%	#	%
Male	65	18.8	82	23.8	37	10.7	161	46.7
Female	25	65.8	7	18.4	3	7.9	3	7.9

Age also was a significant factor when compared with type of class enrolled in. While there was only one respondent under the age of 18, 67% were between 18 and 34 years of age. As age increased beyond 34 years, the numbers of participants decreased. In the 18 to 24 year age bracket, over 70% were found in the credit courses with technical material. As the age increased, this percentage decreased until at the age of 55 to 64, there was only one person in any credit course. As the age increased, the participants disappeared from the technical credit courses and appeared in the non-credit courses. The percentages were almost evenly split between non-credit technical and non-credit non-technical courses at all age levels.

TABLE VIII  
TYPE OF COURSE ENROLLED IN BY AGE

Age	Non-Credit Non-Technical		Non-Credit Technical		Credit Non-Technical		Credit Technical	
	#	%	#	%	#	%	#	%
Under 18	1	100.0	0	0.0	0	0.0	0	0.0
18 to 24	12	9.7	13	10.5	12	9.7	87	70.2
25 to 34	30	22.6	36	27.1	16	12.0	51	38.3
35 to 44	25	33.8	17	23.0	10	13.5	22	29.7
45 to 54	15	41.7	16	44.4	2	5.6	3	8.3
55 to 64	7	46.7	7	46.7	0	0.0	1	6.7

When the number of years in their present occupation was compared with the type of class enrolled in, the larger numbers of participants were found attending technical credit courses with the exception of those who had been in their occupation over 20 years. Of this group, over 51% were in the non-credit courses with technical content. The non-credit courses attracted the second largest number of participants with the technical and non-technical being slightly more popular with different age levels.

Employment status had the highest raw Chi Square when compared with the type of class enrolled in. Over 90% of the active duty military were in credit courses and 75.7% of the military personnel were in the technical credit courses. Over 63% of the civil service personnel were found in the non-technical courses with the larger number being

in the non-credit non-technical courses. Personnel from private companies rarely appeared in the credit courses. The majority of this group were in the non-credit courses with technical content. The 9% of the participants who were self-employed divided equally between the non-credit technical and non-technical courses. There was only one retired participant and over 75% of the unemployed chose the non-credit non-technical courses.

TABLE IX

TYPE OF COURSE ENROLLED IN BY  
YEARS IN PRESENT OCCUPATION

Years	Non-Credit Non-Technical		Non-Credit Technical		Credit Non-Technical		Credit Technical	
	#	%	#	%	#	%	#	%
5 or less	48	23.3	39	18.4	19	9.2	100	48.5
5 to 10	15	22.1	17	25.0	7	10.3	29	42.6
10 to 15	9	22.0	11	26.8	7	17.1	14	34.1
15 to 20	11	35.5	3	9.7	3	9.7	14	45.2
Over 20	6	17.1	18	51.4	4	11.4	7	20.0

TABLE X  
TYPE OF COURSE ENROLLED IN  
BY EMPLOYMENT STATUS

Employment	Non-Credit Non-Technical		Non-Credit Technical		Credit Non-Technical		Credit Technical	
	#	%	#	%	#	%	#	%
Military	18	9.9	0	0.0	26	14.4	137	75.7
Civil Service	11	36.7	5	16.7	8	26.7	6	20.0
Private Company	42	29.8	77	54.6	6	4.3	16	11.3
Self Employed	4	44.4	4	44.4	0	0.0	1	11.1
Retired	1	100.0	0	0.0	0	0.0	0	0.0
Unemployed	11	73.3	3	20.0	0	0.0	1	6.7

When race was considered, it was found that 88% of the participants were white. The next largest group was black with 5.2% of the total. When the analysis was complete, it was found that the whites were almost evenly represented in all types of classes with the technical credit course having the largest percentage at 41.6%. An even 80% of the blacks chose the credit courses with technical content. All 13% of the American Indians were divided between the technical and non-technical that had no college credit. The few that listed oriental or other as their race were all in the technical courses.

TABLE XI  
TYPE OF COURSE ENROLLED IN BY RACE

Race	Non-Credit Non-Technical		Non-Credit Technical		Credit Non-Technical		Credit Technical	
	#	%	#	%	#	%	#	%
American Indian	7	53.8	6	46.2	0	0.0	0	0.0
Black	1	5.0	0	0.0	3	15.0	16	80.0
White	81	23.9	80	23.6	37	10.9	141	41.6
Oriental	0	0.0	0	0.0	0	0.0	1	100.0
Other	0	0.0	3	37.5	0	0.0	5	62.5

Comparison of types of course enrolled in by the size of organization the participants were employed by revealed that participants from organizations with 1,000 or fewer employees chose the technical credit, the non-credit non-technical, the non-credit technical, and the credit non-technical in that order. Enrollment trends from organizations larger than 1,000 only agreed with this by having in the technical credit courses the greatest percentage of their group.

TABLE XII  
 TYPE OF COURSE ENROLLED IN BY  
 SIZE OF ORGANIZATION

Size	Non-Credit Non-Technical		Non-Credit Technical		Credit Non-Technical		Credit Technical	
	#	%	#	%	#	%	#	%
100 or less	32	34.8	20	21.7	5	5.4	35	38.0
100 to 1,000	38	24.4	34	21.8	11	7.1	73	46.8
1,000 or less	12	10.3	35	30.2	23	19.8	46	39.7

Where the participants received the training required by their job was significant when compared with the type of class they were enrolled in. Participants that had received their training from technical institutes were found in the technical courses. Less than 24% of this group was in the non-technical courses. The credit and non-credit had equal numbers at 38.1% each. Over 63% of those receiving their training from junior colleges were in the non-credit technical courses. Less than 10% of these participants were in credit courses. The participants who had received their training from universities were almost identical to those from junior colleges. Over 74% of those receiving their training from military schools were in the credit courses with technical content. The majority of those remaining were in the non-technical credit courses making a total of 88% of the military school graduate in the credit courses. If the training for the participants' jobs came from on-the-job training, they



were more likely to be found in the non-credit courses, with 45.7% in the non-technical non-credit courses.

TABLE XIII  
TYPE OF COURSE ENROLLED IN BY WHERE  
JOB TRAINING WAS RECEIVED

Where	Non-Credit Non-Technical		Non-Credit Technical		Credit Non-Technical		Credit Technical	
	#	%	#	%	#	%	#	%
Technical Institute	3	7.1	16	38.1	7	16.7	16	38.1
Junior College	3	27.3	7	63.6	0	0.0	1	9.1
University	17	29.8	34	59.6	1	1.8	5	8.8
Company School	0	0.0	1	25.0	1	25.0	2	50.0
Military School	15	9.5	4	2.5	22	13.9	117	74.1
On-The-Job Training	48	45.7	28	26.7	9	8.6	20	19.0
Other	3	75.0	0	0.0	0	0.0	1	25.0

TABLE XIV  
RESULTS OF CHI SQUARE TEST OF TYPE  
OF COURSE BY DEMOGRAPHIC FACTORS  
EFFECTING ATTENDANCE

Factor	Raw Chi Square	Degrees of Freedom	Level of Significance
Sex	44.80832	3	0.0000
Marital Status	12.88997	9	0.1677
Age	88.48914	15	0.0000
Race	35.08519	12	0.0005
Employment Status	249.17006	15	0.0000
Size of Company	30.95757	6	0.0000
Years in Present Occupation	27.70837	12	0.0061
Where Training for Job Was Received	199.82846	18	0.0000

### Research Question 2

What are the reasons given by the participants for attending?

This question was answered by giving to the participants a list of 18 possible reasons for attending and asked to check any that applied to them. The participants were then asked to give the one reason which most influenced their decision to attend; the reason which had the second most influence and of the reasons which were checked, which had the least influence on their decision to attend. The listed reasons were grouped into categories which related to avocations, certification,

job advancement, job enrichment, and social. Those that marked other as a reason were combined with social reasons for analysis.

The results of the questions were then cross-tabulated with the type of course enrolled in and Chi Square test were performed to determine the level of significance. Tables XV through XXII give the results of the analysis of data concerning reasons given for attending.

Over 50% of the participants selecting a reason which was avocational were in the credit courses which contained technical material with the non-credit non-technical courses being the second choice with 32.7%. Those attending for certification related reasons were almost always in the credit courses, with 73.2% of all selecting certification reasons being in the credit courses with technical material. Those attending for job advancement were concentrated in the technical courses with 52% of them in the technical credit courses. Technical courses were also the favorite of those seeking job enrichment, but the non-credit non-technical courses drew a respectable 22.1%. While the technical credit courses were the slight favorite of those attending for social or other reasons, there was no significant pattern in their enrollments.

TABLE XV

## TYPE OF COURSE ENROLLED IN BY REASONS

Reason	Non-Credit Non-Technical		Non-Credit Technical		Credit Non-Technical		Credit Technical	
	#	%	#	%	#	%	#	%
Avocational	48	32.7	19	12.9	6	4.1	74	50.3
Not Avocational	42	17.7	71	30.0	34	14.3	90	38.0
Certification	3	1.5	11	5.6	39	19.7	145	73.2
Not Certification	87	46.8	79	42.5	1	0.5	13	10.2
Job Advancement	36	17.8	42	20.8	19	9.4	105	52.0
Not Job Advancement	54	29.7	48	26.4	21	11.5	59	32.4
Job Enrichment	61	22.1	82	29.7	27	9.8	106	38.4
Not Job Enrichment	29	26.9	8	7.4	13	12.0	58	53.7
Social and Other	6	19.4	5	16.1	6	19.4	14	45.2
Not Social and Other	84	23.8	85	24.1	34	9.6	150	42.5

TABLE XVI  
RESULTS OF CHI SQUARE TEST OF REASON  
FOR ATTENDING BY TYPE OF CLASS

Reason	Raw Chi Square	Degrees of Freedom	Level of Significance
Avocational	32.28511	3	0.0000
Certification	262.56396	3	0.0000
Job Advancement	16.00417	3	0.0011
Job Enrichment	21.85397	3	0.0001
Social and Other	3.64221	3	0.3028

When asked which reason had the most influence on their decision to enroll, 66.7% of those responding that the most important reason was avocational were found in the non-credit non-technical courses, while 73.7% of those choosing certification were in the technical credit courses. Those selecting job enrichment as the most important reason were primarily in the non-credit courses with 43.3% in the technical non-credit and 39.4% in the non-technical non-credit courses. Participants stating that reasons related to job advancement, social and other were in no significant pattern as determined by the Chi Square test.

TABLE XVII

TYPE OF COURSE BY REASON WITH THE  
MOST INFLUENCE ON ATTENDANCE

Reason	Non-Credit Non-Technical		Non-Credit Technical		Credit Non-Technical		Credit Technical	
	#	%	#	%	#	%	#	%
Avocational	26	66.7	2	5.1	0	0.0	11	28.2
Not Avocational	64	18.6	88	25.5	40	11.6	153	44.3
Certification	0	0.0	5	3.8	30	22.6	98	73.7
Not Certification	90	35.9	85	33.9	10	4.0	66	26.3
Job Advancement	9	16.7	19	35.2	4	7.4	22	40.7
Not Job Advancement	81	24.5	71	21.5	36	10.9	142	43.0
Job Enrichment	41	39.4	45	43.3	4	3.8	14	13.5
Not Job Enrichment	49	17.5	45	16.1	36	12.9	150	53.6
Social and Other	1	10.0	3	30.0	1	10.0	5	50.0
Not Social and Other	89	23.8	87	23.3	39	10.4	159	42.5

TABLE XVIII  
RESULTS OF CHI SQUARE TEST OF TYPE OF  
COURSE BY REASON WITH THE MOST  
INFLUENCE ON ATTENDANCE

Reason	Raw Chi Square	Degrees of Freedom	Level of Significance
Avocational	47.47984	3	0.0000
Certification	155.80713	3	0.0000
Job Advancement	5.53233	3	0.1367
Job Enrichment	73.96207	3	0.0000
Social and Other	1.10921	3	0.7749

Responding to the question of which reason had the second most influence on their decision to enroll in the course, those that listed avocational reasons were evenly divided between non-credit non-technical courses and credit technical courses. These two groups comprised 81.8% of those choosing avocational reasons as their second choice of reasons for attending. Over 85% of those selecting avocational reasons as the second most important reason for enrolling were found in the technical credit courses. A slight majority of those placing reasons relating to job advancement as the second most important were also found in the technical credit courses. Participants enrolling in courses with reasons related to job enrichment as their second choice were found in the non-credit courses, almost equally divided between technical and non-technical courses.

TABLE XIX  
 TYPE OF COURSE BY REASONS WITH  
 SECOND MOST INFLUENCE

Reason	Non-Credit Non-Technical		Non-Credit Technical		Credit Non-Technical		Credit Technical	
	#	%	#	%	#	%	#	%
Avocational	18	40.9	6	13.6	2	4.5	18	40.9
Not Avocational	72	21.2	84	24.7	38	11.2	146	42.9
Certification	2	2.7	1	1.3	8	10.7	64	85.3
Not Certification	88	28.5	89	28.8	32	10.4	100	32.4
Job Advancement	8	14.0	9	15.8	11	19.3	29	50.9
Not Job Advancement	82	25.1	81	24.8	29	8.9	135	41.3
Job Enrichment	45	31.3	55	38.2	11	7.6	33	22.9
Not Job Enrichment	45	18.8	35	14.6	29	12.1	131	54.6
Social and Other	3	37.5	1	12.5	3	37.5	1	12.5
Not Social and Other	87	23.1	89	23.7	37	9.8	163	43.4



For the first and only time reasons related to social and other reasons became significant. An even 75% of the participants selecting reasons related to social or other reasons as their second choice were found in the non-technical courses, equally divided between credit and non-credit courses.

TABLE XX

RESULTS OF CHI SQUARE TEST OF TYPE OF  
COURSE BY REASON WITH SECOND  
MOST INFLUENCE

Reason	Raw Chi Square	Degrees of Freedom	Level of Significance
Avocational	10.19125	3	0.0170
Certification	76.24268	3	0.0000
Job Advancement	10.30999	3	0.0161
Job Enrichment	50.24576	3	0.0000
Social and Other	8.60529	3	0.0350

When asked to list which of the reasons they had selected as having the least influence on their decision to enroll in the class, only those participants putting down reasons related to certification were significant. Over 80% of this group was in the technical credit courses. All other reasons listed as least important were not significant.

TABLE XXI  
 TYPE OF COURSE BY REASON WITH  
 LEAST INFLUENCE

Reason	Non-Credit Non-Technical		Non-Credit Technical		Credit Non-Technical		Credit Technical	
	#	%	#	%	#	%	#	%
Avocational	18	29.0	11	17.7	4	6.5	29	46.8
Not Avocational	72	22.4	79	24.5	36	11.2	135	41.9
Certification	0	0.0	2	7.7	3	11.5	21	80.8
Not Certification	90	25.1	88	24.6	37	10.3	143	39.9
Job Advancement	15	26.8	10	17.9	7	12.5	24	42.9
Not Job Advancement	75	22.9	80	24.4	33	10.1	140	42.7
Job Enrichment	16	16.3	24	24.5	12	12.2	46	46.9
Not Job Enrichment	74	25.9	66	23.1	28	9.8	118	41.3
Social and Other	20	31.7	17	27.0	5	7.9	21	33.3
Not Social and Other	70	21.8	73	22.7	35	10.9	143	44.5

TABLE XXII  
RESULTS OF CHI SQUARE TEST OF TYPE OF  
COURSE BY REASON WITH THE  
LEAST INFLUENCE

Reasons	Raw Chi Square	Degrees of Freedom	Level of Significance
Avocational	3.41294	3	0.3322
Certification	18.97935	3	0.0003
Job Advancement	1.45818	3	0.6920
Job Enrichment	3.87457	3	0.2753
Social and Other	4.62020	3	0.2018

### Research Question Number 3

How are participants in continuing education programs designed for engineering technicians grouped when compared by social status, level of income and level of education?

An examination of the modified raw data revealed that 31% of the participants earned less than \$7,000.00 per year, 20% earned \$15,000.00 or more and over 47% were between \$7,000.00 and \$15,000.00 per year. In this middle bracket it was found that 22.8% of the total group earned between \$7,000.00 and \$10,000.00 and 24.7% earned between \$10,000.00 and \$15,000.00. When the educational level was examined, it was discovered that only 3.5% of the participants had less than a high school education and only 6% had over four years of college.

Those with 12 years of education were almost equal with those claiming one to three years of college. Together, these two groups made up over 77% of the participants.

Numbers and percentages, while interesting, were not the intent of this research. To find how the participants were grouped, social status, level of income, and level of education was compared to reasons for attending and type of course enrolled in. Tables XXIII to XXVIII are provided to reveal this information and tables XXIX to XXXII are presented to document the results of Chi Square test of social status, yearly income, and level of education by type of course enrolled in and reason for attending.

When social status was compared to reason for attending, it was found that those whose stated occupation had placed them in the lower and upper social status had selected reasons for attending related to certification of training more often than participants from the middle social status. The reasons related to avocations, job advancement, job enrichment, and social or other reasons reveal no pattern to distinguish between social status by occupation.

TABLE XXIII  
 COMPARISON OF SOCIAL STATUS  
 TO REASON FOR ENROLLING

Reason	Lower Class		Middle Class		Upper Class	
	#	%	#	%	#	%
Avocational	47	47.5	38	31.9	63	37.7
Not Avocational	52	52.5	81	68.1	104	62.3
Certification	51	51.5	48	40.3	100	59.9
Not Certification	48	48.5	71	59.7	67	40.1
Job Advancement	50	50.5	71	59.7	82	49.1
Not Job Advancement	49	49.5	48	40.3	85	50.9
Job Enrichment	69	69.7	95	79.8	113	67.7
Not Job Enrichment	30	30.3	24	20.2	54	32.3
Social and Other	11	11.1	6	5.0	14	8.4
Not Social and Other	88	89.9	113	95.0	153	91.6

TABLE XXIV  
RESULTS OF CHI SQUARE TEST OF  
REASON FOR ATTENDING BY  
SOCIAL STATUS

Reason	Raw Chi Square	Degrees of Freedom	Level of Significance
Avocational	5.58040	2	0.0614
Certification	10.63040	2	0.0049
Job Advancement	3.37395	2	0.1851
Job Enrichment	5.43144	2	0.0662
Social and Other	2.73234	2	0.2551

Comparison of years of formal education and reasons for attending and the Chi Square test revealed a rather strong relationship between educational level and concern for certification by the participants. Those with less than high school and those with four or more years of education were not attending for reasons relating to certification while the majority of those with 12 years through three years of college were attending to be certified. There was a somewhat weaker relationship between the educational level and those attending for reasons related to job advancement with those with four years or more of college being less likely to state reasons concerned with job advancement. A majority of those with less than four years of college were attending for reasons related to advancement.

TABLE XXV

COMPARISON OF YEARS FORMAL EDUCATION  
TO REASON FOR ATTENDING

Reason	11 yrs. and Less		12 years.		1 - 3 yrs. College		4 yrs. College		Over 4 yrs. College	
	#	%	#	%	#	%	#	%	#	%
Avocational	9	56.3	55	37.2	60	40.3	17	34.7	7	30.4
Not Avocational	7	43.8	93	62.8	89	59.7	32	65.3	16	69.6
Certification	5	31.3	92	62.2	89	59.7	11	22.4	2	8.7
Not Certification	11	68.8	56	37.8	60	40.3	38	77.6	21	91.3
Job Advancement	10	62.5	76	51.4	90	60.4	21	42.9	6	26.1
Not Job Advancement	6	37.5	72	48.6	59	39.6	28	57.1	17	73.9
Job Enrichment	13	81.3	106	71.6	102	68.5	38	77.6	18	78.3
Not Job Enrichment	3	18.8	42	28.4	47	31.5	11	22.4	5	21.7
Social and Other	2	12.5	8	5.4	14	10.1	3	6.1	3	13.0
Not Social and Other	14	87.5	140	94.6	134	89.9	46	93.9	20	87.0



TABLE XXVI  
RESULTS OF CHI SQUARE TEST OF REASON  
FOR ATTENDING BY YEARS  
OF FORMAL EDUCATION

Reason	Raw Chi Square	Degrees of Freedom	Level of Significance
Avocational	3.37072	4	0.4978
Certification	46.83868	4	0.0000
Job Advancement	12.71100	4	0.0128
Job Enrichment	2.81012	4	0.5901
Social and Other	3.66542	4	0.4532

Yearly income proved to have a stronger relationship to reasons for attending than did social status or education. The analysis of the data revealed that as the yearly income of the participants increased, they were less likely to attend for reasons related to avocations, certification or job advancement. A majority of all participants did indicate that job enrichment was at least one of the reasons they attended, but it was more likely to be a reason as the income went up. Those attending for social or other reasons were well divided among the income levels.

TABLE XXVII

COMPARISON OF YEARLY INCOME TO  
REASON FOR ATTENDING

Reason	Less than \$5,000		\$5,000 to \$6,999		\$7,000 to \$9,999		\$10,000 to \$14,999		\$15,000 to \$19,999		Over \$20,000	
	#	%	#	%	#	%	#	%	#	%	#	%
Avocational	23	46.0	34	48.6	36	40.9	35	36.8	10	23.3	7	21.9
Not Avocational	27	54.0	36	51.4	52	59.1	60	63.2	33	76.7	25	78.1
Certification	34	68.0	56	80.0	48	54.5	41	43.2	14	32.6	2	6.3
Not Certi- fication	16	32.0	14	20.0	40	45.5	54	56.8	29	67.4	30	93.8
Job Advancement	29	58.0	39	55.7	53	60.2	48	50.5	21	48.8	9	28.1
Not Job Advancement	21	42.0	31	44.3	35	39.8	47	49.5	22	51.2	23	71.9
Job Enrichment	30	60.0	46	65.7	61	69.3	71	74.7	37	86.0	27	84.4
Not Job Enrichment	20	40.0	24	34.3	27	30.7	24	25.3	6	14.0	5	15.6
Social and Other	4	8.0	10	14.3	5	5.7	4	4.2	3	7.0	4	12.5
Not Social and Other	46	92.0	60	85.7	83	94.3	91	95.8	50	93.0	28	87.5

TABLE XXVIII

RESULTS OF CHI SQUARE TEST OF REASON  
FOR ATTENDING BY YEARLY INCOME

Reason	Raw Chi Square	Degrees of Freedom	Level of Significance
Avocational	12.48226	5	0.0287
Certification	63.60185	5	0.0000
Job Advancement	11.00750	5	0.0512
Job Enrichment	12.23777	5	0.0317
Social and Other	7.24593	5	0.2030

Chi Square test and comparisons of the type of course enrolled in and the social status, yearly income, and years of formal education all proved to be significant.

TABLE XXIX

RESULTS OF CHI SQUARE TEST OF TYPE OF  
COURSE TO SOCIAL CHARACTERISTICS

Social Characteristics	Raw Chi Square	Degrees of Freedom	Level of Significance
Social Status	19.28027	6	0.0037
Yearly Income	111.71489	15	0.0000
Years of Formal Education	70.17393	12	0.0000

A majority of participants at all income levels, all educational levels and all social levels were found in the courses that were technical in content. The difference occurred as the income level went up. Those in the lower income brackets were more likely to be found in the credit courses with technical content while those at the higher income levels were found in the non-credit technical courses. The same trend was true of the educational level. As the educational level of the participants increased, they moved from the technical credit courses to the technical non-credit courses. There was one exception to this trend; those with 11 years of education or less preferred the non-credit courses with non-technical material.

TABLE XXX

TYPE OF COURSE ENROLLED IN  
BY YEARLY INCOME

Yearly Income	Non-Credit Non-Technical		Non-Credit Technical		Credit Non-Technical		Credit Technical	
	#	%	#	%	#	%	#	%
\$5,000 or less	12	24.0	4	8.0	3	6.0	31	62.0
\$5,000 to \$6,999	10	14.3	3	4.3	10	14.3	47	67.1
\$7,000 to \$9,999	23	26.1	14	15.9	6	6.8	45	51.1
\$10,000 to \$14,999	28	29.8	24	25.5	14	14.9	28	29.8
\$15,000 to \$19,999	8	18.6	20	46.5	7	16.3	8	18.6
\$20,000 and Above	8	25.0	23	71.9	0	0.0	1	3.1

TABLE XXXI

TYPE OF COURSE ENROLLED IN BY  
YEARS OF FORMAL EDUCATION

Years	Non-Credit Non-Technical		Non-Credit Technical		Credit Non-Technical		Credit Technical	
	#	%	#	%	#	%	#	%
11 yrs. or less	6	40.0	5	33.3	0	0.0	4	26.7
12	33	22.3	22	14.9	10	6.8	83	56.1
1 - 3 yrs. College	30	20.1	26	17.4	27	18.1	66	44.3
4 yrs. College	15	30.6	24	49.0	2	4.1	8	16.3
More than 4 yrs. College	6	26.1	13	56.5	1	4.3	3	13.0

Results of the comparisons of types of course to social status was somewhat more confused. Those whose stated occupation had placed them in the lower social status were evenly divided between non-credit non-technical courses and credit courses with technical content as their favorite. The middle social class preferred the credit technical, the non-credit technical, the non-credit non-technical, in that order with the non-technical credit courses bringing up a poor fourth place. The majority of those in the upper social status were found in the technical credit courses with the non-credit technical courses being second.

TABLE XXXII  
TYPE OF COURSE ENROLLED IN BY  
SOCIAL STATUS

Status	Non-Credit Non-Technical		Non-Credit Technical		Credit Non-Technical		Credit Technical	
	#	%	#	%	#	%	#	%
Lower	33	33.3	20	20.2	12	12.1	34	34.3
Middle	30	25.2	36	30.3	7	5.9	46	38.7
Upper	27	16.3	34	20.5	21	12.7	84	50.6

#### Research Question Number 4

What are the limiting factors which influence attendance in continuing education programs?

While each of the limiting factors studied influenced attendance in the continuing education programs designed for engineering technicians, only four of these factors were found to significantly influence individual groups of participants. These four factors were; the amount of the expense of the course that the participant did not have to bear, who paid the expenses, the participant being paid for the time spent in class, and the one way distance to the class. It is readily apparent that three of these four factors deal directly with money and distance traveled is closely related to money as it takes both time from work and expense to travel.

To study the influence these four factors had on attendance, they were compared to the yearly income of the participants and Chi Square tests were made. The comparisons are shown in Tables XXXIII through XXXVI and the results of the Chi Square test is shown in Table XXXVII.

Almost 80% of the participants had 50% or more of their expenses paid for them, but as the individual's yearly income rose, a higher percentage of the expenses were paid by someone else. For those participants receiving \$5,000 per year or less, only 20.4% received 85 to 100% expense reimbursement, while for those earning over \$20,000 per year, 77.4% received 85 to 100% of the expense for the course.

TABLE XXXIII

COMPARISON OF YEARLY INCOME TO  
PERCENT OF EXPENSES PAID

Income	85 & 100%		50 & 75%		15 & 25%		0%	
	#	%	#	%	#	%	#	%
Less than \$5,000	10	20.4	26	53.1	4	8.2	9	18.4
\$5,000 to \$6,999	15	21.7	48	69.6	1	1.4	5	7.2
\$7,000 to \$9,999	34	40.5	36	42.9	4	4.8	10	11.9
\$10,000 to \$14,999	51	54.8	26	28.0	4	4.3	12	12.9
\$15,000 to \$19,999	24	57.1	7	16.7	1	2.4	10	23.8
Over \$20,000	24	77.4	1	3.2	1	3.2	5	16.1



When the question of who was providing the expense money for the participant to attend class was studied, it was discovered that most participants were receiving assistance from the military or from their company. The comparison to yearly income revealed that while the military were more inclined to send the lower income personnel to the courses studied, companies preferred to help those in higher income brackets attend.

TABLE XXXIV  
COMPARISON OF YEARLY INCOME TO  
WHO PAID EXPENSES

Income	Military		Veteran's Admin.		Company		Grant		Other	
	#	%	#	%	#	%	#	%	#	%
Less than \$5,000	29	67.4	4	9.3	2	4.7	2	4.7	6	14.0
\$5,000 to \$6,999	51	77.3	8	12.1	4	6.1	1	1.5	2	3.0
\$7,000 to \$9,999	40	50.6	7	8.9	30	38.0	0	0.0	2	2.5
\$10,000 to \$14,999	30	34.1	7	8.0	41	46.6	1	1.1	9	10.2
\$15,000 to \$19,999	7	18.9	4	10.8	20	54.1	1	2.7	5	13.5
Over \$20,000	1	3.6	0	0.0	25	89.3	0	0.0	2	7.1

While 66% of the participants received no pay for time spent in class, over 26% did receive regular pay. Less than 1% received partial pay and less than 3% received overtime pay for time in class. When compared to yearly income, those in the higher income brackets again had the advantage. While over 80% of those earning \$5,000 or less received no pay for class time, 54.8% of those earning over \$20,000 received regular pay or overtime.

TABLE XXXV  
COMPARISON OF YEARLY INCOME TO  
PAY FOR TIME IN COURSE

Income	None		Partial Pay		Regular Pay		Overtime Pay	
	#	%	#	%	#	%	#	%
Under \$5,000	38	80.9	0	0.0	9	19.1	0	0.0
\$5,000 to \$6,999	53	76.8	0	0.0	16	23.2	0	0.0
\$7,000 to \$9,999	54	66.7	1	1.2	23	28.4	3	3.7
\$10,000 to \$14,999	61	64.9	0	0.0	29	30.9	4	4.3
\$15,000 to \$19,999	30	71.4	2	4.8	8	19.0	2	4.8
Over \$20,000	14	45.2	0	0.0	16	51.6	1	3.2

When the distance traveled to the class was examined, it was discovered that few of the participants were going too far out of their way to attend class. Over 50% were less than five miles from class, only 16% traveled over 30 miles to class. When compared to yearly income, it was those earning more that were willing to travel greater distances to class.

TABLE XXXVI  
COMPARISON OF YEARLY INCOME TO DISTANCE  
TRAVELED TO THE COURSE

Income	Less Than One Mile		1 to 5 Miles		5 to 30 Miles		Over 30 Miles	
	#	%	#	%	#	%	#	%
Under \$5,000	15	30.6	19	38.8	11	22.4	4	8.2
\$5,000 to \$6,999	14	20.6	31	45.6	20	29.4	3	4.4
\$7,000 to \$9,999	7	8.3	38	45.2	28	33.3	11	13.3
\$10,000 to \$14,999	12	12.8	27	28.7	35	37.2	20	21.3
\$15,000 to \$19,999	4	9.5	12	28.6	16	38.1	10	23.8
Over \$20,000	5	16.1	4	12.9	10	32.3	12	38.7

TABLE XXXVII  
RESULTS OF CHI SQUARE TEST OF YEARLY  
INCOME BY LIMITING FACTORS

Factor	Raw Chi Square	Degrees of Freedom	Level of Significance
Distance Traveled	46.75632	15	0.0000
Pay for Time	29.01601	15	0.0160
Who Paid Expenses	112.55246	20	0.0000
Percent of Expenses Paid	74.35786	15	0.0000

While the other limiting factors studied proved to have no significant relationship to individual groups of participants, there was some data of interest which should be recorded. When asked how they learned of the course being attended, over 50% of the participants responded that they had been informed of the class by their friends or by their employer. Of those attending, 26% had learned of the course from their employer, and 24% from their friends.

When asked about times that were convenient for them to attend class, the participants generally agreed only that the summer was not very popular, nor is Saturday or Sunday classes. Over 83% agreed that it was more convenient for them to attend class in the evening and over 60% preferred the hours from 6 p.m. to 9 p.m.

When asked if nearby colleges offer courses which the participant wanted or needed, 48% felt they did, while 40% did not feel courses were available. Over 71% of the participants agreed that it would be

convenient to attend evening classes at a nearby college. Only 15% had access to a classroom equipped with the talk-back television system, 8% did not know where classrooms equipped with the system were located, and 9% had never heard of the talk-back television system. Over 65% denied having access to these classrooms. The author cannot condemn those handling the talk-back television system for 65.7% of the participants not having access to their classrooms because over 71% of the same participants had never enrolled in a course offered by Oklahoma State University before the course they were in.

#### Discriminant Prediction

To perform a discriminant analysis that would provide usable and reasonable predictive information concerning factors that influence attendance of continuing education programs designed for engineering technicians, factors had to be selected to be used in the discriminant analysis. The factors chosen were: yearly income and years of formal education from research question three, because of their significance to types of course enrolled in and reason for enrolling; percent of expenses paid, pay for time in class, and distance traveled to class were selected from the limiting factors, because of their correlation to type of class enrolled in; the variables, years in present occupation and size of organization were selected from the demographic factors, because of their correlation; other demographic factors were not used, because they were not significant or were of a personal nature that should prevent adult educators from designing a course for one particular group.

First, the groups of non-credit non-technical course participants and non-credit technical course participants were analyzed by the discriminant functions described above. The standardized discriminant function coefficients that resulted from the analysis are as follows:

Years in Present Occupation	0.12590
Size of Organization	0.23234
Yearly Income	-0.65456
Years of Formal Education	-0.14867
Percent of Expenses Paid	0.15525
Pay for Time in Course	-0.45330
Distance Traveled	-0.20053

The centroid for the non-credit non-technical course participant in reduced space was 0.52402 and for the non-credit technical course participant -0.59519.

Application of the standardized discriminant function coefficient to the individual participant's responses to the selected functions resulted in the predictive accuracy shown in Table XXXVIII.

TABLE XXXVIII  
PREDICTION RESULTS OF NON-CREDIT  
COURSE PARTICIPANTS

Actual Group	Number of Cases	Predicted Group Membership			
		Non-Technical		Technical	
		#	%	#	%
Non-Technical	184	139	75.5	45	24.5
Technical	162	45	27.8	117	72.2

The overall percent of grouped cases of individual participants of non-credit courses correctly classified as being in technical or non-technical courses was 73.99%.

The same procedure was then followed to perform a discriminant analysis of the participants of credit courses. The standardized discriminant function coefficients that resulted from this second discriminant analysis are as follows:

Years in Present Occupation	0.14689
Size of Organization	0.22014
Yearly Income	-0.68792
Years of Formal Education	-0.11855
Percent of Expenses Paid	0.16304
Pay for Time in Course	-0.44505
Distance Traveled	-0.19792

For these groups the centroid in reduced space for the credit non-technical course participant was -0.58739 and for the credit technical participant the centroid was 0.52319.

Upon application of the standardized discriminant function coefficient to the individual participant's responses to the selected functions resulted in the prediction accuracy for these two groups shown in Table XXXIX.

For these two groups the overall percent of grouped cases of individual participants of credit courses correctly classified as being in technical or non-technical courses dropped to 72.83%.

TABLE XXXIX

PREDICTION RESULTS OF CREDIT  
COURSE PARTICIPANTS

Actual Group	Number of Cases	Predicted Group Membership			
		Non-Technical		Technical	
		#	%	#	%
Non-Technical	163	115	70.6	48	29.4
Technical	183	46	25.1	137	74.9



## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Summary

The purpose of this study was to identify motivational factors which influence participation in continuing education programs designed for engineering technicians. This purpose was accomplished by setting forth four research questions and then utilizing a questionnaire to collect data from participants enrolled in continuing education programs designed for persons employed in technical occupations at the semi-professional level.

These programs consisted of four types of courses; the first type was those courses offered for college credit with technical subject material being utilized, the second was college credit courses with non-technical material which was related to the technical occupations, the third type was courses which did not carry college credit, but did utilize technical material, and the fourth type was non-credit courses which used non-technical material related to technical occupations.

The participants of eight credit courses and nine non-credit courses offered by the Technology Extension Department of Oklahoma State University during the calendar year of 1976 were selected to be the subjects of this study. Of the 449 subjects participating in these courses, 385 completed and returned the questionnaire which was

distributed in class. No effort was made by the researcher to obtain completed questionnaires from participants absent from class or from those not wishing to return the questionnaires for personal reasons.

Data from each questionnaire was placed on a computer card and the Statistical Package for Social Sciences (SPSS) computer program was used to tabulate frequencies and relative frequencies for responses to each question. The Chi Square Test of Significance was used to determine if there was any relationship to the demographic factors of the participants by the type of class enrolled in. The Chi Square test was also used to determine relationships between reasons for enrolling and type of class enrolled in, to test significance of yearly income, level of formal education and social status when compared to type of class enrolled in and reasons for attending, and to compare yearly income to limiting factors influencing attendance. A .05 level was set to determine significance of all Chi Square test. The participants studied were grouped by the type of class enrolled in and the DISCRIMINANT function of the SPSS program was used to determine predictability of the group enrollments by selected characteristics.

Analysis of the data collected from the respondents revealed that the majority of the subjects were white, married males, 18 to 34 years of age. The majority of the respondents were earning between \$5,000 and \$15,000 and had been in their present occupation less than five years at relatively large local organizations, usually employed by the military or by private companies. Most had educational levels beyond high school, but less than a four year college degree. They had

received the training required for their job at military schools or by on-the-job training. All of these demographic factors were significant when tested against the type of course the respondent was enrolled in except the marital status of the participant.

The instrument used in this study listed seventeen possible reasons for attending the course and one "other" reason. When the subjects were asked to select any of the reasons why they were taking the course, a majority of the respondents (54%) checked "to be able to do my job better" and 51.4% selected "to keep updated on my job". The reasons listed on the questionnaire were classified as being related to avocations, certification, job advancement, job enrichment, or social and other. The two most popular reasons listed above were classified as being job enrichment. When asked which of the reasons had the most influence on their decision to enroll in the course, more respondents selected reasons which were related to certification than any other. When asked which reason had the second most influence on their decision to enroll, there were more respondents selecting reasons relating to job enrichment. When reasons for enrolling were tested for significance, only those reasons classified as social or other had no significance to the type of class the respondents were attending.

A major research question this study attempted to answer was how the participants in continuing education programs designed for engineering technicians were grouped when compared by social status, level of income, and level of education. To answer this question, the respondent's stated occupation was converted into numerical data by use of the North-Hatt Prestige Scale and then the respondents were divided into three

equally sized groups. This relative social status, the modified data on level of income and level of education was then compared with reasons for attending and type of course enrolled in. It was found that all three were significant when compared to type of course enrolled in, but only those reasons for attending which were related to certification were significantly related to the three factors. Income was related to all reasons except those social and other reasons. Education was significant only when compared with reasons related to certification and job advancement. Relative social status was significantly compared to certification reasons only.

To identify factors which would limit attendance of continuing education programs, responses to the instrument items identified as limiting factors were tabulated and then compared to yearly income to determine if they were significant. The data revealed that the majority of the respondents learned of the course from their friends or their employer and that this employer had paid over half of the expenses incurred by the course. Very few of the participants had received any compensation for the time spent in class. About one half of the respondents lived within five miles of the class. Almost one half of the participants stated that nearby colleges offered classes which they needed or wanted and most agreed that they could attend nearby colleges in the evening. Almost all respondents agreed that evening classes are more convenient for them. Particularly evening classes offered during the work-week days from 6 p.m. to 9 p.m. The majority of the respondents had not previously enrolled in classes offered by Oklahoma State University nor did they have access to a classroom equipped with a talk-back television system. Only those

limiting factors relating to finance or distance traveled were significantly related to the respondent's yearly income. As the participant's yearly income increased, their employer paid more of the expense for the class and more often paid the participant for the time spent in class. Those in the military receiving reimbursement for course expenses were in the lower income brackets while those employed by private companies receiving course expenses were in the higher income levels.

The DISCRIMINANT function of the SPSS program analyzed the groups of participants in types of classes for predictability in course enrollment of individuals by selected discriminant functions. The resultant standardized discriminant function coefficients revealed that the highest predictor of type of course enrolled in was yearly income, the next highest for all types of courses was pay for the time spent in class. The standardized discriminant function coefficients exhibiting low predictability were years in present occupation, years of formal education, and the amount of course expenses reimbursed to the participant. The overall percent of grouped cases of individual participants by type of class enrolled in correctly classified ranged from 70.6% to 75.5%

### Conclusions

The data used in this study came from respondents participating in adult education programs designed primarily for engineering technicians. Enrollment was not limited to technical personnel, but for the purpose of this study the respondents were assumed to be engineering technicians

as defined in Chapter I. A complete list, by course, of the participants' occupation is shown in Appendix E.

This section is devoted to reporting conclusions that can be made on the basis of the data collected in this study and the analysis of the collected data used to answer the four research questions of chapter one.

#### Research Question One

What are the demographic factors which influence attendance in continuing education programs designed for engineering technicians?

Demographic characteristics of the respondents to the instrument used to collect data for this research was compared to demographic data available on engineering technicians in the State of Oklahoma from the Bureau of Census<sup>1</sup>. Relative frequencies of educational levels, age, and yearly income for the engineering technician population of Oklahoma and the respondents in this research are shown in Tables XL to XLIV.

<sup>1</sup>U. S. Department of Commerce. Bureau of Census, 1970 Census Population; Characteristics of the Population, Vol. 1, Part 38, Oklahoma.

TABLE XL  
 EDUCATIONAL LEVEL OF OKLAHOMA'S  
 ENGINEERING TECHNICIANS  
 AND RESPONDENTS

Educational Level	Oklahoma Population	Respondents
Below High School	11.6%	3.5%
High School	42.0%	38.4%
1 to 3 Years of College	36.3%	38.7%
4 or More Years of College	12.0%	18.7%

TABLE XLI  
 AGE OF OKLAHOMA'S ENGINEERING TECHNICIANS  
 AND RESPONDENTS

Age	Oklahoma Population	Respondents
Below 18	0.2%	0.26%
18 to 24	30.15%	32.5%
25 to 34	34.00%	34.5%
35 to 44	22.8%	19.2%
45 to 54	14.00%	9.4%
55 to 64	7.6%	3.9%
65 and Over	0.1%	0.00%

TABLE XLII  
 YEARLY INCOME OF OKLAHOMA'S ENGINEERING  
 TECHNICIANS AND RESPONDENTS

Yearly Income	Oklahoma Population	Respondents
\$5,000 or Less	21.8%	13.0%
\$5,000 to \$6,999	18.4%	18.2%
\$7,000 to \$9,999	35.4%	22.9%
\$10,000 to \$14,999	21.4%	24.7%
\$15,000 or More	3.2%	19.5%

TABLE XLIII  
 RACE OF OKLAHOMA'S ENGINEERING  
 TECHNICIANS AND RESPONDENTS

Race	Oklahoma Population	Respondents
White	95.4%	88.3%
Black	2.74%	5.2%
Other	1.86%	6.5%



TABLE XLIV  
SEX OF OKLAHOMA'S ENGINEERING TECHNICIANS  
AND RESPONDENTS

Sex	Oklahoma Population	Respondents
Male	91.0%	90.0%
Female	9.0%	10.0%

The similar relative frequencies of the engineering technicians in the State of Oklahoma and the respondents to the instrument used in this research led the researcher to conclude that the subjects of this study came from the general population of engineering technicians in Oklahoma. Information obtained from the analysis of the data collected in this study could be used by educators within the limits set forth in chapter one.

The analysis of the data related to demographic factors influencing attendance of continuing education programs designed for engineering technicians revealed that when this data was compared with type of course enrolled in, only the respondent's marital status was not significant. This led to the conclusion that the participants' spouses had no influence on the type of class enrolled in. Men tended to enroll in technical courses, preferable courses carrying college credit, while the women chose the non-credit non-technical courses. The white respondents were evenly distributed among the courses, but blacks highly favored the credit courses with technical content.

As age increased, the participants were inclined to bypass the credit courses and enroll in non-credit courses. The same general pattern was observed when years in their present occupation was compared to type of course enrolled in. The author concluded that as age increased the participants had less concern for the certification which college credit carries.

When the participants' employment status was examined, it was discovered that civil service employees and employees of private companies both chose the non-credit courses while active duty service personnel chose credit courses. The author concluded that the educational goals of civil service employees tend to be more like the goals of employees of private companies than those of military personnel.

Participants who had received the training required by their job from junior colleges or universities rarely enrolled in credit courses. The author concluded that these participants had already received the certification which is carried by credit courses and were no longer interested in that type of certification.

#### Research Question 2

What are the reasons given by the participants for attending?

Participants enrolling for reasons relating to certification were the most consistent of all groups. Very few of these participants enrolled in non-credit courses and the majority was in the technical credit courses. The participants listing reasons related to certification were found to be significant when compared to type of course enrolled in by reasons given, most important reasons, second most important reason, or least important reason. The author

concluded that when certification was any one of the reasons for attending, the participant was not interested in non-credit courses. This also led to the conclusion that military personnel, because they enroll in credit courses, are interested in certification while civil service and employees of private companies are not. Blacks, for the same reason, must be interested in certification while women are not. As the individuals grow older or have more experience in their job, they tend to be less interested in taking courses for reasons related to certification.

### Research Question 3

How are participants in continuing education programs designed for engineering technicians grouped when compared by social status, level of income, and level of education?

When social status, level of income, and level of education was compared to reasons for attending, the author concluded that those participants whose stated occupations had placed them in the middle of the overall social status were less likely to be concerned with certification of training. Those participants with less than four years of college tend to be more concerned with job advancement and certification than participants with higher educational levels. As income increased, the participants were more inclined to enroll for job enrichment. This led to the conclusion that the higher educated, higher paid, middle social status participants were satisfied with improving the skill and knowledge required by their present job.

When compared to the type of course enrolled in, the data revealed that as the income level went up, the participants chose

the non-credit technical courses. The same trend occurred with the rise in educational level. The middle social status participants were divided between the technical credit and non-credit courses. When this is examined at the same time the reasons for enrolling are looked at, the two lead to the conclusion that those enrolling to enrich their present job have decided that the best courses for this purpose are the courses technical in content and, even better, the technical courses that carry no college credit.

#### Research Question 4

What are the limiting factors which influence attendance in continuing education programs?

When subjected to analysis, the data revealed that only those limiting factors which were related to the financial aspects of the course were significant. They were, as was expected, closely tied to the participants' yearly income. The data confirmed that the majority of all participants in this study had 50% or more of their course expense paid. As the individuals' yearly income rose, they received a higher percentage of the course expense from their employer, and were more likely to receive pay for the time spent in class. The higher income groups were also more likely to travel greater distances to attend class.

The logical conclusion is that those receiving assistance for the expense of the course and receiving pay for the time spent on the course are more likely to travel greater distances and enroll in courses to improve themselves.

The higher income personnel were the ones being assisted by private companies while the military assisted more participants in the lower income levels. Income is also related to reasons for attending the courses and types of courses enrolled in. This implies that the military is interested in helping those who take courses leading to certification and private companies assist the higher income groups that enroll for reasons related to job enrichment.

As there were so many factors which could influence attendance of continuing education programs designed for engineering technicians, this research used the significant factors to obtain data which would be usable in order to provide adult educators with the knowledge and insight necessary for developing programs with appeal for engineering technicians. This was accomplished by means of the DISCRIMINANT function of the SPSS program with selected factors.

As a result of this analysis, the author has concluded that to develop a non-credit non-technical program for engineering technicians, the program should be planned for individuals who:

1. Earn a lower yearly income.
2. Do not expect pay for time spent in class.
3. Do not have class expenses paid.
4. Have a lower educational level.
5. Live close to the course location.
6. Have many years in their present job.
7. Work for large organizations.

When developing a non-credit technical course, the adult educator should plan for participants who:

1. Earn a higher income.

2. Expect pay for the time spent in class.
3. Have class expenses paid.
4. Have a higher educational level.
5. Are willing to travel greater distances to class.
6. Have been employed for a short time.
7. Work for smaller organizations.

For the credit non-technical courses, the participants will tend to be those:

1. With fewer years in their present occupation.
2. From smaller organizations.
3. With higher yearly income.
4. With higher educational levels.
5. Receiving expenses for the course.
6. Receiving pay for the time in the course.
7. Willing to travel greater distances to class.

When the credit technical courses are offered, the participants tend to be those:

1. With more years in their present occupation.
2. From larger organizations.
3. With lower yearly incomes.
4. With lower educational levels.
5. Not receiving expenses for the course.
6. Not receiving pay for the time in class.
7. Willing to travel lesser distances to class.

## Recommendations

This section is devoted to recommendations for future studies for researchers in the continuing adult education field and recommendation to adult educators to assist in the development of quality adult educational programs which will have appeal to those employed as engineering technicians. These recommendations are based entirely on the stated conclusions made from the analysis of the data collected in this study.

1. The conclusion was made in this study that the respondents were from the general population of engineering technicians employed in the State of Oklahoma. Additional studies of participants in continuing education programs designed for those employed as engineering technicians should be made in Oklahoma and in other states to determine differences in motivational factors that might exist with other populations or with other subjects.
2. While it was concluded that the respondents of this study came from the population of engineering technicians in Oklahoma, there were some differences. The educational level and income were slightly higher for the respondents. While this may have been from the effects of inflation between samples, this should be investigated to determine if this difference exists or if those with more education or income are more inclined to enroll in any type of course. This same study should compare the age factor as the respondents tended to be a little younger than the population.

3. The study revealed almost two times as many blacks in the respondents as the population would indicate and that the blacks were primarily interested in credit technical courses. The conclusion was that blacks were interested in certification. Research should be conducted on the black engineering technician to determine why they enroll in courses. A similar study could be made for women, as the conclusion was made that they were not interested in certification.
4. The conclusion was made that certain groups such as the older technicians, those with higher incomes or from private companies, and those that had received their job training from colleges did not take credit courses because they were not interested in certification. These conclusions should be investigated to determine if they are in fact valid.
5. A participant predictability of more than 70% accuracy was obtained from the respondents of this study and should be of some value in planning adult education courses for engineering technicians within the limits set forth in Chapter I. The author recommends that the reader of this research keep in mind that the discriminant analysis used in this study and the conclusions made on the basis of the analysis provide relative estimates of characteristics which can be expected of course participants. Some factors carry more weight than others and the values of the weights can vary from one course to another.



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APPENDIX A

QUESTIONNAIRE FOR ADULT EDUCATIONAL  
PROGRAM

OKLAHOMA STATE UNIVERSITY  
TECHNOLOGY EXTENSION

This survey is conducted by Technology Extension in order to more efficiently meet the needs of participants in our programs. We are only interested in the responses of the group as they are collectively pooled together.

DO NOT SIGN YOUR NAME ANYWHERE ON THE QUESTIONNAIRE!

1. Sex

- 1. \_\_\_ Male
- 2. \_\_\_ Female

2. Marital Status

- 1. \_\_\_ Married
- 2. \_\_\_ Single
- 3. \_\_\_ Divorced
- 4. \_\_\_ Widowed

3. Your Age

- 1. \_\_\_ Under 18
- 2. \_\_\_ 18 to 24
- 3. \_\_\_ 25 to 34
- 4. \_\_\_ 35 to 44
- 5. \_\_\_ 45 to 54
- 6. \_\_\_ 55 to 64
- 7. \_\_\_ Over 65

4. Your Race

- 1. \_\_\_ American Indian
- 2. \_\_\_ Black
- 3. \_\_\_ White
- 4. \_\_\_ Oriental
- 5. \_\_\_ Other

5. Employment Status

- 1. \_\_\_ Active Duty Military
- 2. \_\_\_ Civil Service
- 3. \_\_\_ Private Company
- 4. \_\_\_ Self Employed
- 5. \_\_\_ Retired
- 6. \_\_\_ Unemployed

6. Size of Organization (Local)
1. \_\_\_ Less than 50
  2. \_\_\_ 50 to 100
  3. \_\_\_ 100 to 500
  4. \_\_\_ 500 to 1000
  5. \_\_\_ 1000 to 2000
  6. \_\_\_ 2000 to 5000
  7. \_\_\_ Over 5000
7. Your Present Occupation  
(Job Title)
- \_\_\_\_\_
8. Number of Years in Your Present Occupation
1. \_\_\_ Less than one
  2. \_\_\_ One to 5
  3. \_\_\_ 5 to 10
  4. \_\_\_ 10 to 15
  5. \_\_\_ 15 to 20
  6. \_\_\_ 20 to 30
  7. \_\_\_ 30 to 40
  8. \_\_\_ Over 40
9. Yearly Income
1. \_\_\_ Under \$3,000
  2. \_\_\_ \$3,000 to \$3,999
  3. \_\_\_ \$4,000 to \$4,999
  4. \_\_\_ \$5,000 to \$6,999
  5. \_\_\_ \$7,000 to \$9,999
  6. \_\_\_ \$10,000 to \$14,999
  7. \_\_\_ \$15,000 to \$19,999
  8. \_\_\_ Over \$20,000
10. Approximate Number of Years of Formal Education (Circle One Number)
- 1, 2, 3, 4, 5, 6, 7, 8,  
Grade School
- 9, 10, 11, 12  
High School
- 13, 14,  
Associate Degree
- 15, 16,  
Bachelor's Degree
- 17,  
Master's Degree
- 18, 19, 20  
Doctor's Degree

11. How Did You Learn of This Course?

1. \_\_\_\_\_ Newspaper
2. \_\_\_\_\_ Radio
3. \_\_\_\_\_ Television
4. \_\_\_\_\_ Mail from School
5. \_\_\_\_\_ Friends
6. \_\_\_\_\_ Employer
7. \_\_\_\_\_ Company Counselor
8. \_\_\_\_\_ Other

\_\_\_\_\_ Specify

12. Where Did You Receive the Training Necessary for Your Job?

1. \_\_\_\_\_ Technical Institute
2. \_\_\_\_\_ Junior College
3. \_\_\_\_\_ University
4. \_\_\_\_\_ Company School
5. \_\_\_\_\_ Military School
6. \_\_\_\_\_ On-The-Job Training
7. \_\_\_\_\_ Other

\_\_\_\_\_ Specify

13. What Part of the Expense of This Course Was Paid for You or Reimbursed to You?

1. \_\_\_\_\_ 100%
2. \_\_\_\_\_ 85%
3. \_\_\_\_\_ 75%
4. \_\_\_\_\_ 50%
5. \_\_\_\_\_ 25%
6. \_\_\_\_\_ 15%
7. \_\_\_\_\_ 0%

14. Who Paid or Reimbursed Part or All of Your Expense to Enroll in This Course?

1. \_\_\_\_\_ Military Tuition Assistance
2. \_\_\_\_\_ Veteran's Administration
3. \_\_\_\_\_ My Company
4. \_\_\_\_\_ Welfare
5. \_\_\_\_\_ A Special Grant
6. \_\_\_\_\_ Other

\_\_\_\_\_ Specify

15. Were You Paid by Your Employer for the Time You Were in this Course?

1. \_\_\_\_\_ No
2. \_\_\_\_\_ Partial Pay
3. \_\_\_\_\_ Regular Pay
4. \_\_\_\_\_ Overtime Pay

16. How Far Did You Travel to Attend This Course? (One Way Distance)
1. \_\_\_ Less than 1 mile
  2. \_\_\_ 1 to 2 miles
  3. \_\_\_ 2 to 3 miles
  4. \_\_\_ 3 to 4 miles
  5. \_\_\_ 4 to 5 miles
  6. \_\_\_ 5 to 10 miles
  7. \_\_\_ 10 to 15 miles
  8. \_\_\_ 15 to 20 miles
  9. \_\_\_ 20 to 30 miles
  10. \_\_\_ 30 to 50 miles
  11. \_\_\_ 50 to 75 miles
  12. \_\_\_ 75 to 100 miles
  13. \_\_\_ 100 to 200 miles
  14. \_\_\_ Over 200 miles
17. Which of the Following Types of Classes are Convenient for You to Attend on the College Campus Nearest to You? (Check Any That Apply)
1. \_\_\_ Regular Day Classes
  2. \_\_\_ Evening Classes
  3. \_\_\_ Weekend Classes
  4. \_\_\_ Week-long Seminars
  5. \_\_\_ It is not convenient to attend classes on the campus nearest me.
18. Which of the Following Types of Classes are Convenient for You to Attend if Offered in Your Present Hometown?
1. \_\_\_ Regular Day Classes
  2. \_\_\_ Evening Classes
  3. \_\_\_ Weekend Classes
  4. \_\_\_ Week-long Seminars
19. Does the College Nearest to You Offer Courses which You Need or Want?
1. \_\_\_ Yes
  2. \_\_\_ No
20. What Part of the Year is it Convenient for You to Take Courses? (Check Any That Apply)
1. \_\_\_ Fall
  2. \_\_\_ Winter
  3. \_\_\_ Spring
  4. \_\_\_ Summer
  5. \_\_\_ It Varies



21. What Day of the Week is Convenient for You to Take Courses? (Check Any That Apply)

1. \_\_\_\_\_ Sunday

2. \_\_\_\_\_ Monday

3. \_\_\_\_\_ Tuesday

4. \_\_\_\_\_ Wednesday

5. \_\_\_\_\_ Thursday

6. \_\_\_\_\_ Friday

7. \_\_\_\_\_ Saturday

8. \_\_\_\_\_ It Varies

22. What Time of the Day is Convenient for You to Take Courses? (Check Any That Apply)

1. \_\_\_\_\_ 6 a.m. to 9 a.m.

2. \_\_\_\_\_ 9 a.m. to 12 noon

3. \_\_\_\_\_ 12 noon to 1 p.m.

4. \_\_\_\_\_ 1 p.m. to 3 p.m.

5. \_\_\_\_\_ 3 p.m. to 6 p.m.

6. \_\_\_\_\_ 6 p.m. to 9 p.m.

7. \_\_\_\_\_ 9 p.m. to 12 p.m.

8. \_\_\_\_\_ It Varies

23. Do You Have Access to a Classroom Equipped with the Talk-back Television System?

1. \_\_\_\_\_ Yes

2. \_\_\_\_\_ No

3. \_\_\_\_\_ I don't know where the classrooms are located.

4. \_\_\_\_\_ I have never heard of the talk-back television system.

24. Have You Enrolled in Previous Courses Offered by OSU?

1. \_\_\_\_\_ Yes

2. \_\_\_\_\_ No

25. Why are You Taking This Course?  
(Check All That Apply)

1. \_\_\_ It applies to my hobby
2. \_\_\_ To earn college credit towards a degree
3. \_\_\_ To prepare for a certification or licensing examination
4. \_\_\_ To retain a certification or licensing examination
5. \_\_\_ To keep updated on my job
6. \_\_\_ To help get promoted
7. \_\_\_ To earn more money
8. \_\_\_ To do my own repair work at home
9. \_\_\_ To get a deeper understanding of my job
10. \_\_\_ To get a broader understanding of my job
11. \_\_\_ To be able to do my job better
12. \_\_\_ To prepare for a different job
13. \_\_\_ Curious about the subject matter
14. \_\_\_ It was the only course available and I wanted to enroll in something
15. \_\_\_ To get out of the house more
16. \_\_\_ My employer asked me to enroll
17. \_\_\_ My spouse asked me to enroll

18. \_\_\_ Other

\_\_\_\_\_ Specify

26. Which of the Answers in Question 25 had the Most Influence on Your Decision to Enroll in this Course?

\_\_\_\_\_ Response Number

27. Which of the Answers in Question 25 had the Second Most Influence on Your Decision to Enroll in this Course?

\_\_\_\_\_ Response Number

28. Which of the Answers (which you checked) in Question 25 had the Least Influence on Your Decision to Enroll in this Course?

\_\_\_\_\_ Response Number

APPENDIX B

NORTH-HATT PRESTIGE SCALE

MODIFIED OCCUPATIONAL RATINGS<sup>1</sup>

<u>Occupation</u>	<u>Score</u>
President of the U. S.	96
U. S. Supreme Court Justice	96
Physician	93
State Governor	93
Veterinarian	93
Cabinet Member in the Federal Government	92
Diplomat in the U. S. Foreign Service	92
Mayor of a Large City	90
Astronaut	89
College Professor	89
Scientist	89
Something in Science	89
United States Representative in Congress	89
Banker	88
Government Scientist	88
Admiral	87
County Judge	87
Head of a Department in a State Government	87

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<sup>1</sup>Original scale by Paul K. Hatt and C. C. North in Delbert C. Miller, Handbook of Research Design and Social Measurements. New York: David McKay Co., Inc., 1964, pp. 108 - 110.

<u>Occupation</u>	<u>Score</u>
Minister	87
Architect	86
Chemist	86
Dentist	86
Lawyer	86
Member of the Board of Directors of a Large Corporation	86
Nuclear Physicist	86
Priest	86
Psychologist	85
Civil Engineer	84
Electrical Engineer	84
Engineer	84
Air Force Pilot	83
Airline Pilot	83
Artist	83
Artist Who Paints Pictures That Are Exhibited in Galleries	83
Professional Baseball Player	83
Anthropologist	82
Owner of Factory That Employs About 100 People	82
Sociologist	82
Accountant for a Large Business	81
Biologist	81
Geologist	81
Musician in a Symphony Orchestra	81
Professional Business	81

<u>Occupation</u>	<u>Score</u>
Talented Pianist	81
Army Officer	80
Captain in the Regular Army	80
Coast Guard	80
Dramatics	80
Fashion Designer	80
Building Contractor	79
Counselor in Large School	79
Dancing Teacher	79
Economist	79
Forest Ranger	79
Public Relations	79
Home Economist	79
Physical Therapist	79
Jet Engineer	79
Job Analyst	79
Pharmacist	79
Registered Nurse	79
Agronomist	78
Commercial Art	78
Choral Director	78
Professional Worker	78
Public School Teacher	78
Teacher	78
Teacher and Counselor	78
Vocational Teacher	78

<u>Occupation</u>	<u>Score</u>
County Agricultural Agent	77
Railroad Engineer	77
Farm Owner and Operator	76
Official of an International Labor Union	75
Radio Announcer	75
Newspaper Columnist	74
Owner-operator of a Printing Shop	74
Computer Programmer	73
Drafting	73
Electronics	73
Electrician	73
Federal Government Agriculturist	73
Lab Technician	73
Librarian	73
Peace Corps	73
Technician	73
Skilled Craftsman	73
Undertaker	72
Mortician	72
Reporter on a Daily Newspaper	71
Buyer	69
General Business	69
Government Job	69
Interior Decorator	69
Manager of a Small Store in a City	69
Owner of a Machine Shop	69

<u>Occupation</u>	<u>Score</u>
Owner of a Small Business	69
Auctioneer	68
Bookkeeper	68
Dairy Farm	68
Farming	68
Key Punch Operator	68
Language Interpreter	68
Insurance Agent	68
Office Job	68
Merchandise and Secretary	68
Tenant Farmer--One Who Owns Livestock and Machinery and Manages the Farm	68
Traveling Salesman for a Wholesale Concern	68
Secretary	68
Typist	68
Playground Director	67
Policeman	67
Railroad Conductor	67
Mail Carrier	66
Carpenter	65
Painter	65
Aircraft Mechanic	63
Automobile Repairman	63
Auto Parts	63
Diesel Engineer	63
Diesel Mechanic	63
Plumber	63



<u>Occupation</u>	<u>Score</u>
Car Mechanic	62
Garage Mechanic	62
Local Official of a Labor Union	62
Mechanical Work	62
Owner-operator of a Lunch Stand	62
Skilled Laborer	62
Army Skilled Man	60
Assembly Line	60
Corporal in the Regular Army	60
Factory Worker	60
Machine Operator in a Factory	60
Welder	60
Airline Stewardess	59
Barber	59
Beautician	59
Hair Dresser	59
Model	59
Practical Nurse	59
Work in Hospital	59
Clerk in a Store	58
Seamstress	58
Streetcar Motorman	58
Fisherman Who Owns His Own Boat	58
Culinary Arts	54
Milk Routeman	54
Race Car Driver	54

<u>Occupation</u>	<u>Score</u>
Restaurant Cook	54
Truck Driver	54
Hunting Guide	53
Lumberjack	53
Filling Station Attendant	52
Singer in a Night Club	52
Singer and Comedian	52
Singer	52
Tinker Field Worker	51
Construction	51
Babysitting	50
Ditch Digger	50
Farmhand	50
Oil Field	50
Coal Miner	49
Taxi Driver	49
Railroad Section Hand	48
Restaurant Waiter	48
Dock Worker	47
Night Watchman	47
Clothes Presser in a Laundry	46
Soda Fountain Clerk	45
Bartender	44
Janitor	44
Sharecropper--One Who Owns no Livestock or Equipment and Does Not Manage Farm	40

<u>Occupation</u>	<u>Score</u>
Garbage Collector	35
Street Sweeper	34
Shoe Shiner	33
Housewife	01

**APPENDIX C**

**COMPUTER CARD COLUMN RESERVATION**

Card Column Reservation for Data

<u>Item</u>	<u>Column Number</u>
Sex	1
Marital Status	2
Age	3
Race	4
Employment Status	5
Size of Organization	6
Present Occupation	7- 8
Years in Present Occupation	9
Yearly Income	10
Years of Formal Education	11-12
How Did You Learn of This Course	13
Training for Job	14
Expenses Paid or Reimbursed (Percent)	15
Expenses Paid or Reimbursed by Whom	16
Payment by Employer	17
Distance Traveled	18-19
Types of Classes Most Convenient at Nearest College	20-24
Types of Classes Most Convenient in Hometown	25-28
Does College Offer Courses that Are Needed or Wanted	29
Part of Year Convenient to Take Courses	30-34
Day of Week Convenient to Take Courses	35-42
Time of Day Convenient to Take Courses	43-50
Access to Classroom Equipped with Talk-back Television System	51
Previous Enrollment in Courses Offered by OSU	52
Reason for Taking Course	53-70
Most Influence for Enrolling in Course	71-72
Second Most Influence for Enrolling in Course	73-74
Least Influence for Enrolling in Course	75-76
Course Number Enrolled In	77-78
Credit Course vs. Non-Credit	79
Technical Level of Course	80

**APPENDIX D**

**RAW DATA**

RESPONSES TO QUESTIONS RELATED TO  
DEMOGRAPHIC INFORMATION

	<u>Question 1</u>	<u>Frequency</u>	<u>Relative Frequency</u>
<b>Sex</b>			
Male		346	89.87
Female		38	9.87
 <u>Question 2</u>			
<b>Marital Status</b>			
Married		294	76.364
Single		70	18.182
Divorced		18	4.675
Widowed		1	0.260
 <u>Question 3</u>			
<b>Your Age</b>			
Under 18		1	0.260
18 to 24		125	32.468
25 to 34		133	34.545
35 to 44		74	19.221
45 to 54		36	9.351
55 to 64		15	3.896
Over 65		0	0.000

Question 4

	<u>Frequency</u>	<u>Relative Frequency</u>
Your Race		
American Indian	13	3.377
Black	20	5.195
White	340	88.312
Oriental	1	0.260
Other	8	2.078

Question 5

## Employment Status

Active Duty Military	181	47.013
Civil Service	31	8.052
Private Company	141	36.623
Self Employed	9	2.338
Retired	1	0.260
Unemployed	15	3.896

Question 6

## Size of Organization (Local)

Less than 50	72	18.701
50 to 100	20	5.195
100 to 500	129	33.506
500 to 1000	27	7.013
1000 to 2000	44	11.429
2000 to 5000	22	5.714
Over 5000	51	13.247



Question 8

	<u>Frequency</u>	<u>Relative Frequency</u>
Number of Years in Your Present Occupation		
Less than one	34	8.831
One to 5	173	44.935
5 to 10	68	17.662
10 to 15	41	10.649
15 to 20	31	8.052
20 to 30	32	8.312
30 to 40	2	0.519
Over 40	1	0.260

Question 9

## Yearly Income

Under \$3,000	10	2.597
\$3,000 to \$3,999	9	2.338
\$4,000 to \$4,999	31	8.052
\$5,000 to \$6,999	70	18.182
\$7,000 to \$9,999	88	22.857
\$10,000 to \$14,999	95	24.675
\$15,000 to \$19,999	43	11.169
Over \$20,000	32	8.312

<u>Question 10</u>	<u>Frequency</u>	<u>Relative Frequency</u>
Approximate Number of Years of Formal Education		
1	0	0.000
2	0	0.000
3	0	0.000
4	1	0.260
5	0	0.000
6	1	0.260
7	1	0.260
8	0	0.000
9	3	0.779
10	4	1.039
11	4	1.039
12	148	38.442
13	56	14.545
14	65	16.883
15	28	7.273
16	49	12.727
17	17	4.416
18	0	0.000
19	2	0.519
20	4	1.039

<u>Question 12</u>	<u>Frequency</u>	<u>Relative Frequency</u>
Where Did You Receive the Training Necessary for Your Job?		
Technical Institute	42	10.909
Junior College	11	2.857
University	58	15.065
Company School	4	1.039
Military School	158	41.039
On-The-Job Training	105	27.273
Other	4	1.039

RESPONSES TO QUESTIONS RELATED TO  
REASONS FOR ATTENDING

<u>Question 25</u>	<u>Frequency</u>	<u>Relative Frequency</u>
Why Are You Taking This Course (Check Any That Apply)		
1. It applies to my hobby	64	16.632
2. To earn college credit towards a degree	139	36.104
3. To prepare for a certification or licensing examination	125	32.468
4. To retain a certification or license	23	5.974
5. To keep updated on my job	198	51.429
6. To help get promoted	98	25.455
7. To earn more money	116	30.130
8. To do my own repair work at home	75	19.481
9. To get a deeper understanding of my job	168	43.636
10. To get a broader understanding of my job	165	42.857
11. To be able to do my job better	208	54.026
12. To prepare for a different job	93	24.156
13. Curious about the subject matter	85	22.078
14. It was the only course available and I wanted to enroll in something	4	1.039

<u>Question 25</u> (Continued)	<u>Frequency</u>	<u>Relative Frequency</u>
15. To get out of the house more	9	2.338
16. My employer asked me to enroll	37	9.610
17. My spouse asked me to enroll	5	1.299
18. Other	15	3.896

<u>Question 26</u>	<u>Frequency</u>	<u>Relative Frequency</u>
Which of the Answers in Question 25 Had the <u>Most</u> Influence on Your Decision to Enroll in This Course?		
1. It applies to my hobby	10	2.597
2. To earn college credit towards a degree	53	13.766
3. To prepare for a certification or licensing examination	74	19.221
4. To retain a certification or license	6	1.558
5. To keep updated on my job	26	6.753
6. To help get promoted	8	2.078
7. To earn more money	14	3.636
8. To do my own repair work at home	15	3.896
9. To get a deeper understanding of my job	17	4.416
10. To get a broader understanding of my job	25	6.494
11. To be able to do my job better	37	9.610
12. To prepare for a different job	11	2.857
13. Curious about the subject matter	14	3.636
14. It was the only course available and I wanted to enroll in something	0	0.000
15. To get out of the house more	0	0.000
16. My employer asked me to enroll	21	5.455
17. My spouse asked me to enroll	2	0.519
18. Other	8	2.078

<u>Question 27</u>	<u>Frequency</u>	<u>Relative Frequency</u>
Which of the Answers in Question 25 Had the <u>Second Most</u> Influence on Your Decision to Enroll in This Course?		
1. It applies to my hobby	15	3.896
2. To earn college credit towards a degree	53	13.766
3. To prepare for a certification or licensing examination	21	5.455
4. To retain a certification or license	1	0.260
5. To keep updated on my job	32	8.312
6. To help get promoted	15	3.896
7. To earn more money	18	4.675
8. To do my own repair work at home	12	3.117
9. To get a deeper understanding of my job	35	9.091
10. To get a broader understanding of my job	35	9.091
11. To be able to do my job better	43	11.169
12. To prepare for a different job	20	5.195
13. Curious about the subject matter	17	4.416
14. It was the only course available and I wanted to enroll in something	1	0.260
15. To get out of the house more	2	0.519
16. My employer asked me to enroll	4	1.039
17. My spouse asked me to enroll	2	0.519
18. Other	3	0.779

<u>Question 28</u>	<u>Frequency</u>	<u>Relative Frequency</u>
Which of the Answers (Which you Checked) in Question 25 Had the <u>Least</u> Influence on Your Decision to Enroll in This Course?		
1. It applies to my hobby	22	5.714
2. To earn college credit towards a degree	13	3.377
3. To prepare for a certification or licensing examination	9	2.338
4. To retain a certification or license	4	1.039
5. To keep updated on my job	37	9.610
6. To help get promoted	12	3.117
7. To earn more money	22	5.714
8. To do my own repair work at home	12	3.117
9. To get a deeper understanding of my job	16	4.156
10. To get a broader understanding of my job	22	5.714
11. To be able to do my job better	23	5.974
12. To prepare for a different job	19	4.935
13. Curious about the subject matter	28	7.273
14. It was the only course available and I wanted to enroll in something	8	2.078
15. To get out of the house more	29	7.532
16. My employer asked me to enroll	4	1.039
17. My spouse asked me to enroll	22	5.714
18. Other	4	1.039



RESPONSES TO QUESTIONS RELATED TO  
LIMITING FACTORS

<u>Question 11</u>	<u>Frequency</u>	<u>Relative Frequency</u>
How Did You Learn of This Course?		
Newspaper	39	10.130
Radio	2	0.519
Television	1	0.260
Mail from School	39	10.130
Friends	91	23.636
Employer	101	26.234
Company Counselor	29	7.532
Other	81	21.039

Question 13

What Part of The Expenses of This  
Course Was Paid for You or  
Reimbursed to You?

100%	152	39.481
85%	10	2.597
75%	141	36.623
50%	4	1.039
25%	13	3.377
15%	3	0.779
0%	51	13.247

Question 14FrequencyRelative Frequency

Who Paid or Reimbursed Part or All  
of Your Expense to Enroll in This  
Course?

Military Tuition Assistance	159	41.299
Veteran's Administration	31	8.052
My Company	124	32.208
Welfare	0	0.000
A Special Grant	6	1.558
Other	26	6.753

Question 15

Were You Paid by Your Employer for  
the Time You Were in This Course?

No	255	66.234
Partial Pay	3	0.779
Regular Pay	101	26.234
Overtime Pay	10	2.597

<u>Question 16</u>	<u>Frequency</u>	<u>Relative Frequency</u>
How Far Did You Travel to Attend This Course? (One Way Distance)		
Less than 1 mile	59	15.325
1 to 2 miles	36	9.351
2 to 3 miles	33	8.571
3 to 4 miles	29	7.532
4 to 5 miles	35	9.091
5 to 10 miles	63	16.364
10 to 15 miles	26	6.753
15 to 20 miles	21	5.455
20 to 30 miles	12	3.117
30 to 50 miles	9	2.338
50 to 75 miles	10	2.597
75 to 100 miles	16	4.156
100 to 200 miles	16	4.156
Over 200 miles	10	2.597

Question 17FrequencyRelative Frequency

Which of the Following Types of  
Classes are Convenient for You to  
Attend on the College Campus  
Nearest to You? (Check Any That  
Apply)

Regular Day Classes	40	10.417
Evening Classes	276	71.875
Weekend Classes	58	15.104
Week-long Seminars	24	6.250
It is not convenient to attend classes on the campus nearest me.	0	0.000

Question 18

Which of the Following Types of  
Classes are Convenient for You to  
Attend if Offered in Your Present  
Hometown? (Check Any That Apply)

Regular Day Classes	47	12.240
Evening Classes	321	83.594
Weekend Classes	61	15.885
Week-long Seminars	14	3.646

Question 19

Does the College Nearest to You  
Offer Courses Which You Need or  
Want?

Yes	187	48.698
No	154	40.104

Question 20FrequencyRelative Frequency

What Part of the Year is It  
Convenient for You to Take  
Courses? (Check Any That Apply)

Fall	160	41.667
Winter	162	42.188
Spring	125	32.552
Summer	72	18.750
It Varies	174	45.313

Question 21

What Day of the Week is Convenient  
for You to Take Courses? (Check  
Any That Apply)

Sunday	30	7.813
Monday	171	44.531
Tuesday	194	50.521
Wednesday	178	46.354
Thursday	188	48.958
Friday	92	23.958
Saturday	41	10.677
It Varies	137	35.677

<u>Question 22</u>	<u>Frequency</u>	<u>Relative Frequency</u>
What Time of the Day is Convenient for You to Take Courses? (Check Any That Apply)		
6 a.m. to 9 a.m.	26	6.771
9 a.m. to 12 noon	27	7.031
12 noon to 1 p.m.	13	3.385
1 p.m. to 3 p.m.	21	5.469
3 p.m. to 6 p.m.	23	5.990
6 p.m. to 9 p.m.	245	63.802
9 p.m. to 12 p.m.	27	7.031
It Varies	96	25.000

Question 23

Do You Have Access to a Classroom Equipped with the Talk-back Television System?		
Yes	58	15.065
No	253	64.714
I don't know where the classrooms are located.	32	8.312
I have never heard of the talk- back television system.	35	9.091

Question 24

Have You Enrolled in Previous Courses Offered by OSU?		
Yes	101	26.234
No	276	71.688

APPENDIX E

OCCUPATIONS BY PROGRAM

OCCUPATIONS BY PROGRAM

Program	Occupation	Number
Auto Maintenance	Army Skilled	14
	Army Officer	3
Geometric Tolerancing	Drafting	12
	Engineer	3
	No Response	2
Electric Motors	Technician	5
	Electrical Engineer	3
Hydraulics	Engineer	5
	No Response	2
National Electrical Code	Electrician	20
	Engineer	6
	Drafting	7
	Teacher	1
Petroleum Industry	Lawyer	2
	Technician	13
	Secretary	9
	Drafting	3
	Banker	8
	Chemist	1
Principles of Supervision	Professional Business	4
	Electrician	2
	Technician	23
Project Engineering	Engineer	4
	Engineer	6
Electronic Controls	No Response	1
	Electronics	6
Welding	No Response	3
	Skilled Labor	5
Radiation Safety	Physician	1
	Technician	6
	No Response	1



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Program	Occupation	Number
Advanced Electronics	Electronic Technician	14
	Electrical Engineer	1
	No Response	1
Basic Electronics	Electronic Technician	47
	No Response	4
Electronic Amplifiers	Electronic Technician	12
	No Response	2
Electronic Communications	Electronic Technician	30
	No Response	4
Aeronautical Technology	Aircraft Mechanic	37
	Engineer	1
	Clerk	2
Algebra and Trigonometry	Electronic Technician	8
	Clerk	1
	Teacher	1
	No Response	3
Construction	Carpenter	1
	Skilled Labor	4
	Teacher	3
	No Response	1
Report Writing	Engineer	4
	Electronic Technician	21
	No Response	2

VITA

Jackie Ray Monks

Candidate for the Degree of

Doctor of Education

**Thesis:** PARTICIPATIVE MOTIVATIONAL FACTORS IN OKLAHOMA'S TECHNOLOGY  
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