

HIGHER EDUCATION AND EMPLOYMENT: A STUDY
OF GRADUATES AT THE OKLAHOMA
STATE UNIVERSITY

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PREFACE

This study was concerned with the employability of Oklahoma State University graduates in order to determine the influence of college education on students' jobs and employment. Among the objectives of the study were: to find out the employment status of the graduates after years of graduation; to assist in program planning and evaluation within the university; and, to create a data base for study of the effects of higher education on students.

A research project of this scope, involving direct collection of data from two classes of O.S.U. graduates would have been impossible without the help of the Office of Institutional Research, O.S.U. Thanks to Mr. M. L. Gilliam, Assistant Director, Institutional Research, who helped in the selection of the sample, and mailing the questionnaire.

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CHAPTER I

INTRODUCTION

Background

Historically, Americans have displayed an almost mystical belief in education as the upward path, the road to success. Even today nothing is perceived as more important to the nation's well-being than providing an equal chance for quality education for all. Today almost 64 million Americans, that is, 30 percent of the population participate directly in its operations. It takes up 38 percent of our state and local budgets (Ribicoff, 1978).

But times change and new issues arise under new social and technological conditions. New problems lead to proposals for new solutions, some of which flout existing patterns of conduct and challenge the values and attitudes of many persons. The increasing number of graduates who are finding difficulty in obtaining suitable employment not only emphasizes the problem, it also provides the opportunity for a critical assessment of the situation: Is higher education still of value? Does college education help the students find their paths in life?

The level of educational attainment in all the industrialized countries is rising with unprecedented rapidity, and concomitant with the worldwide rise in educational attainment is the desire among young people for more education and better jobs. The complex relationship between the quantity and quality of jobs and the quality of life indicates that unemployment is a misuse of human resources, that family life is affected by employment conditions and that jobs can make workers healthy or unhealthy. For this reason O'Toole (1977, p. 32) points out that "making education relevant to work is fast becoming a national concern. . . . It has become the guiding, if not sole, principle of educational reform in this decade."

The most disturbing dysfunction between education and work is underemployment, the underutilization of education, training, skills, intelligence and other human resources. Freeman (1976) commented that too many individuals are graduating from college and are forced to take jobs that do not use their training. O'Toole (1975) argued that these graduates are not satisfied because they are underemployed. According to him, unlike unemployment, the official rates of which are basically cyclical in nature, underemployment appears to be a chronic and growing condition. This condition is probably at the root of most severe problems of industrial society. It is certainly a major cause of job dissatisfaction and increasing demands for improvements in the quality of working life.

In fact, employers have responded to larger pools of qualified workers by raising the credential requirements for jobs without upgrading the demands, challenges or reward of these jobs.

Green (1968, p. 154) concluded that employers and society are no longer concerned with how much one learns in schools, but with whether or not one has the proper credentials. The problem of increasing credentialism not only fosters frustration among the educated, it closes off employment options for the lower classes.

According to Wiegner (1979),

A graduate education, which throughout most of American history has been an advantage to those fortunate enough to obtain one because it was a passport to good-paying, high-status jobs, has become less of a valuable credential and more of an incurable disease. It became a disease because possession of the coveted certificate can render a holder 'overqualified' in employer's eyes for lesser jobs (p. 12).

It is happening not only in America, but in other socialist and capitalist countries alike, increasing number of highly qualified workers are unable to find jobs that require their skills and training. In England, a young Oxford graduate finds that the only job open to him is as a salesman in an electronics firm. A Stanford Ph.D. takes the best post available upon graduation, that of a middle-level bureaucrat in a regional office. In Sweden, a young woman with a B.A. in Chemistry finds that she is a clerk in a

state industry. In California, a black dropout is told that a high school diploma is required to box groceries (O'Toole, 1977).

Statement of the Problem

Questions of whether colleges can or should prepare students for work have existed since higher education came into existence. Aristotle declared: "Should the useful in life, or should virtue, or should the higher knowledge be the aim of our training? . . . No one knows on what principle should we proceed" (O'Toole, 1977, p. 136).

In so saying, Aristotle admitted his failure to resolve the tension existing between liberal education, on the one hand, and technical training on the other. Most authors over the years have acknowledged that education and work are closely related. The chasm between the two philosophies has remained unbridged for centuries. Nevertheless, it seems urgent today, to make one more effort at closing this persisting gap between educational philosophies. Hence, more recently the focus of debate has moved away from questions of "career education", as such, to the relation between education of any kind and work of all kinds, in particular, to the benefits of education in work and later life.

X Historically, preparation for jobs has been termed the vocational function of education. In the mid-1960s, career education came into vogue as a concept to broaden

vocationalism from teaching specific entry-level job skills to providing competencies useful in work over a lifetime. Hence, recently, the colleges have been challenged to be more efficient, productive, accountable, and consumer oriented; the debate about their role in job preparation has grown (Solmon, 1978).

The reason seems to be as Bean (1979, p. 6) pointed out with respect to a wide range of modern occupations that liberal arts education has little immediate application to the content of jobs that will be open for the graduates, either at graduation or later. This is the force which is driving many curricula more and more in the "professional" direction.

The labor market has not always been a continuing source of concern for higher education, but it has now changed, and has probably changed for the foreseeable future. According to the Carnegie Commission (1973), it is now a serious concern for higher education and will remain so. The recent experience of college graduates searching jobs, have highlighted the contemporary concern about the labor market prospects for college educated persons.

Many universities, non-responsive to market demand, continue to pour thousands of graduates into a market that has not been able to absorb previous year's classes. It is as if a factory were to continue turning out a product for which there was little demand, simply putting the unsold product into inventory. It is obvious that these employment

problems to some extent can be explained by a slower growth of demand for labor combined with a more rapid growth of total labor supply than before.

Many people refuse to accept such a simple model as the entire explanation for high youth unemployment. They argue that deterioration in employment prospects for the young is due to a malfunctioning in the relationship between the educational sector and the labor market. There is, in other words, a lack of congruence between schooling and employment.

Above all, scholars predict that many colleges and universities will close in the next few years, and that others will have to make great changes if they are to survive. In Oklahoma, there is talk of closing or downgrading the status of several small colleges. According to Dunlap (1978, p. 65), the chancellor for higher education in Oklahoma, "These schools are mostly in rural areas where the people aren't any more. It's like the country store where the customers keep leaving but you keep the doors open anyway."

X Mayhew (1979) emphasized that reassessment of institutional programs is very important for the survival of higher education in the 80s. Du Bois (1978) also stressed:

Our educational institutions must graduate to the world men fitted to take their place in real life by their knowledge, spirit and ability to do what the world wants done. This vocational guidance must have for its object the training of men who can think clearly and function normally as

physical beings; who have a knowledge of what human life on earth has been; and what it is now; and a knowledge of the constitution of known universe. All that, and in addition to that, a training which will enable them to take some definite and intelligent part in the production of goods and in the pursuing of human services and in the democratic distribution of income . . . The higher training and vocational guidance must turn out young men and women who are willing not only to do the work of the world today but to provide for the future world (p. 88).

Knock (1978) pointed out that heading the list for college student unrest is jobs and economy. Even the most casual observer of campus life understands that students are anxious about finding jobs after the completion of their degrees. Having a college degree may never have the same meaning it once had. This situation is known to students and is causing fear, uncertainty and disillusionment.

According to O'Toole (1977), the root cause of this problem is that while education is society's most future-oriented activity, yet, the American system of education seems bent on training young people to meet current employment demands and cyclical economic circumstances. These conditions normally pass by the time the student is ready to enter the labor market. Choosing future-oriented educational policies requires some notion of the environment in which people will be working in coming decades. Therefore, O'Toole suggests that institutions should seek to anticipate potential dysfunctions between education and work in order to develop congruent, proactive policies that might

prevent severe social, political and economic problems in the future.

The Purpose of the Study

There is lack of extensively collected, carefully analyzed data that could provide an understanding of how Oklahoma State University (hereinafter abbreviated OSU) graduates fare in the employment market. The effects and influences of college experiences are complex, varied and often subtle, so that any precise measurement is difficult to define. One means of obtaining insight into, and understanding of the process is to ascertain what happens to the University's students after they graduate. This study was designed to that end.

The purpose of this proposed investigation was, therefore, to determine the extent to which graduates employed in different occupations utilized their college education. Through a survey questionnaire, graduates who received their undergraduate degrees from the classes of 1970 and 1976 at OSU expressed their own views on the ways in which their college education contributed to their career development.

The study assessed the effectiveness of schooling in the development of career plans and sought to relate the career experiences of two graduating classes to their college experiences.

This can help in making decisions regarding the continuation, termination, and modification of certain academic programs.

Specific objectives of the study, therefore, were:

1. To determine to what extent the graduates were employed in the fields in which they received their degrees.
2. To determine the salary levels of graduates in various fields.
3. To determine the frequency of change of jobs within or outside the major fields of study.
4. To determine which was most important in obtaining the second job after graduation, the college education or the experience gained in the first job.
5. To determine if career choices of these students were independent of external (i.e. family and college authorities) influences.
6. To determine perceptions of these graduates as to the assistance the graduates received in their careers from their education at OSU.
7. To determine the need for additional education in the field the graduate is currently employed.
8. To determine differences in perceptions of the graduates of 1970 and those of 1976 as regards their career preparation at OSU.

Hypotheses

The specific hypotheses formulated were:

1. There is no significant difference in the perceptions of OSU graduates of 1970 and those of 1976 as regards their career preparation at OSU
2. There is no significant difference between

OSU graduates of 1970 and those of 1976, and the influence of peers, family, faculty or the job market.

3. There is no significant difference in the perceptions of male and female graduates within both classes as regards their career preparation at OSU.
4. There is no significant difference between college majors within both classes on perceptions as regards their career preparation at OSU.
5. There is no significant difference between college majors within classes on characteristics such as obtaining first job after graduation, change of jobs and salary levels.

Significance of the Study

Evaluation is a valuable means to the end of improving the performance of individuals and institutions. It facilitates progress toward goals and objectives. Cartter (1966) argued the case for systematic evaluation:

Diversity can be a costly luxury if it is accompanied by ignorance. Evaluation by rumor and word of mouth is far from satisfactory, particularly in advanced training for scholarship and professions (p. 3).

The decision to survey bachelor's degree holders exclusively was dictated by the study's focus on undergraduate education. Previous studies have shown that, for the first few years after college, there is considerable career instability and that long-run occupational differences between individuals are most accurately assessed after 10 years in the labor force (Mincer, 1970).

Although the value of college education is not measureable solely in terms of its usefulness in the marketplace, the dominant interest, constantly reinforced in America is in its marketability. Research concerning the students on the job is very sparse, due to the rapid and recent growth of the movement. The review of the literature offered the most glaring omission of research in the area of the work values of the college graduates. This study asked the graduates themselves to speak about the usefulness of their education for careers on the basis of their own experience at work. One criterion for appraisal was that of relevancy, or the extent to which graduates felt college experiences met their needs and prepared them to face adult tasks with reasonable hope of success.

This study was, therefore, undertaken to add new data to the existing body of knowledge about the influence college education can have on students. Although the survey focused mainly on the education-work relationship, it provided graduates' views and opinions on a wide range of uses of college education.

Moreover, in spite of a great many studies on college students, few have compared two classes within an institution. The comparison between employment status of graduates for two classes has given a better understanding of the job market trends for the last ten years. The survey questionnaire of the 1976 class obtained information of

employment status of individuals who had been working for approximately four years or less. Whereas the responses of 1970 class graduates gave perspectives from those who had been in the labor force for 10 years.

Withey (1977) pointed out:

Class comparisons assume that a given freshman class is similar to that of four years before or four years hence. A university may also change in whom it admits, attracts or allows to stay. Class comparisons also usually assume that the measured factors have remained steady in the population, indicating that changes are due to the college experience and not to shifts in the larger society (p. 11).

In the present study, focus was mainly on the shifts in the larger society and the differences of opinions of the graduates of both classes. Moreover, it is generally agreed that it takes five to ten years for an individual to achieve long-run career aspirations. For example, in the first years of work, individuals tend to obtain on-the-job training (Mincer, 1970) and to experiment with various career options. These activities usually result in more negative attitudes about the value of education than those revealed later in life (Solmon, 1977). Hence, length of time in labor force may account, in part, for differences between the 1970 and 1976 graduates' responses.

Basic Assumptions of the Study

Although no two classes of graduates, or two institutions face exactly the same conditions, it was assumed that data collected through the survey questionnaire would have sufficient universality so that conclusions could be drawn about the graduates of this institution for the last ten years, and that other institutions could profit from the study. It was further assumed that former graduates could make a rational evaluation of their college education and were able to state their opinions on a wide range of uses and benefits of college education.

Limitations of the Study

Information was sought from former graduates now on the job. This study involved through random sampling only those graduates whose addresses were available from the Alumni Office at OSU. Moreover, to control for delay in communication, students with addresses outside the United States were eliminated from the sample. Investigation was made only about the education of graduates at OSU as regards their jobs and employment status.

Definition of Terms

Education for work is alternately called vocational, occupational, and career education. The terms are not synonymous.

Work. Work is a conscious effort, other than that whose primary purpose is either coping or relation, aimed at producing benefits for oneself or for oneself and others (Office of Career Education, United States Office of Education).

Vocational Education. The U.S. government defined vocational education as organized educational programs which are directly related to the preparation of individuals for paid or unpaid employment, or for additional preparation for a career requiring other than a baccalureate or advanced degree (Education Amendments of 1976).

Occupational Education. The U.S. government defined occupational education as, education, training, or retraining for persons 16 years of age or older who have graduated from or left elementary or secondary school, conducted by an institution authorized to provide post-secondary education which is designed to prepare individuals for gainful employment as semiskilled or skilled workers or technicians or sub-professionals in recognized occupations, or to prepare individuals for enrollment in advanced technical education programs but excluding any programs . . . considered professional or which require a baccalaureate or advanced degree (Higher Education Amendments of 1972).

Career Education. Sidney Marland while U.S. Commissioner of Education, described it as education to develop the skills necessary to live a full life that revolves about satisfying and meaningful work (1971, p. 2).

Graduate. Graduate refers to a person who graduated from Oklahoma State University with a bachelor's degree from any of the following six colleges.

- College of Agriculture
- College of Arts and Sciences
- College of Business Administration
- College of Education
- College of Engineering
- College of Home Economics

College. A college is the sum of all activities and responsibilities within a single academic field and its related areas (Faculty Handbook, 1978).

Some Facts About Oklahoma State University

Oklahoma State University is located in North Central Oklahoma in Stillwater, a town of about 25,000 population. Founded in 1890 as Oklahoma Agricultural and Mechanical College, its name was changed to reflect its University status in 1957. In 1896 the college graduated the first class in the Indian Territory with six young men receiving Bachelor of Science degrees. During the next 80 years (1896-1976) OSU awarded 94,443 degrees, including associates, bachelors, masters, and doctorates (Faculty Handbook, 1978).

The University, proud of its land-grant heritage, takes seriously the commitment to promote liberal

and practical education on the campus, throughout the state of Oklahoma, and in those areas of the nation and world where its special talents can be put to use (Graduate Catalog, 1979-80, p. 54).

Today finds Oklahoma State University with a total enrollment of more than 23,600 students in residence on its three campuses at Stillwater, Oklahoma City, and Okmulgee. The University continues its commitment, as a land-grant university, to promote liberal and practical education on the campuses. Strengths in the arts, in the social and behavioral sciences, and in the applied areas of business and education stand side by-side with traditional land-grant institution strengths in the biological and physical sciences and in the applied areas of agriculture, engineering, home economics, and veterinary medicine. Growth in graduate enrollments and offerings at both the Master's and Doctoral levels, together with growth in research, extension and public service, have also been substantial in recent years.

In fact, the 60's and 70's have seen Oklahoma State University 'come of age' and be recognized regionally, nationally, and internationally as a university in the fullest sense. In 1969, OSU received a Distinguished Service Award from the Readers Digest Foundation and the Institute of International Education for its leadership and service in international education and cultural relations (Faculty Handbook, 1978).

Some reorganization of the University occurred in an effort to meet better the demands of the changing world of the '70's. New programs were added, and obsolete ones were dropped. Competency and relevancy are key words as OSU builds on past accomplishments, serves in 'the now', and plans for the future.

The University's Planning Council recently re-stated OSU's mission as follows:

The mission of the Oklahoma State University is to provide an environment in which its constituents can discover, examine critically, preserve, and transmit knowledge, wisdom, and values that will help ensure the survival of present and future generations, with enrichment in the quality of life (Faculty Handbook, 1978, p. 8).

After examining information collected from a university wide inquiry of issues and concerns and analyzing the constraints and opportunities internal and external to the University, the following University goals were adopted as a guide for activities for the FY 1979-80 through FY 1983-84.

- I. To enhance the academic experience of lower division students.
- II. To actively and selectively recruit quality faculty and graduate students.
- III. To serve the non-traditional student effectively and efficiently.
- IV. To substantially increase external support for research and extension activities related to graduate programs of excellence and University Research Thrusts.

V. To provide services and supportive structure essential to the achievement of previously stated goals.

Each functional unit of the University, research, instruction and extension, has developed goals and objectives which relate to one or more of the above-stated general University goals, which are specific and related to the process of planning at college and department levels.

CHAPTER II

REVIEW OF LITERATURE AND RELATED RESEARCH

Rationale for the Link Between Work and Education

The exploration of the interrelationships between work and education reveals that Americans place preparation for work, economic success, and better jobs above a variety of other reasons why people go to school. National polls such as Gallup indicate that public attitudes toward higher education are quite positive.

Higher education, no matter where it is attained, is regarded a foundation upon which the undecided or 'floundering' youngster can begin to construct a concept of what vocational endeavor will satisfy his/her particular set of abilities, talents and inner aspirations. And what is more, frequently the determination of what vocation to pursue will grow out of the exposure to new ideas provided in a college or university setting (Jones, 1979, p. 23)

Relationship between education and work has changed and will continue to do so. This indicates that the meaning of one goal of education preparation for work must also change with these changing relationships. As the occupational

society becomes increasingly more specialized, more technology-oriented, post industrial in its makeup, it becomes increasingly appropriate to expect higher education to express concern for providing its graduates with one or more sets of occupational-specific marketable skills that can be used for entry into the occupational society. The goal of education as preparation for work must surely take this change into account if it is accepted by a particular institution of higher education (Hoyt, 1979).

Whitehead (1961) believed that the proper goal of education, self-development, occurs through "discovery" (experience in Dewey's terminology). He felt that education and work must be transformed by making discovery (learning) the goal of both activities. To fail to do so is to encourage underemployment and its many discontents. Whitehead fully recognized that not all workers were fit for the life of the mind and that the economy would require some people to work with their hands or in other dull types of work. Nevertheless, Whitehead felt that for all people there was value in linking together knowledge, labor and moral energy.

The Bureau of Labor Statistics (BLS) forecasted that 20 percent of all jobs will require a college education in 1980. Furthermore, the data collected by the BLS portend even greater underemployment in the future. Between 1972 and 1985 there will be a demand for about forty-eight million

white-collar workers (of which more than sixteen million will be in new jobs). Composing this forty-eight million will be about seventeen million clerical workers, twelve million professional and technical workers, nine million service workers, six million managers and four million salesworkers (U.S. Department of Labor, 1974). Thus, there will be about eighteen million job openings that tend to have high status: the professional, technical and managerial positions. In the period between 1972 and 1985, there may be as many as twenty-two million people with graduate and undergraduate degrees competing for the eighteen million professional and managerial posts (Simon and Frankel, 1972).

However, as Withey (1971) suggested, although income, occupation and education are related, yet they are not interlocked. A teacher or nurse with a college education does not have a claim on a high income. A tool and die maker without a college education may have a significantly higher income. But a high-income business executive without a college education is becoming rare. Education has increasingly become the bridge to better status.

Bean (1979) stressed that American industry is today spending \$2 billion a year for employee training. At a time when students are clamoring for marketable degrees, academics might be well advised to find out what the corporations are seeking from the colleges and how they are

preparing their own work force. As Kerr (1979) has pointed out, despite the efforts of Harvard and a few other places, the curriculum of today is not being dominated by thought and by academic considerations but by efforts to respond to the current desires of the consumers.

Many states have already chosen to adhere to a traditional vocational philosophy to improve the match between institutions of education and work. In California and Utah, for example, the preferred solution to the problem of unemployment is greater vocationalism. In Utah, where state law already dictates that no less than 75 percent of all courses in vocational institutions must be directly related to the provision of specific job skills, vocational educators are attempting to remove as many of the remaining nontechnical courses as possible (O'Toole, 1977).

The goal for the future of education seems strikingly similar in all countries: each is seeking to integrate academic and vocational education. Countries with an excess of vocational education (such as Germany) are stressing more general education, and those that have focussed on general education (including the United States) are now leaning toward greater vocationalism. The Germans, for instance, are actively considering a plan for their upper-secondary schools in which college-bound students will be exposed to the world of work, and in which vocationally oriented youth will have greater exposure to liberal studies. The stated

purposes of the German proposal are to remove the low esteem of blue-collar work, to break down distinctions between forms of credentials, and to create a freer flow between institutions of work and education for all social classes. There is the real possibility, especially in America, that the purpose of all education may come to be seen as serving the world of work (O'Toole, 1977, p. 138).

The Role of Education in the Present Job Market

There are many who argue that education for work is inappropriate to an undergraduate education. This criticism was voiced by the Yale faculty in 1828, Newman (1959), Veblen (1968), Flexner (1968) and many other people. They all believed that the proper place for work education is on the job. Education for work is said to be externally motivated by financial considerations while the liberal arts are self-motivating. Professional/technical programs are also criticized for being too specialized, non-intellectual, and lacking in the general applicability of liberal arts programs.

The counterargument has been offered by people like Ashby (1966). He and many others believe that preparing people for work is becoming the dominant function of education. They advocate on the grounds that liberal arts education is out of touch with the real world, that

nonuseful education is a waste of time or elitest because only the rich have the time for it, and that education for work need not be any more specialized than contemporary liberal arts education.

Cheit (1975) proposed a fusing of professional and liberal arts endeavors. This has to some extent been accomplished in curricula like the Antioch College cooperative or work-study program, which provides both vocational experience and general education, including philosophy of law, social psychology of health, and aesthetics of engineering.

Freeman and Holloman (1975) have emphasized in their study that there has been a decline in the economic value of the college degree. The value of college as a guarantee of upward social mobility is slipping. After generations during which going to college was assumed to be a certain route to the better life, America's college educated are losing their economic advantage over the less-educated. It is no longer true that those who go to school the longest earn the most money.

The Carnegie Council (1980) has stressed that though the high rate of economic return from investment in a college education has changed as compared to that in the 1960s

we believe that the relative position of college graduates in the labor market will become more favorable in the later part of the 1980s when the supply of new recipients of bachelor's degrees

will level off a decline. The reasons for this prediction are made clearer by considering the historical changes in the labor market for college graduates (p. 177).

It has further added

Analysts, like Freeman, who have tended to concentrate on comparisons between the 1970s and the exceptionally favorable 1960s, have created an exaggerated impression of the shift in the job market for college graduates (p. 182).

On the other hand, Bisconti and Solmon (1976) stressed that there is still a positive correlation between economic advantages and a college degree, provided the degree contains the right kind of courses. Solmon, Bisconti and Ochsner (1977) report that most college graduates are able to find jobs that use their training and give them satisfaction, sufficient job status and high pay.

Withey (1971) emphasized that there is overwhelming evidence that college-educated people hold jobs and occupations that expose them to fewer risks of accidents and income losses, and are less strenuous. These jobs also depend less for success on physical capacity, they make more use of accumulated experience; offer more advancement and a continuously rising income pattern, provide more vacation rights and other fringe benefits; and generally give more comfort and satisfaction. The higher educated are thus situationally advantaged in monetary terms as well as in terms of security and opportunity. Mainly by virtue of

their specialization, they exhibit a more continuous job history,

Higher educated individuals not only tend to have more command over resources, they also are more in control of their economic situation. They are less subject to the risk of unemployment, illness, or the obsolescence of skills or experiences. They have objectively more opportunities and are subjectively better equipped, intellectually as well as motivationally, to utilize them (p. 57).

At the present time the national trend, owing to the current economy is decidedly in the direction of adding work education to the college curriculum. Today's tight job market has encouraged some students to take a second major or minor as career insurance. Seventeen percent of the students responding to the 1976 Carnegie Council undergraduate survey indicated they had made such curricular choices because of the country's economic situation. Some colleges and universities are creating minors for liberal arts students in subjects likely to increase their employment opportunities after graduation. For instance, the College of Letters and Science at the University of California, Berkeley, is developing a four-course sequence in administration and management (Levine, 1978).

As stressed by the Carnegie Foundation for the Advancement of Teaching (1977), during the current decade, the American people have assigned particularly high priority to career preparation as a function of higher education. Their concern is generated in large part by the

disappointment of many young men and women whose college education failed in recent years to give them entry to the level of jobs that might have been readily open to them a decade ago. In the past few years, job prospects in engineering, business administration, the sciences, mathematics, public health, and statistics have been relatively consistent with the number of graduates in those fields. Women with degrees in business administration, accounting, data processing and engineering have been doing well in managerial positions. But, partly because of declining needs for teachers, more graduates in the social sciences and humanities than in the past have had to accept jobs of a routine character that were unrelated to their fields of training.

Students respond to such shifts in manpower demand by seeking out courses that specifically prepare them for the new situations that develop.

There are two possible consequences of this interest that could distort the purpose of the college curriculum. One is that students may become so single-minded in their studies aimed toward specific jobs that they become overspecialized and perhaps inflexible. The other is that students and employers alike might overemphasize the importance of degrees and other certification for employment. The result of this emphasis is that the level of credentialing for the positions that are available spirals upward beyond the actual demands of the work to be performed (The Carnegie Foundation, 1977, p. 223).

For this reason, the Carnegie Council emphasized that education must go beyond specific job preparation and manpower needs of the moment. The graduates of American colleges should appreciate the role of education in building self-esteem and a sense of accomplishment. Only by understanding the role of work in all of its forms and in all of its many contexts can one fully understand humanity and some of the basic forces that shape our society.

A thorough introduction to the world of work is important to give students a sense of reality. It will introduce them to the costs as well as benefits of activities and programs and will introduce them to the importance of basic processes that are encountered directly in the world of work but have implications for other parts of life as well. Among them would be planning, budgeting, supervision of the work of another, scheduling etc. These processes can be taught and learned as a part of undergraduate experience that effectively combines classroom studies with experiences in work situations.

As pointed out by the Carnegie Foundation (1977), increasingly undergraduates need to know more about the distinction between jobs and careers and the importance of keeping individual options open. Today, the demand for educated men and women in the employment market can shift abruptly. Colleges cannot with any assurance, educate students today for participation in occupations guaranteed

to have a high demand for them three or four years from now. There may be occasions when students have to accept positions that do not immediately utilize the preparation their college gave them. But, as Fisher (1976) pointed out in his recent study of Harvard graduates of the class of 1971, some of the students who accept what might be regarded as underemployment right after graduation do so with the expectation that they will return to a university to acquire advanced learning in their chosen career fields. Their employment of the moment does not represent derailment from a career line . . . only switching to a temporary siding.

The Carnegie Foundation (1977) stressed that employers should not look only at the career preparation while they are in colleges, they should value the results of the total undergraduate education experience.

The principle to be observed is not that every student should be encouraged to acquire a specialized marketable skill before graduation from college but that no student should be involuntarily penalized in the job market for electing to concentrate in college on a subject that is of great personal interest but has no obvious demand by employers (p. 228).

Two factors appear to be stopping the immediate expansion of work education. One is that the most selective and traditionally academic colleges, which are historically pacesetters in curriculum development, are making the fewest work related additions to their curricula. The second factor is cost. Work programs are considerably more

expensive than academic courses. They require smaller classes, more expensive equipment and greater student-faculty contact time. Administrators at several schools have indicated that cost is the only thing stopping them from expanding work offerings (Levine, 1978).

Follow-up Studies on Graduates

Hundreds of studies have examined various aspects of students' learning. An examination of the standard sources reveals that studies have been done for different purposes on the national as well as institutional level about the impact of education on students after leaving school and college. The beginning of this effort was Jacob's (1957) *Changing Values in College*, its culmination in Feldman and Newcomb's (1969) comprehensive and definitive study, *The Impact of College on Students* (Withey, 1971, p. 27).

Jacob's (1957) conclusion, in the landmark review of the literature on college impact, was that college had minimal effect on a student's values. He noted many of the same kinds of changes from freshman to senior year, including the changes in tolerance and prejudice (p. 48). Noting that America, as a country had become increasingly committed to tolerance over the preceding generation, Jacob interpreted the changes in college as reflecting an adaptation to a college norm reflecting the larger societal norm, rather than the development of an internalized

commitment in this area. He wrote that, as the country changed:

. . . college students quickly discovered, if they had not before, that prejudice was now considered unbecoming to an 'enlightened' American citizen. College thus became an effective medium of communication for a newly prescribed social value . . .

To call this process a liberalization of student values is a misnomer. The impact of the college experience is rather to socialize the individual, to refine, polish and 'shape up' his values so that he can fit completely into the ranks of American college alumni (p. 4).

A few years later, Feldman and Newcomb (1969) in their comprehensive study of college said:

In a sense, our conclusions are more optimistic than Jacob's. There are conditions under which colleges have had (and, we assure, will continue to have) impacts upon their students, and not least upon students' values. Moreover, the consequences of these impacts often persist after the college years (p. 4).

As summarized in Feldman and Newcomb (1969), most studies show that students going through college increase their interest in aesthetic and cultural values, decrease their adherence to traditional religion and other traditional values, become more relativistic and less moralistic in their ethical judgments. Also as summarized in Vol. 11, Table 2H, a large number of studies, longitudinal as well as cross sectional, in many diverse types of colleges, all document the change toward more openness, less prejudice, and less tendency toward stereotypic thinking.

In two more recent books, Astin (1977) and Bowen (1977) also speak authoritatively on this subject. Astin in his longitudinal study has provided general observations. According to his findings students underwent a variety of changes in attitudes, values and self concepts after they entered college. These changes included a more positive self-image reflected in a greater sense of interpersonal and intellectual competence; more liberal and political views and attitudes toward social issues, and a decline in traditional religious affiliations, business interests and a need for status. Analyses also indicated that the amount of change varied by sex, race, and ability of the students, and it also depended on the type of college.

Bowen (1977) based the following conclusion on a comprehensive analysis of the individual and societal value of education:

The sum of the benefits (of education) exceeds the total cost by a factor of three or more. The monetary returns alone, in the form of enhanced earnings of workers and improved technology, are probably sufficient to offset all the costs. But over and above the monetary returns are the personal development and life enrichment of millions of people, the preservation of the cultural heritage, the advancement of knowledge and the arts, a major contribution to national prestige and power, and the direct satisfactions derived from college attendance and from living in a society where knowledge and the arts flourish. These nonmonetary benefits surely are far greater than the monetary benefits . . . so much greater, in fact, that individual and social decisions about the future of higher education should be made primarily on the basis of monetary factors (p. 447).

In 1969 and 1976, American undergraduates were asked by the Carnegie Commission and the Carnegie Council how important it was for them to get training and skills for an occupation from their college education. In 1969, 57 percent of college students said it was "essential". In 1976, 67 percent responded in the same fashion. In fact, nearly half (46 percent) of all undergraduates said they would drop out of college if they thought it was not helping their job chances. Although most undergraduates (85 percent) were attending college with a specific career in mind, many were anxious over their prospects for jobs. Thirty-four percent said they worried "quite a lot" or "a great deal" about job prospects. Only 24 percent said they did not worry at all. Fifty-four percent of undergraduates rated current job prospects for students with their majors as "good" or "very good" over the next ten years (Carnegie Council Surveys, 1975-1976).

Many vocational follow-ups have been done on the institutional level. Padella (1976) conducted a study of post-graduation activities of 1974 graduates of the sixteen constituent institutions of the University of North Carolina (UNC). Data were gathered on what the graduates were doing one-and-a-half years after graduation. The study provided information about their employment situation, their job satisfaction, and their assessment of the effectiveness of the curriculum and of various services at their

institutions. Some of the findings included the following: graduates of UNC institutions seemed to be well-satisfied with their educational experiences and with their jobs. Significant and sizable earnings and employment differentials were found between male and female graduates. Most of the graduates learned about their jobs either through direct contact with their employers, and/or through friends and relatives.

Wilson (1977) attempted in his dissertation to ascertain the extent to which career program student services at Thornton Community College (TCC) contributed to graduates' current educational and employment status. The population for this study consisted of the total class of TCC 1975 career graduates. It was found that (1) Career programs and student services were effective in helping career graduates to attain education and employment objectives, (2) graduates made career decisions that had a high correlation with their interests and educational preparation.

Few studies have been done in Oklahoma. Nabors (1974) attempted to determine what part a public two-year college could play in providing the skills needed by the persons under study for entrance into the aspired occupations. The latest edition of The Occupational Outlook Handbook was used as the source of the information for obtaining the number of years of education necessary for entrance into the aspired

occupations. The Connors State College Catalog was used as the primary source for information about the programs and offerings of Connors State College. The results of the study indicated that the offerings of Connors State College were sufficient to aid 62.5 percent of these persons in meeting their job aspirations. However, thirty-five percent of adults who aspired to a different job situation did not have the training or education required for entrance into the aspired occupation.

Briggs (1977), on the other hand, studied the male graduates from the College of Arts and Science at the Oklahoma State University for the year 1971. The primary objectives of this study were to determine if the graduates agreed or disagreed with the concept of a liberal arts education, what the graduates were doing professionally and to what extent the graduates were involved in social-civic activities in their communities. It was found that a large percent of graduates agreed with the liberal arts principles stated in the model. In response to statements concerning their general attitude about the education at Oklahoma State University, students were in agreement that in general they were satisfied with their undergraduate training.

Briggs' study was helpful in questionnaire item selection to meet the objectives of the present study. In response to the question in Briggs' study: Is higher education really helpful in securing satisfactory

employment? Half the respondents indicated their university training did help in securing their first job. Thirty-seven percent indicated their college major was closely related to their present job, thirty-two percent said their college major was unrelated to their present job.

Most of the graduates held no more than two jobs since leaving Oklahoma State University. The most commonly reported number of jobs held was one. The income level of 51 percent of the respondents was over \$13,000.

The present study bears closest resemblance to two of Solmon's studies done on the national level. Both provided guidelines for questionnaire item selection and analysis for the present study. Bisconti and Solmon (1976) in their study used the follow-up method of investigation to study the largest college student body in the country at that time. The objective of his study was to determine the utilization and value of higher education in employment. The analyses were limited to the baccalaureate education of those who entered college in 1961 and were working full-time in 1974-1975. These graduates were asked how frequently they used what was learned from their courses in their major, minor and other fields; and what kind of work their college education prepared them to perform. They were also asked to recommend the study areas that would be most useful to people preparing for jobs like their own. The respondents marked their education useful in two areas:

general knowledge and credentialing. It received lower marks for developing career-related skills and competencies, leadership ability, and the ability to think clearly. It was even less helpful in directing students toward life goals. Moreover, it was found that though 60 percent of the respondents (all college graduates) were 'very satisfied' with their jobs, only 32 percent thought their skills were being fully utilized.

The study concluded that, after nine years in the labor force, a large number of college graduates were still using, on the job, knowledge they had gained in college and that the majority were very satisfied with their jobs. Most respondents in unrelated jobs held their jobs voluntarily, and the relationship of job to major had little to do with job satisfaction. Ochsner and Solmon (1979) comment:

These results contradict conclusions by researchers such as O'Toole, Freeman, and Berg who observed that few jobs are available which enable college students to utilize their training, that underemployment of college graduates is widespread, and that this leads to worker dissatisfaction (p. 5).

Ochsner and Solmon (1979) in their recent study attempted to draw conclusions from several surveys to study the utilization of college training in careers and the importance of having an educationally related job to overall job satisfaction. Conclusions were drawn from responses of two groups of college graduates: a sample of 1961 freshmen

who answered surveys in 1961, 1971, and 1974, and a sample of 1971 freshmen who responded to a survey in 1970 and again in 1977. Overall, the result of the most recent study corroborated the most significant conclusions from the earlier study, although there were slight differences. In the study an attempt was made to oversample those 1970 respondents who aspired to a bachelor's degree or less, were black, were freshmen at two-year colleges, and who anticipated majoring in the humanities. Another difference was that the 1977 follow-up obtained information on job attitudes of individuals who had been working for three years or less, whereas the 1974 follow-up obtained perspectives from those who had been in the labor force for almost nine years.

In both cohorts, vocationally oriented majors were more likely than liberal and scientifically oriented majors to say they frequently use their education in their work. The more career-specific majors - education, business and engineering - were used more frequently than others. The only majors used more often after nine years in the labor market than after two or three were business, english, and economics. . . .

Men in both cohorts who majored in business or engineering were more likely to recommend their major as preparation for their job than men who majored in any other field. Of the women, those in the 1974 cohort who majored in a natural science or education and those in the 1977 cohorts who majored in business or education were more likely than the others to recommend their major (p. 101).

Even though the recent graduates used their college training in their jobs more than the earlier graduates, the recent graduates said that, by far, the most common way of obtaining their job skills was on-the-job experience. College study was less important method, although more important

than either formal job training or college work experience (p. 102).

Summary

To sum up the foregoing review of literature and national as well as institutional studies: educational requirements for jobs have increased; college graduates are not doing as well in the job market as they have done previously. These findings suggest that the value of increasing levels of education (credentials) as a means of finding rewarding work has been grossly over-estimated.

As emphasized in *Work in America* (1973): this does not mean that education should be valued less, for its non-market values have been ignored. But what this does mean is:

(a) the validity of using education predominantly to raise income is growing more and more questionable; (b) requiring more credentials to perform an unchanged job lowers performance and reduces job satisfaction; (c) the design of work is lagging considerably behind the changes that have occurred among workers, including their education attainments (p. 138).

In recent years, education for work is expanding because in the view of many Americans, preparing people for work is becoming the dominant function of education. Such education is more important to current undergraduates than it was to students in the late 1960s. As reported by Butts (1975)

Despite the concern of the 1930s and 1940s for the values of nonvocational liberal education the rush

to the professions and the technical specializations has proceeded pellmell, interrupted for a time by the downgrading of scientific and professional training by the youth culture of the 1960s, but by common agreement now in full flood tide among college students of the present generation (p. 21).

In fact, today, the person best able to cope with the new is the one who has the broadest background, and is thus the most flexible. There is evidence that such a background is already useful on the job. Bisconti and Solmon (1976) have indicated that employed college graduates find math, science, literature, language, history, and the social sciences applicable to their work. Ironically, these subjects don't sound as useful in the middle of a recession as welding, accounting or aircraft design, but the academic skills apparently give the young graduates greater access to more job options and give them more flexibility in their careers (Wiegner, 1979).

Changing relationships between work and education, therefore, point to a new model of comprehensive career education in colleges and universities.

CHAPTER III

METHOD AND PROCEDURE

Introduction

The primary objectives of this study were to determine the extent to which graduates employed in different occupations utilized their college education, what the graduates were doing professionally after ten and five years of graduation and how many jobs they had changed within or outside their major fields of study. This chapter describes the methodology used to address the objectives of the study.

The methodology used in obtaining the data for examination in this study are divided into the following sections: (1) Population; (2) Instrumentation; (3) Data Collection; (4) Data Analysis, and (5) Procedural Steps.

Population

The population for this study consisted of all graduates who received undergraduate degrees from OSU in 1970 and 1976 (two classes). The population was identified from the official copy of the commencement program for graduates.

The research sample was selected by a stratified random sampling procedure. Fifteen percent of the entire

population was selected. The total number of graduates of six colleges for the year 1970 was 2073, and the total number of graduates of six colleges for the year 1976 was 2339. There were 700 names obtained in this manner. Current mailing addresses of the graduates were obtained by a search through the Alumni Association files. Addresses for 67 graduates of both classes could not be located. Thus the mailing sample consisted of 633 graduates, 14 percent of the total population.

Instrumentation

The instrument used for this study consisted of a questionnaire. The survey questionnaire was developed through a study of other surveys which had been made throughout the nation with special reference to Bisconti and Solmon (1976) and Briggs (1977). The questionnaire was designed to answer each of the objectives identified in the study. Questionnaire items and data processing procedures were developed in collaboration with the members of the doctoral committee and the Institutional Research Office at OSU. A pilot study consisting of fifty OSU graduates, randomly selected from the Stillwater File of the Alumni Association was conducted in June, 1980. It helped to refine the questionnaire. It was also decided after a 64 percent response rate of the pilot study to make no follow-up of the non-responding graduates of the final sample.

The questionnaire was printed on both sides of a legal-

size paper (See Appendix B). The questionnaire mailed to the 1976 class was printed on white paper whereas yellow paper was used for 1970 class graduates.

The questionnaire had two parts, but was not coded as Part A or B. Items included in the first part included demographic information such as, college major, present job, first or second job, sex, age, educational level and income etc. The second part sought attitudinal responses to graduates' experiences at OSU on a Likert-type scale. Open-ended items were included about perceptions of the graduates as regards areas of training in general education and specific majors in preparing for particular jobs.

The questionnaire had a place for general comments. It was felt that additional comments would encourage respondents to give information to this study that the questionnaire had not covered.

Data Collection

The questionnaire was mailed on August 8, to each of the graduates in the sample along with a cover letter and stamped envelope. The cover letter included a brief statement of purpose and was signed by the Assistant Director of Institutional Research Office OSU and the Head of Department of Education Administration and Higher Education (EAHED) (See Appendix A).

Data for the study was collected in a five-week period. September 15, 1980, was the cut-off date and no follow-ups

were made. The response-rate was 42 percent for the graduates of 1976 class and 43 percent for the graduates of 1970 class. Adjusting for the number of nondeliverable questionnaires (66), however, resulted in a 48 percent percent response rate, a high response rate for this type of survey.

Data Analysis

Editing and coding of data was done prior to punching of data cards to analyze and interpret data. Three hundred and forty-six questionnaires were mailed to 1976 graduates sample and 237 questionnaires were mailed to the sample of 1970 class. Thus, 633 questionnaires were mailed to the total sample. Out of 270 responses received for both classes, 4 were not useable. Thus, data analysis consisted of 266 responses.

First of all, majors were classified under the colleges, using the degree name and the Oklahoma State University Catalog for 1979-80. After separating the responses under colleges, jobs were categorized using the job titles written by the respondents as the information base. Various methods for categorization of jobs were considered. The Occupational Outlook Handbook and The Occupational Titles of the U.S. was far too detailed and extensive to be of help in a study such as this. Instead, jobs were divided into the following categorizes to coincide with the responses:

1. Agriculture = farmers, ranchers, agriculture specialists, entomologist, extension agents, herdsmen.

2. Arts = actors, artists, musicians, writers.

3. Business = executives, accountants, owners, salespersons, financial analysts, product managers.

4. Education = teachers, school counselors, school administrators, professors, assistant professors etc.

5. Science and Math = scientific researchers, engineers, computer programmers, statisticians.

6. Clerical = secretaries, receptionists etc.

7. Trades = those occupations where some skill or craftsmanship must be acquired to become a practitioner (such as carpenter).

8. Health = physicians, nurses, therapists, lab technicians, pharmacists, clinical psychologists, optometrists.

9. Professions other than Health = It included the ministry and law, but did not include medicine as included under health.

10. Others = included military personnel and those involved in politics.

After the classification of majors and the categorization of jobs the questionnaires received were coded onto computer cards. Statistical data analysis was done using the computerized Statistical Analysis System (SAS).

Frequency distributions were done for all variables and

tables were used for graphic illustration. In descriptive analysis, therefore, data were summarized by college of major department and the year of graduation.

After simple descriptive analysis was performed, to test the hypotheses, PROC FREQ CHISQ was used out of the SAS package.

PROC FREQ CHISQ

The Chi Square Test is a statistical test used when data are in the form of frequency counts. These frequency counts can be placed into two or more categories. It can test both the hypotheses of difference and of association. It analyzes discrepancies between the number of frequencies we expect to observe in a given situation compared with the number of frequencies one actually observes in that situation.

Hypotheses of the present study were null hypotheses and had asserted that there were no significant difference between certain variables. The purpose of analyzing data via chi-square was to see if there was a significant difference between observed frequency counts based on chance or hypothesis. The data were classified and recorded in the 2x2 contingency table for each hypothesis. The degree of freedom was thus obtained on each variable analyzed. A statistics book with a table showing critical values of chi-square required at various significance levels was then consulted. Significance levels of .05 or less were

considered to be low enough so that the null hypothesis of difference could be rejected. Conclusions were thus drawn and recommendations made.

Procedural Steps

In pursuing the investigation, the procedural steps included selection of subjects, validation of questionnaire items, a pilot study to determine reliability and to clarify language. Data collection and data analysis followed these steps.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

The purpose of this chapter is to present in descriptive and narrative form the analytical results of the study. The questionnaire was developed to answer each of the objectives identified in the study. To draw conclusions about the objectives of the study and to test the hypotheses, analysis of data is divided into two sections.

Section One of the analysis presents the results of stated objectives in table and descriptive form. Data are summarized by College of major department and the year of graduation. They, therefore, include a profile of frequencies for each college by year on each variable in the questionnaire. Tables are used for graphic illustration of certain variables and are accompanied with a short narrative interpretation. This section is divided into four parts.

Section one, part one presents an analysis of demographic information such as sex and age. Section one, part two presents an analysis of the undergraduate education information. Section one, part three presents an analysis of the employment data. It includes analysis of the employment status, number of jobs since receiving the

undergraduate degree, period of receiving the first job after graduation, and income level of the respondents. Section one, part four presents a summary of reasons for the career choice of the graduates, and a summary of attitudinal responses of the graduates as regards their career preparation at OSU. It also includes a summary of frequently recommended courses by the graduates and a summary of the General Comments.

Section two of the analysis presents the results of the chi-square tests which were used to test the hypotheses. The original hypotheses provided the guideline in forming a sequential structure for the presentation of results obtained from PROC FREQ CHISQ. However, before the results are presented in table form, a general overview of the tests run and measures developed is given in descriptive form.

Statistical Analysis

Analysis of Section One, Part One

Demographic data comprised the first two questions, dealing with sex and age.

Analysis of Question No. 1 (Sex). Most respondents were males (64 percent), while 34 percent were female. Two percent of the respondents left this question unmarked (Table I).

TABLE I
DISTRIBUTION OF RESPONSES, BY SEX

College	1970 Graduates				1976 Graduates			
	Male		Female		Male		Female	
	N	%	N	%	N	%	N	%
Agriculture	20	90.9			16	80.0	3	15.0
Arts & Sciences	27	75.0	8	22.2	24	60.0	16	40.0
Business Adm.	16	84.2	2	10.5	26	66.6	13	33.3
Education	4	21.0	15	78.9	1	9.0	10	90.9
Engineering	13	100.0			16	88.8	1	5.5
Home Economics	4	33.3	8	66.6	2	11.7	15	88.2
Total	84	69.4	33	27.2	85	58.6	58	40.0

Note: Total does not include Blank responses 1970 Graduates - 4
1976 Graduates - 2

Analysis of Question No. 2 (Age). The most commonly reported age was between 31-35 years for the 1970 graduates and most commonly reported age was 26-30 years for the 1976 graduates. No respondent left this column unmarked (Table II).

TABLE II
AGE OF RESPONDENTS, BY COLLEGE

College	1970 Graduates							1976 Graduates						
	A*	B*	C*	D*	E*	F*	G*	A*	B*	C*	D*	E*	F*	G*
Agriculture			19	3				1	19					
Arts & Sciences			35	1				8	30	2				
Business Adm.			18	1				8	30	1				
Education			17		2			2	8					1
Engineering			11	2				1	14	3				
Home Economics			11		1				16	1				
Total			111	7	3			20	117	7				1

*A= 21-25 years D= 36-40 years G= Over 50 years
 B= 26-30 years E= 41-45 years
 C= 31-35 years F= 46-50 years

Analysis of Section Two, Part Two

Analysis of Question No. 3 (Degrees earned at OSU).
 Most of the respondents, approximately one-third majored in Arts and Sciences disciplines. Another one-fourth majored in Business disciplines. More women than men majored in Elementary Education and Home Economics. Substantially more men than women majored in Agriculture and Engineering disciplines. Specific disciplines within each college are listed in Appendix C.

Analysis of Section One, Part Three

Analysis of Question No. 4 (Employment Status). Most of the respondents (37.5 percent) of both classes were working full-time. Almost four percent of all the respondents were working part-time. Only 7.8 percent were unemployed. One percent of the 1976 graduates left the column unmarked (Table III).

TABLE III
EMPLOYMENT STATUS OF RESPONDENTS, BY
COLLEGE

College	1970 Graduates						1976 Graduates					
	FT*		PT*		UN*		FT*		PT*		UN*	
	N	%	N	%	N	%	N	%	N	%	N	%
Agriculture	22	100.0					17	85.0	2	10.0	1	5.0
Arts & Sciences	32	88.8			3	8.5	32	80.0	4	10.0	2	5.0
Business Adm.	19	95.0			1	5.0	37	94.8			2	5.1
Education	15	78.9	1	5.2	3	15.7	9	81.8			2	18.1
Engineering	13	100.0					17	94.4	1	5.5		
Home Economics	8	66.6	2	16.6	2	16.6	12	70.5			5	29.4
Total	109	90.0	3	2.4	9	7.4	124	85.5	7	4.8	12	8.2

Note: Total does not include Blank responses 1976 Graduates - 2

*FT= Full-time

PT= Part-time

UN= Unemployed

Analysis of Question No. 5 (Job Title). Although many occupations were represented, job titles were divided in ten categories. Approximately one-third of the respondents were in Business and one-fourth in Education. Other occupational categories between five percent and ten percent of respondents were Engineers, Analysts and Computer Programmers. Greater proportions of women than men were employed in Education and greater proportions of men than women were employed in Business (Table IV).

TABLE IV
PRESENT OCCUPATION OF RESPONDENTS, BY
SEX

Job Category	1970 Graduates			1976 Graduates		
	Total	Male	Female	Total	Male	Female
Agriculture	7	5*		5	4	1
Arts	2	1*		2	1	1
Business Adm.	35	32	2*	59	40	18*
Education	34	9	25	26	4	21*
Science & Math	14	14		20	17	3
Clerical	3		3	6	1	5
Trades	4	4		12	7	5
Health	9	8	1	5	4	1
Prof. other than H.	1	1		3	2	1
Others	7	6	1	4	3	1
Blank	5			3		
Total	121	80	32	145	83	57

*Sex not reported 1970 Graduates - 4 1976 Graduates - 2

Analysis of Question No. 6 (Numbers of Jobs). Half of the respondents had two or three jobs since graduation. Almost one-third of the respondents had one job since receiving their undergraduate degree. Those who had more than three jobs were mostly from the College of Home Economics (Table V).

TABLE V
NUMBER OF JOBS SINCE GRADUATION, BY
COLLEGE

College	1970 Graduates						1976 Graduates					
	One		Two-Three		More		One		Two-Three		More	
	N	%	N	%	N	%	N	%	N	%	N	%
Agriculture	7	33.3	12	57.1	2	9.5	11	55.0	8	40.0	1	5.0
Arts & Sciences	14	40.0	16	45.7	5	14.2	14	40.0	18	51.4	3	8.5
Business Adm.	4	21.0	12	63.1	3	15.7	17	43.5	20	51.2	2	5.1
Education	7	36.8	11	57.8	1	5.2	4	40.0	5	50.0	1	10.0
Engineering	2	16.6	7	58.3	3	25.0	7	38.8	10	55.5	1	5.5
Home Economics	2	18.1	6	54.5	3	27.2	6	35.2	8	47.0	3	17.6
Total	36	30.7	64	54.7	17	14.5	59	42.4	69	49.6	11	7.9

Note: Total does not include Blank responses 1970 Graduates - 3
1976 Graduates - 6

Analysis of Question No. 8 (Employability of Graduates). Analysis of the survey questionnaire showed that irrespective of the major, most of the respondents (62.9 percent) found the first job immediately. Nineteen Percent of the respondents found the first job within three months. Less than half of Education and Home Economics graduates found jobs immediately (Table VI). Four (1.5 percent) of the respondents left the column blank (Table VI).

TABLE VI
LENGTH OF TIME IN OBTAINING FIRST JOB
AFTER GRADUATION, BY COLLEGE

College	1970 Graduates						1976 Graduates					
	A*		B*		C*		A*		B*		C*	
	N	%	N	%	N	%	N	%	N	%	N	%
Agriculture	15	68.1	3	13.6	4	18.1	16	80.0	3	15.0	1	5.0
Arts & Sciences	22	62.8	4	11.4	9	25.7	18	48.6	8	21.6	11	29.7
Business Adm.	15	75.0	4	20.0	1	5.0	30	76.9	7	17.9	2	5.1
Education	8	42.1	6	31.5	5	26.3	6	42.8	1	7.1	4	28.5
Engineering	11	84.6			2	15.3	12	66.6	4	22.2	2	11.1
Home Economics	5	41.6	4	33.3	3	25.0	7	43.7	4	25.0	5	31.2
Total	76	62.8	21	17.3	24	19.8	89	61.3	27	18.6	25	17.2

Note: Total does not include Blank responses 1976 Graduates - 4

*A= Immediately

B= Within three months

C= Longer than three months

Analysis of Question No. 9 (Income Level). This question asked about personal annual gross income of the graduates. Income was broken into six categories. Seven respondents (2.6 percent) did not check this column (Table VII).

TABLE VII
ANNUAL INCOME OF RESPONDENTS, BY COLLEGE

College	1970 Graduates						1976 Graduates					
	A*	B*	C*	D*	E*	F*	A*	B*	C*	D*	E*	F*
Agriculture		1	3	6	5	7	1	6	5	5	1	2
Arts & Sciences	1	8	8	6	6	6	4	13	11	6	2	1
Business Adm.	1		15	5	8	5	2	2	13	10	7	3
Education	2	8	6	1	1		2	7	1	1		
Engineering				2	5	6	1	1	3	7	6	
Home Economics	4	4			1	2	5	8	1	2	1	
Total	8	21	18	20	26	26	15	37	34	31	17	6

Note: Total does not include Blank responses 1970 Graduates - 2
1976 Graduates - 5

*A= Under \$10,000 D= \$20,000-\$25,000
 B= \$10,000-\$15,000 E= \$25,000-\$35,000
 C= \$15,000-\$20,000 F= Over \$35,000

Section One, Part FourAnalysis of Question No. 10 (Career Choice)

This question permitted multiple choice response in one of the 6 categories provided. Each category asked the respondent how important he regarded a certain reason of career choice. Responses were obtained in multiple choice format, from very important to not important.

Question 10 A (Because of Personal Interest). A majority of respondents (82.6 percent) regarded choice of their undergraduate major because of personal interest VERY IMPORTANT. Seventeen percent regarded it MODERATELY IMPORTANT, and only 0.38 percent regarded it NOT IMPORTANT.

Question 10 B (Because of Peers). Very few respondents regarded peers as the reason for choosing their undergraduate major. Almost three percent regarded it VERY IMPORTANT, 17.9 percent MODERATELY IMPORTANT and 79.3 percent NOT IMPORTANT.

Question 10 C (Because of Family). Family received a higher rate than peers as being the reason for choice of undergraduate major. Seventeen percent regarded it VERY IMPORTANT, 34.1 percent MODERATELY IMPORTANT and 55.4 percent regarded it NOT IMPORTANT.

Question 10 D (Because of the Faculty). This item received ratings similar to that of FAMILY. Ten percent of

the respondents regarded it VERY IMPORTANT, 35.2 percent MODERATELY IMPORTANT and 54.6 percent NOT IMPORTANT.

Question 10 E (Because of its Market Value). Market value received higher ratings than Peers, Family or Faculty. Twenty-eight percent of the respondents regarded it as a reason for choosing undergraduate major VERY IMPORTANT, 38.7 percent MODERATELY IMPORTANT and 33.3 percent regarded it NOT IMPORTANT (Table VIII and IX).

TABLE VIII
CAREER CHOICE OF 1970 GRADUATES, BY
REASON

Reason	1970 Graduates			
	V.Imp.	Mod.Imp.	Not Imp.	Blank
Because of Personal Interest	95	24	1	1
Because of Peers	3	26	90	2
Because of Family	13	40	65	3
Because of the Faculty	10	31	77	3
Because of its Market Value	28	55	35	3

TABLE IX
CAREER CHOICE OF 1976 GRADUATES, BY
REASON

Reason	1976 Graduates			
	V.Imp.	Mod.Imp.	Not Imp.	Blank
Because of Personal Interest	123	21	1	
Because of Peers	4	21	113	7
Because of Family	14	48	78	5
Because of the Faculty	17	59	64	5
Because of its Market Value	43	45	51	6

Analysis of Question No. 11 (Career Preparation).

This question had eight parts. Responses were obtained in multiple choice format from Strongly Agree to Strongly Disagree. A summary of responses on each part of the question is as such:

Question 11 A. My current job is closely related to my college major. As many as 72.3 percent of the respondents agreed that their job was closely related to their college major.

Question 11 B. Content of major course work is used frequently on the job. The most commonly reported response

was Agree (41.6 percent).

Question 11 C. General Education is most helpful on job. The most commonly reported response was Agree (50.9 percent).

Question 11 D. My education at OSU gave me knowledge and skills that enabled me to get my first job. As many as 41.9 percent of the graduates Strongly Agreed with the statement.

Question 11 E. My college education helped me on the second job. The most commonly reported response was Strongly Agree (40.0 percent).

Question 11 F. Training on the first job helped me on the second job. The most commonly reported response was Strongly Agree (42.2 percent).

Question 11 G. I am very much satisfied with my OSU education 'in terms of employability'. The most commonly reported response was Agree (42.2 percent). Only 2 graduates (.77 percent) Strongly Disagreed with the statement.

Question 11 H. I received good preparation for my vocation in life. OSU education received good ratings for preparation of the graduates for their vocation in life. As many as 45.7 percent of the respondents agreed with the statement whereas 5.4 percent disagreed (Table X and XI).

TABLE X
 PERCEPTIONS OF 1970 GRADUATES REGARDING
 THEIR CAREER PREPARATION AT OSU

DIMENSION	SA*	A*	U*	D*	SD*	B*
My current job is closely related to my college major.	44	38	3	22	10	4
Content of major course work is used frequently on the job.	24	44	10	21	18	4
General education is most helpful on the job.	30	61	14	11	2	3
My education at OSU gave me knowledge and skills that enabled me to get my first job.	49	41	8	14	6	3
My college education helped me on the second job.	34	34	11	9	6	27
Training on the first job helped me on the second job.	41	28	7	12	6	27
I am very much satisfied with my OSU education "in terms of employability".	49	48	12	9		3
I received good preparation for my vocation in life.	44	51	9	10	4	3

* SA = Strongly Agree

A = Agree

U = Undecided

D = Disagree

SD = Strongly Disagree

B = Blank

TABLE XI
PERCEPTIONS OF 1976 GRADUATES REGARDING
THEIR CAREER PREPARATION AT OSU

DIMENSION	SA*	A*	U*	D*	SD*	B*
My current job is closely related to my college major.	69	35	7	13	16	5
Content of major course work is used frequently on the job.	34	65	10	20	15	1
General education is most helpful on the job.	40	71	13	14	3	4
My education at OSU gave me knowledge and skills that enabled me to get my first job.	60	43	13	17	9	3
My college education helped me on the second job.	44	31	11	8	5	46
Training on the first job helped me on the second job.	47	23	13	9	10	43
I am very much satisfied with my OSU education "in terms of employability".	51	61	15	11	2	5
I received good preparation for my vocation in life	41	67	23	5	4	5

* SA = Strongly Agree

A = Agree

U = Undecided

D = Disagree

SD = Strongly Disagree

B = Blank

Analysis of Question No. 12 (Recommended Courses).
Most of the respondents, i.e., 69.9 percent have recommended courses helpful on their job. Eighty respondents, that is,

30 percent of the total respondents did not identify any course. One hundred and thirteen respondents (60.7 percent) recommended core courses and one or two other courses.

A summary of the most frequently recommended courses is presented in Table XII. These courses are recommended by graduates of all colleges in all occupations. For all courses recommended by the graduates, irrespective of whether they recommended core courses or not (See Appendix D).

TABLE XII
MOST FREQUENTLY RECOMMENDED COURSES FOR
JOB

Courses	<u>1970 Graduates</u> Frequency	<u>1976 Graduates</u> Frequency	Total
Communication Skill	12	14	26
Accounting	8	18	26
Management	6	14	20
Fiscal Planning	7	13	20
Actual work Experience	6	12	18
Business Administration	10	7	17
English Composition	4	9	13
Economics	6	7	13
Psychology	7	5	12
Mathematics	5	5	10

Analysis of General Comments. Most of the respondents used this space to explain about the change of major, job situation or courses useful on the job. Forty-nine percent of the respondents left the space blank. Almost half of the respondents gave comments. Comments of those graduates who identified certain factors about their department or college education at OSU are summarized below by the year of graduation and by college. (For all the comments made by the graduates, see Appendix H).

1970 Graduates

College of Agriculture. As many as 45.4 percent of the respondents gave certain comments, whereas 54.5 percent of the respondents left the space blank. Following was a typical comment made by someone who used the space to suggest something for his college:

Students need more practical experience as part of the curriculum at OSU.

College of Arts and Sciences. As many as 54.2 percent of the respondents gave certain comments, whereas 45.7 percent of the respondents left the space blank. Most of the graduates made comments about the use of general education. Following were some of the comments:

Continue a strong general education core and resist the tendency to narrowly vocational courses.

General education is a necessity. When younger, I often asked why must I study this- Georgraphy?

Now I only regret not taking an interest in all of the courses that I took.

I found the general education requirements to be least productive and would drop them and replace them by useful accounting courses or administrative courses.

College of Business. Thirty-five percent of the respondents made comments whereas 65 percent left the space blank. Those who made comments stressed that theories need to be explained with actual situations to show students how to tackle real life problems.

College of Education. As many as 42.1 percent of the respondents gave comments. More than half (57.8 percent) of the respondents left the space blank. Following were some of the comments about certain programs of the College of Education at OSU:

Two hour observation (2 wk) with classroom teacher at start of school (including meetings, enrollments, issuing books, paper work etc.) is essential for student-teaching. It removed fear and uncertainty that I see in a lot of new teachers. I think it should be a must.

I have found the reading program at OSU to be exceptionally helpful in my present position as a classroom teacher.

College of Engineering. Thirty-eight percent of the respondents gave certain comments whereas 61.5 percent left the space blank. Some of the comments of the graduates about the college were:

My engineering education at OSU has been and continues to be an excellent foundation and

building block.

I found my education to be much too oriented toward producing someone who was instantly productive (could make money for someone). Much more emphasis on fundamentals to provide capability for life-long learning was needed.

College of Home Economics. Majority of respondents (83.3 percent) gave certain comments whereas 16.6 percent left the space blank. Following were comments made by some of the graduates about their college:

In the Hotel-Restaurant, Food Service related fields (which incidently is the #1 employer in the U.S., and the #2 in total dollar sales), 90 percent of our problems are 'people' problems. Control of one's behavior, interviewing, hiring, counseling, terminating, training, scheduling etc. All of these realistic problem solving must be stressed.

I felt that my OSU education prepared me adequately for jobs in the area that I was studying (Home Economics), but I now feel inadequately prepared for the changing job market. In other words, perhaps my education was too specific.

Working in Texas, my peers are graduates of this state and I find their specific education (child development) to lack the depth mine had. I wish, however, that my education had included an inter-personal communication course and one on personal management.

I appreciate OSU because it gave me confidence, knowledge and backbone. The school was tough, disciplined and interested in its students (especially Hotel and Restaurant).

1976 Graduates

College of Agriculture. Fifty percent of the respondents commented whereas 50 percent of the respondents

did not write anything. Most of the graduates stressed the importance of practical experience more than what they learned in the classes. Following was one of such comments made by the graduates:

I consider my coursework at OSU very valuable. However, the key is one's ability to apply this learned knowledge to the real world. In my field (Agricultural Economics), practical application of classroom subjects was stressed by the professors. This was a great help to me, in that, I was better prepared to accept a working position upon graduation, rather than a training position.

College of Arts and Sciences. Almost seventy percent of the respondents commented whereas 30.7 percent left the space blank. Most of the graduates who made comments, either stressed the need for more practical course work or appreciated certain program of their college. For example, one graduate who was a Microbiology major wrote:

The coursework at OSU was very enjoyable but of only minor usefulness in the outside world. It would seem to be very helpful if more practical aspects were taught in the coursework.

Another graduate appreciated the Student Personnel and Guidance Program at OSU in these words:

I feel the internship program at OSU 'Student Personnel and Guidance Program' was the most valuable experience I obtained. It allowed me to see the 'realistic picture' of the work and 'get my feet wet' before moving into position on my own. Also offered an excellent opportunity to make contacts within the field.

Many students expressed great satisfaction with their

training received through the Department of Speech-Language Pathology.

College of Business. Forty-three percent of the respondents commented whereas 56.4 percent of the respondents did not write anything. Students identified the need of certain courses in the following words:

All students should be required to take both a Business English Composition course and some kind of Interpersonal Communication course. The technical training provided by a degree is useless unless the student can effectively communicate what he has learned (Accounting major).

I would like to see more insurance oriented classes at OSU. It is a large area of employment that needs more attention.

Business majors need a course in business machines. There should be more emphasis in the electives toward artistic thinking. More courses in group dynamics needed.

College of Education. As many as 45.4 percent commented whereas 54.5 percent left the space blank. Most of the students stressed the need of stronger emphasis on 'in the classroom training'. One of such comments was as follows:

Stronger emphasis needs to be placed on 'in the classroom training'. Theories and methods are useless without the opportunity to apply them.

College of Engineering. As many as 38.8 percent of the respondents commented whereas 61.1 percent left the space blank. Some of the graduates complained about the courses being too general, whereas others suggested more general

courses. Following were some of the comments:

My degree gave me a background but did not prepare me to be a professional. Courses were too general not specific.

Degree programs in Engineering contain very few hours available to pick up other general courses.

College of Home Economics. As many as 58.8 percent commented whereas 41.1 percent left the space blank. Most of the students pointed out that programs of the College of Home Economics need to prepare their students for future. Following were some of the comments made:

There are some courses that are worthless to those who must make a living after graduation and do not help prepare students for his or her future. I hope programs will be examined carefully to equip new graduates to cope with the pressures of the world.

I feel the FRCD department needs to broaden its emphasis. The masters program desperately needs a supervised internship program. Play therapy will be also a good addition (FRCD major).

School of Hotel and Restaurant places too much emphasis on obsolete courses. Stronger depth in management courses would be most beneficial.

In an overall analysis of the General Comments it can be said that graduates expressed a common concern about getting jobs within their fields of graduation and the use of college education throughout their careers.

Graduates of both classes from all colleges identified the need for more practical experience than coursework in the General Comments. However, differences between the comments of the graduates of both classes were noticed

within certain colleges. 1970 graduates from the College of Arts and Sciences commented about the use of general education on the job, whereas the 1976 graduates pointed out that it was difficult for them to enter the job market with undergraduate majors like Psychology.

Differences of opinion among the engineering graduates were noticed within the same year of graduation. Such as, some 1970 graduates of this college admired their engineering education at OSU for supplying them with the basics whereas others identified the need for more emphasis on fundamentals. Similarly, one 1976 graduate complained about the courses being too general, whereas another expressed the need for more hours in general courses.

Tests of Hypotheses

Five (null) hypotheses were formulated for the present study. The null hypothesis is a trial hypothesis asserting that no difference exists between population parameters. In other words, this hypothesis states that no actual differences exist between the observed and expected frequencies. The observed frequencies are those obtained empirically by direct observation or experiment. In a chi-square test frequency values are compared to see if the difference is large enough such that it would not have been expected by chance. The chi-square value represents the amount of discrepancy between observed and expected values. The question arises as to whether the differences between the

observed and theoretical frequencies are significant. In other words, as Roberts (1975) says, does a chi-square value represent an 'amount' of discrepancy we could very likely attribute to sampling error or is it large enough so that we need to 'explain' the discrepancy by some factor other than simple sampling error.

To answer this, the degree of freedom is computed and the chi-square value at that degree of freedom is compared to a table of critical chi-square values. If this chi-square value at that degree of freedom obtained equals or exceeds the appropriate critical value, we then reject the null hypothesis that implies that discrepancy was simply due to chance (i.e., sampling error). We may state that the differences between the observed and expected frequencies are significant at various probability levels for different values. Instead, we would say that the discrepancy was not likely to simply be due to random sampling error. Some nonchance factor is a more likely 'cause' for the difference.

If the obtained chi-square value does not equal or exceed the critical value needed at a certain significant level, we accept the null hypothesis that the two dimensions are independent of one another. In other words, sampling error is thought to be a plausible explanation for the small amount of discrepancy found in the problem.

In order to test the hypotheses of the present study, the data collected was subjected to Statistical Analysis

System (SAS). The SAS program used was PROC FREQ CHISQ, which generated two-way contingency tables for the variables chosen for analysis. Such tables are analogous to correlation tables. They are used to study the independence or association of the two or more variables. With such tables chi-square provides an approximate test of independence. The two-way contingency tables generated by the PROC FREQ CHISQ of SAS gave the chi-square value, degree of freedom and probability value.

The significant level in the present study was .05. The .05 level of significance means that the probability of obtaining (via repeated random sampling) a chi-square value equal to or greater than the tabled critical value is .05 or less. Probability refers to the proportion of times an event should occur to the total number of events.

The variables selected for analysis by the PROC FREQ CHISQ of SAS were as follows:

CLOSEREL	A measure based on responses to Question 11, part A (My current job is closely related to my college major).
USEJOB	A measure based on responses to Question 11, part B (Content of major course work is used frequently on the job).
GENERAL	A measure based on responses to Question 11, part C

(General education is most helpful on the job).

SKILLIST A measure based on responses to
Question 11, part D
(My education at OSU gave me knowledge and skills that enabled me to get my first job).

SNDHELP A measure based on responses to
Question 11, part E
(My college education helped me on the second job).

SNDTRAIN A measure based on responses to
Question 11, part F
(Training on the first job helped me on the second job).

SATISFY A measure based on responses to
Question 11, part G
(I am very much satisfied with my OSU education "in terms of employability").

PREP A measure based on responses to
Question 11, part H
(I received good preparation for my vocation in life).

PERSONAL A measure based on responses to
Question 10, part A
(Because of personal interest)

PEERS A measure based on responses to
Question 10, part B
(Because of peers)

FAMILY A measure based on responses to
Question 10, part C
(Because of my family)

FACULTY A measure based on responses to
Question 10, part D
(Because of the faculty)

MARKET A measure based on responses to
Question 10, part E
(Because of its market value)

NUMJOB A measure based on responses to
Question 6
(How many full-time paid jobs have
you had since receiving your
undergraduate degree?)

FSTWAIT A measure based on responses to
Question 8
(How long after graduation did you
find your first full-time job?)

INCOME A measure based on responses to
Question 9
(What is your approximate current
annual gross income?)

Responses to Question no. 10 and 11 were obtained in
multiple choice format. Low cell count was noticed in the

first run of the test. In testing the goodness of fit of a theoretical to an observed frequency distribution, small frequencies at the tails were combined. It was in agreement with the common practice of combining frequencies. Ferguson (1966) has stated:

On occasion it may be possible without serious distortion of the data to combine rows and columns of a contingency table to increase the expected cell frequencies (p. 208).

Different categories in NUMJOB, FSTWAIT and INCOME measures were also combined to reduce low cell count. BLANK responses as well as NOT APPLICABLE were considered as missing values.

Hypothesis No. 1. There is no significant difference in the perceptions of OSU graduates of 1970 and those of 1976 as regards their career preparation at CSU.

To test this hypothesis, question no. 11 of the questionnaire was addressed by the chi-square test. This question had eight parts. Eight possible pairs of the variables were considered for analysis. The results of analysis of the tables by the chi-square test are presented in Table XIII.

The evidence does not justify the rejection of the hypothesis because the difference between means is not significant. With 2 df (degree of freedom), a chi-square value of 5.99 is needed to be significant at the .05 level. The obtained chi-square values do not equal or exceed the

critical value needed. Therefore, we accept the null hypothesis that the two dimensions are independent of one another. In other words, sampling error is a very plausible explanation for the small amount of discrepancy found. Apparently there is no relationship between these two variables, the attitude of the graduates of both years as regards their career preparation.

TABLE XIII
DIFFERENCES IN PERCEPTIONS OF THE
GRADUATES OF 1970 AND
1976

Variable	Chi-Square Values	Degrees of Freedom	Significance Levels
CLOSEREL	2.29	2	0.31
USEJOB	2.60	2	0.27
GENED	0.51	2	0.77
SKILLIST	0.63	2	0.72
SNDHELP	0.57	2	0.74
SNDTRAIN	1.31	2	0.51
SATISFY	0.26	2	0.87
PREP	5.26	2	0.06

Hypothesis No. 2. There is no significant difference between CSU graduates of 1970 and those of 1976 and the influence of peers, family, faculty or the job market.

To test this hypothesis, question no. 10 of the questionnaire was addressed by the chi-square test. Leaving category OTHERS aside, five categories were analyzed separately by two-way contingency tables. The results of analysis of the tables by the chi-square test are presented in Table XIV.

TABLE XIV
DIFFERENCES IN CAREER CHOICE OF THE
GRADUATES OF 1970 AND 1976

Variable	Chi-Square Values	Degrees of Freedom	Significance Levels
PERSONAL	1.21	1	0.27
PEERS	1.90	1	0.16
FAMILY	0.10	1	0.91
FACULTY	9.86	1	0.01 *
MARKET	1.32	1	0.25

* Significant at .01

With 1 df, 3.84 is needed to be significant at the .05 level. The obtained chi-square values for 4 pairs of

variables analyzed do not equal or exceed the critical value needed. Thus, we cannot totally reject the hypothesis because the chi-square value for a majority of pairs analyzed is not significant.

However, for variable FACULTY, the hypothesis can be rejected at the .01 significance level. What it means is that the data provides fairly conclusive evidence that the influence of the faculty on the career choice of the graduates differentiates between individuals on the basis of their year of graduation. Since the statistically significant result means rejecting the null hypothesis, we conclude that the year of graduation other than chance fluctuations due to random sampling error is the cause of the discrepancy. This discrepancy seems to be a result of the fact that substantially more graduates from the 1976 class regarded FACULTY as the reason for choosing their undergraduate college major. For detailed information on the above analyzed variable, see Appendix F.

Hypothesis No. 3. There is no significant difference in the perceptions of male and female graduates within both classes as regards their career preparation at OSU.

To test this hypothesis, question no. 11 and question no. 1 of the questionnaire were addressed by the chi-square test. The results of analysis of the tables by the chi-square test are presented in two tables by year of graduation (Table XV and XVI).

TABLE XV
DIFFERENCES IN PERCEPTIONS OF MALE AND
FEMALE GRADUATES OF 1970

Variable	Chi-Square Values	Degrees of Freedom	Significance Levels
CLOSEREL	4.73	2	0.09
USEJOB	0.19	2	0.90
GENED	1.52	2	0.46
SKILLIST	4.02	2	0.13
SNDHELP	0.27	2	0.87
SNDTRAIN	0.51	2	0.77
SATISFY	1.68	2	0.42
PREP	0.51	2	0.77

With 2 df, a chi-square value of 5.99 is needed to be significant at the .05 level. The obtained chi-square values do not equal or exceed the critical value needed, except for one variable SNDTRAIN. Thus, we cannot totally reject the hypothesis. However, for variable SNDTRAIN, the hypothesis can be rejected at the .05 significance level for the class of 1976. What it means is that the observed difference cannot reasonably be explained by sampling error and presumably may be attributed to the treatment applied. Thus, the results may be said to be significant.

TABLE XVI
DIFFERENCES IN PERCEPTIONS OF MALE AND
FEMALE GRADUATES OF 1976

Variable	Chi-Square Values	Degrees of Freedom	Significance Levels
CLOSEREL	1.34	2	0.51
USEJOB	1.19	2	0.55
GENED	4.49	2	0.10
SKILLIST	1.71	2	0.42
SNDHELP	1.80	2	0.40
SNDTRAIN	6.34	2	0.04 *
SATISFY	0.03	2	0.98
PREP	2.60	2	0.27

* Significant at .05

Data provides evidence for this significant difference. More women of the 1976 sample than those of the 1970 sample STRONGLY AGREED with the statement that training on the first job helped on the second job. For more information, see Appendix G.

Hypothesis No. 4. There is no significance difference between college majors within both classes on perceptions regarding the career preparation at OSU.

To test this hypothesis question no. 11 of the

questionnaire was addressed by the chi-square test. Perceptions of the graduates as regards their career preparation were analyzed by year of graduation and the college from which they graduated. All possible pairs of variables were considered. There were 8 ways to do this. The results of analysis of the tables by the chi-square test are presented in two separate tables by the year of graduation (Tables XVII and XVIII).

TABLE XVII
DIFFERENCES IN PERCEPTIONS OF 1970
GRADUATES AMONG COLLEGE
MAJORS

Variable	Chi-Square Values	Degrees of Freedom	Significance Levels
CLOSEREL	12.40	10	0.25
USEJOB	13.64	10	0.19
GENED	12.85	10	0.23
SKILLIST	10.18	10	0.42
SNDHELP	10.28	10	0.41
SNDTRAIN	9.41	10	0.49
SATISFY	14.80	10	0.13
PREP	3.57	10	0.96

TABLE XVIII
DIFFERENCES IN PERCEPTIONS OF 1976
GRADUATES AMONG COLLEGE
MAJORS

Variable	Chi-Square Values	Degrees of Freedom	Significance Levels
CLOSEREL	16.20	10	0.09
USEJOB	7.63	10	0.19
GENED	15.92	10	0.04 *
SKILLIST	13.76	10	0.18
SNDHELP	6.03	10	0.81
SNDTRAIN	6.52	10	0.76
SATISFY	11.09	10	0.35
PREP	14.90	10	0.13

* Significant at .05

With 10 df, 18.31 is needed to be significant at the .05 level. The obtained chi-square values do not equal or exceed the critical value needed, except for one variable GENED. Therefore, we accept the null hypothesis that there is no significance difference between college majors within both classes on perceptions regarding the career preparation at OSU. However, our results for the variable GENED are statistically significant at the .05 level.

Since the statistically significant result means

rejecting the null hypothesis, we conclude that, for this variable only (GENED), some factor other than chance fluctuations due to random sampling error is the 'cause' in producing the discrepancy.

The cause of this discrepancy can be attributed to differences across the colleges among the graduates of 1976 class. More than 75 percent graduates from all other colleges except the College of Education agreed with the statement that general education was most helpful on the job. Only 36.3 percent from the College of Education agreed with the statement. For detailed information, see Appendix E.

Hypothesis No. 5. There is no significance difference between college majors, within classes on characteristics such as obtaining first job after graduation, change of jobs and salary levels.

To test this hypothesis question no. 6, 8, and 9 of the questionnaire were addressed by the chi-square test. Three possible pairs of variables were considered for analysis. The results of analysis of the tables by the chi-square tests are presented in two separate tables by the year of graduation (Table XIX and XX).

With 5 df, 11.07 is needed and with 10 df, 18.31 is needed to be significant at the .05 level. The hypothesis consisted of 3 variables. For one variable INCOME, hypothesis can be rejected at the .001 level. Our obtained chi-square value of 48.78 and 41.45 exceeds the .001 value

of 29.59. Therefore, our results are statistically significant at the .001 level for INCOME variable for both classes.

TABLE XIX
DIFFERENCES BETWEEN COLLEGE MAJORS OF
1970 CLASS ON EMPLOYMENT
FACTORS

Variable	Chi-Square Values	Degrees of Freedom	Significance Levels
FSTWAIT	4.43	5	0.48
NUMJOB	1.66	10	0.66
INCOME	48.78	10	0.0001 *

* Significant at .001

Significant differences between income level were noticed across colleges between both classes. As compared to the graduates of 1976, more of the 1970 graduates were earning over \$35,000. Similarly, graduates with Business Administration and Engineering majors were making more money and the graduates of the Home Economics were earning at the lowest level. For detailed information see Table VII, Section One of the analysis.

TABLE XX
DIFFERENCES BETWEEN COLLEGE MAJORS OF
1976 CLASS ON EMPLOYMENT
FACTORS

Variable	Chi-Square Values	Degree of Freedom	Significance Levels
FSTAWIT	15.8	5	0.009 **
NUMJOB	4.44	10	0.92
INCOME	42.45	10	0.0001 *

** Significant at .01

* Significant at .001

Out of the other two variables, one FSTWAIT is again significant at .01 level only for the 1976 graduates. Our obtained chi-square value of 15.28 almost equals the .01 value of 15.09. Therefore, our results are significant statistically at the .01 level. Since this means rejecting the null hypothesis, we conclude that on this particular variable, year of graduation and undergraduate college other than chance fluctuations due to random sampling error is the 'cause' in producing the discrepancy. For detailed information see Table VI, Section One of the analysis.

This cause can be regarded a time factor, since 1970 graduates were employed for ten years and held more than one job. However, the differences between the colleges are

significant. Among the 1970 graduates, those who had one job were mostly from the College of Arts and Sciences, those who held two to three jobs were mostly from the College of Business Administration and those who held more than three jobs were from the College of Home Economics.

On the other hand, among the 1976 graduates, those who had one job were mostly from the College of Agriculture. The number of graduates who held two to three jobs was almost equal from all colleges except the College of Agriculture and the College of Home Economics. Similar to the graduates of 1970, those who held more than three jobs were from the College of Home Economics. See Table V, Section one of the analysis.

CHAPTER V
FINDINGS, CONCLUSIONS AND
RECOMMENDATIONS

This study was concerned specifically with the employability of OSU graduates, in order to determine the influence of college education on student's jobs and employment. Data was collected through a survey questionnaire, which was mailed to a stratified random sample of the 1970 and 1976 graduates of Oklahoma State University.

Survey participants were asked about such things as their satisfaction with their education at OSU as regards getting a job in their fields of study; whether content of major courses or general education was useful on the job; whether they made their career choice because of their own interest, peers or the advice of faculty.

This study, therefore, has been limited to a few general issues in the problem area of education and employment. However, within its limited scope, it has brought to light certain facts which would assist in program planning and evaluation within the university, as well as, to other institutions of higher education.

Summary of Findings

A questionnaire was developed to answer each of the objectives identified in the study.

Objectives

The first objective of the study was to determine to what extent the graduates were employed in the fields in which they received their degrees. Classification of majors was done in colleges: (1) College of Agriculture; (2) College of Arts & Sciences; (3) College of Business Administration; (4) College of Education; (5) College of Engineering; and (6) College of Home Economics. Jobs were divided in ten categories to correspond with the job titles of the respondents: (1) Agriculture; (2) Arts; (3) Business; (4) Education; (5) Science and Math; (6) Clerical; (7) Trades; (8) Health; (9) Professions other than Health, and (10) Others. It was found that most of the respondents were employed in the fields in which they received their degrees.

The second objective of the study was to determine the salary levels of graduates in various fields. Income was broken into six categories: A= Under \$10,000; B= \$10,000-\$15,000; C= 15,000-\$20,000; D= \$20,000-\$25,000; E= \$25,000-\$35,000; and F= Over \$35,000. It was noticed that in overall comparison, graduates with Business Administration majors were making more money. Next to them, in salary levels were, graduates with Engineering and

Agriculture majors. Graduates with Home Economics majors were earning comparatively less than the graduates with Arts & Sciences and Education majors.

The third objective of the study was to determine the frequency of change of jobs within or outside the major fields of study. Generally, it was found that most of the respondents found jobs within their fields of study and tended to remain in those jobs. A majority of those graduates who reported two or three jobs, in fact, (as they explained themselves) were promoted on the job. It was also noticed that those graduates who were employed outside their major fields of study after graduation, remained in those fields if the salary was good. The graduates who reported more than three jobs were mainly from the College of Home Economics.

The fourth objective of the study was to determine which was most important in obtaining the second job after graduation, the colleg education or the experience gained in the first job. Forty percent of the respondents STRONGLY AGREED with the statement that college education helped on the second job. On the other hand, 42.2 percent marked training on the first job very helpful on the second job.

By orientation of major, out of the 1970 class, most of the Education and Home Economics major graduates STRONGLY AGREED with the statement that education helped on the 2nd job, and most of the Agriculture and Engineering graduates reported training on the first job very helpful. Out of the

1976 class, a majority of the graduates with Education and Home Economics majors said that college education was more helpful on the second job. Substantially more graduates with Business Administration majors said that training on the first job helped on the second job.

The fifth objective of the study was to determine if career choices of the graduates were independent of external (i.e., family and college authorities) influences. It was found that irrespective of the year of graduation and college major, respondents regarded choice of their undergraduate major because of personal interest very important. Family, faculty and peers seemed to have very little effect on the career choice of the graduates.

The sixth objective of the study was to determine perceptions of the graduates as to the assistance the graduates received in their careers from their education at OSU. Education at OSU was ranked high for career preparation by the graduates of both classes.

The seventh objective of the study was to determine the need for additional education in the field the graduate is currently employed. Some very useful findings were found as regards courses recommended by the graduates. Most of the graduates from both classes and in all occupations recommended courses in Communication Skills, Writing Skills, Accounting and Management Skills.

The eighth objective of the study was to determine differences in perceptions of the graduates of 1970 and

those of 1976 as regards their career preparation at OSU. Significant differences were found in perceptions of the graduates of both classes on some variables only. These findings are reported under hypotheses.

Hypotheses

Five null hypotheses formulated for the study were tested by PROC FREQ CHISQ of SAS. Each hypothesis had certain pairs of variables constituting certain sub-hypotheses. No hypothesis was rejected in total at the .05 significant level of the present study. However, certain sub-hypotheses were rejected.

Hypothesis no. 1 asserted that there is no significant difference between OSU graduates of 1970 and those of 1976 as regards their career preparation at OSU. The hypothesis was accepted as no significant differences were found.

Hypothesis no. 2 asserted that there is no significant difference between OSU graduates of 1970 and those of 1976 and the influence of peers, family, faculty and the job market. It was found that hypothesis could be rejected only for the variable FACULTY at the .01 significance level.

Hypothesis no. 3 asserted that there is no significant difference in the perceptions of male and female graduates of both classes as regards their career preparation at OSU. Hypothesis was rejected for one variable SMDTRAIN at the .05 significance level for the class of 1976.

Hypothesis no. 4 asserted that there is no significant

difference between college majors within both classes on perceptions regarding the career preparation at OSU. Hypothesis was rejected only for one variable GENED at the significance level .05 for the class of 1976.

Hypothesis no. 5 asserted that there is no significant difference between college majors, within classes on characteristics such as obtaining first job after graduation, change of jobs and salary levels. Out of the three variables considered to test this hypothesis, the hypothesis was rejected for one variable INCOME, at the significance level of .001 for both classes. Out of the other two variables, the hypothesis was rejected at the .01 significance level for the class fo 1976 for the variable FSTWAIT.

Summary of Conclusions

Graduates were given an opportunity to suggest improvement or changes by utilizing an open-ended item on the questionnaire. Based on the data and the statements of the graduates, several conclusions can be drawn from this study.

First, the evidence points overwhelmingly to the fact that higher education does, in fact, train students for the job market. The study has indicated that most of the students (of both classes) found jobs immediately, and in their fields of study. Even those who studied pre-med or pre-law requirements to enter their professional schools,

such as law or medicine, indicated that their undergraduate education "trained them well to go on for more education."

Second, in classifying people by college studies, it is standard practice to label the individual with his or her major. Employers, too, in seeking job applicants, use college major as a criterion for selection. Yet, most studies devote considerable time to courses in General Education. What is the value for careers of these courses? Graduates of all majors (50.9 percent) agreed about the use of general education.

Use of content of major on the job is the criterion most strongly associated with workers who perceive that they are in a 'closely related' job. When asked in the present study, content of major course work is used frequently on job, the most commonly reported response was AGREE (41.6 percent).

Third, too much stress has been placed on the need for education, training, and the possession of specified skills. Employers seem to be inclined to overemphasize the amount of schooling a person must have before he is qualified to occupy a gainful position. But, the graduates of both classes, irrespective of their undergraduate major and college, have stressed the importance of developing 'communication skills', 'writing skills', and courses in 'public relations', 'interpersonal relations', 'fiscal planning' and on the job training. It is in agreement with what Hacker (1970) had said,

In reality, the most important attribute an employee must have is verbal facility: the ability to speak and act in ways customarily associated with reputable employment (p. 81).

One 1970 graduate from the College of Agriculture stressed: "After ten years of using the background I acquired at OSU, my strongest recommendation would be to place more emphasis on developing communication skills."

Fourth, only a relatively small number of graduates were unemployed (7.8 percent). Most of the unemployed graduates were women. They indicated that they were unemployed because either they were raising children or that the nature of their husband's jobs was so that they could not live at one place for a long enough period of time to work. Most of those women graduates, whose husbands had Agriculture majors or who had their own business or farm, helped their husbands. Thus, despite the tight job market, the study showed less unemployment among the sample primarily due to choice of the degree holders.

Fifth interesting finding of the study was about the career choice of the students. Withey (1971), had stressed the role of faculty members and peers in the choice of career:

Undoubtedly teachers, counselors, and other significant individuals outside the family may be key sources of influence on any further plans a student makes concerning his educational and occupational goals. These individuals can serve as stimulators or dampners of student's educational interests and aspirations (p. 21).

The student is not a passive participant in the

development of his educational plans. Certain clues arising from his activities, interests, choice of friends, and status in the school indicate the direction he will take, in terms of his educational objectives (pp. 22-23).

In the survey questionnaire, students were asked about career choice; whether they made the choice because of personal interest, faculty, peers, job market or other reasons. As many as 32.6 percent of the respondents indicated personal interest as the main reason of the choice of their major. Very few marked faculty or peers as the reasons for their career choice. Almost twenty-eight percent of the graduates ranked "because of job market value" high as compared to family, faculty or peers as the cause of career choice.

Many of the respondents in the 'General Comments' section of the questionnaire stressed the need for counseling about career choice. One 1976 graduate from the College of Arts & Sciences commented in these words:

I believe much more emphasis should be placed on counseling and advising students about professions that have a high marketability, and show a promising future. I earnestly believe competent guidance of counselors on the college, high school and even junior high levels would greatly help our educational system.

Similar thoughts were expressed by a 1970 graduate from the College of Home Economics:

I don't think the word 'alternatives' was ever mentioned {during my education. I wish someone, somewhere had said, 'look at your options', learn to know yourself first, before you lock yourself

into a degree program.

Another 1970 graduate from the College of Arts & Sciences expressed about the most important decision of one's life (career choice) in these words:

At 18 years, I went to college. I had no idea what I wanted to do at that time. I think college should come after a period of practical experience and when the individual is old and more mature, with a better idea of his educational goals.

Sixth, the study indicated that students responded to the changes in the job market by shifting their fields of concentration out of the less-favored academic fields. Especially, shifts were noticed from humanities to professional fields. This might be the reason why more graduates of the 1976 sample went to graduate school than those of the 1970 class. Out of the 1970 graduates who went to graduate college, most were within their undergraduate major. On the other hand, the most common change of major among the 1976 graduates was from Arts and Sciences majors to the business, law and medicine.

Seventh, even though the recent graduates (1976) used their college training in their jobs more than the earlier graduates (1970), the recent graduates said that, by far, the most common way of obtaining their job skills was on the-job experience. College education was a less important method. This finding is similar to that of the national study comparing 1970-1977 cohort responses to those of the 1961-1974 cohort, done by Ochsner, Nancy L. and Lewis C.

Solmon (1979).

Eighth, education at OSU received good marks for giving knowledge and skills to enable graduates to get the first job. However, most of those who STRONGLY AGREED (41.9%) were from Agriculture, Engineering and Business Administration Colleges. Findings do suggest a need for improvement in other colleges if it is a desired outcome of college attendance.

Suggested Changes

Most of the graduates of all colleges recommended major core courses. It shows that core courses in each undergraduate major at OSU are very helpful to students. Certain courses (out of the recommended courses in Appendix D) should be added to provide more preparation to the students.

The following represent a few of the changes which need to be made as a result of the present study:

1. An increased emphasis on career guidance and counseling.

One 1970 graduate from the College of Arts and Sciences expressed the similar desire in these words, "A student should be counseled every year on the practicality of his or her major".

2. An increase in the establishment of effective working relationships with members of the teaching faculty.

One 1970 graduate from the College of Education expressed the desire of such change in these words, "I wish I could have known some of the professors on a more personal, human basis."

3. A marked increase in internship or actual work experience while still in school. So, the students receiving a degree from the institution should have demonstrated their acquisition of both a set of marketable job skills and a set of adaptability skills that will enable them to change with change.

One 1976 graduate from the College of Agriculture expressed the similar desire in these words, "I believe taking a part-time job within your major while attending classes is as important as your academic studies."

4. The faculty members should actively seek ways of involving both the physical and personal resources of the business/ labor/industry community in enhancing and expanding the content of the courses being taught.

One 1970 graduate from the College of Business Administration has expressed such thoughts in these words, "Theories need to be explained with actual situations by involved participants when possible."

5. Class-size of undergraduate courses should be small.

One 1976 graduate from the College of Agriculture suggested the similar change in the following words, "The classes are quite large. If the class-size could be limited to 100 or less, it would be helpful to students."

Another 1970 graduate from the College of Education expressed himself in these words, "I learned more from the smaller classes in my major area (Elementary Education). I think a smaller professor-student ration would be beneficial, supportive to future college students."

Recommendations

This study has been limited to a few general issues in the problem area of education and employment. Other aspects such as the education-employment problems for women, discrimination in the labor market, the effect of training programs etc., have been excluded. These aspects can be the

subjects of other studies.

In the present study, comparison was made between the graduates of six colleges for the two graduating years. A study could be done on each college separately. This study could compare in depth views and the employment status of the graduates over a longer period of time. This would give a better indication of the effects education has had on students from that particular college.

In the present study only some essential questions about education and employment were asked. Sufficient information was not sought from those graduates who changed their majors or who changed jobs many times. It could give more detailed information if follow-up of these graduates were made.

Analysis of the patterns of response suggests that institutions of higher education might increase impact by:

1. Thinking of a degree as the development of certain competencies such as: communication skills; writing skills and ability to deal with people on the job rather than an accumulation of course work only in a specialized field of study;
2. making greater effort to connect student interests and requirements; providing students with more feedback as to where they were weak, and how they could improve;
3. counseling students every year on the practicality of their majors;
4. developing a systematic program of educational research to better determine the college's effect on student's career development;
5. providing counseling and guidance in career

decisions; and

6. emphasizing the student interests and development of courses and programs which better prepare graduates for employment.

Institutions of higher education in America have historically responded to changes in the society, demands of the consumers and national needs. At present, when there is talk of oversupply, a tight job market and underemployment, institutions of higher education should take greater responsibility to help students make wise choice of career patterns.

The study has shown that general education is of significant value on the job and that competencies such as writing skills, communication skills and management skills are important correlates to study in a specialized field. Therefore, the study suggests a need to integrate the sometimes divergent notions of general education and career preparation.

Faculty can play a very important role in preparing students for employment if they have an attitude about general education. Not only should students be required to take more courses in general education, but its importance should be stressed even by specialized faculty in each discipline.

Faculty members at many colleges and universities have already begun to proclaim like the graduates in the present study that 'liberal education' is the best preparation for work (Solmon, 1978). And the Carnegie Foundation for the

Advancement of Teaching (1977) has advocated a reemphasis on 'general education', that is, on such subjects as English and mathematics that make it possible for students to acquire knowledge and understand new ideas throughout their lives. The Foundation argues that "English is the most vocationally useful of subjects" (p. 15).

A SELECTED BIBLIOGRAPHY

- (1) Ashby, E. Technology and the Academics. New York: St. Mark's Press, 1966.
- (2) Astin, Alexander W. Four Critical Years. San Francisco: Jossey-Bass Publishers, 1977.
- (3) Bean, Atherton. "The Next Twenty Years." AGB Reports, Jan./Feb., 1979, pp. 5-18.
- (4) Berdie, Douglas R. and John F. Anderson. Questionnaire: Design and Use. Metuchen, N. J.: The Scarecrow Press, Inc., 1974.
- (5) Bisconti, Ann S. and L. C. Solmon. College Education on the Job. Bethlehem: The CPC Foundation, 1976.
- (6) Bowen, Howard R. Investment in Learning. San Francisco: Jossey-Bass Publishers, 1977.
- (7) Bradburn, Norman M. and Seymour Sudman and Associates. Improving Interview Method and Questionnaire Design. San Francisco: Jossey-Bass Publishers, 1979.
- (8) Briggs, Donnie R. "A Study of Male Graduates from selected Academic Programs from the College of Arts and Sciences at the Oklahoma State University for the Year 1971." (Ed.D. dissertation, Oklahoma State University, 1977.)
- (9) Butts, R. Freeman. "The Search for Purpose in American Education." (Paper presented at the 75th anniversary forum of the College Entrance Examination Board, Plenary Session, New York, October 27, 1975.)
- (10) Campbell, William G. Form and Style in Thesis Writing. Boston: Houghton Mifflin Company, 1969.
- (11) The Carnegie Commission on Higher Education. College Graduates and Jobs. New York: McGraw-Hill Book Company, 1973.

- (12) The Carnegie Council on Policy Studies in Higher Education. Three Thousand Futures. San Francisco: Jossey-Bass Publishers, 1980.
- (13) The Carnegie Foundation for the Advancement of Teaching. Missions of the College Curriculum. San Francisco: Jossey-Bass Publishers, 1977.
- (14) Cartter, A. M. An Assessment of Quality in Graduate Education. Washington, D.C.: American Council on Education, 1966.
- (15) Cheit, E. F. The Useful Arts and the Liberal Tradition. New York: McGraw-Hill Book Company, 1975.
- (16) Dewey, J. Experience and Education. New York: Macmillan, 1963.
- (17) Du Bois, W. E. Burghardt. "Education and Work." Cross Reference, Vol. 1, No. 1, Jan./Feb., 1978, pp. 80-92.
- (18) Dunlap, E. T. "U.S. Colleges Life and Death Struggle." U.S. News and World Report, Vol. 84, No. 21, May 29, 1978, pp. 64-66.
- (19) Faculty Handbook. Stillwater: Oklahoma State University, 1978.
- (20) Feldman, K. A., and Newcomb, T. M. The Impact of College on Students. Vol. 1 & 2. San Francisco: Jossey-Bass Publishers 1969.
- (21) Ferguson, George A. Statistical Analysis in Psychology and Education. New York: McGraw-Hill Book Company, 1966.
- (22) Fisher, F. D. One Thousand Men of Harvard. Cambridge, Mass.: Office of Career Services and Off Campus Learning, Harvard University, 1976.
- (23) Flexner, A. Universities: American, English, and German. London: Oxford University Press, 1968.
- (24) Freeman, B. R. The Over-educated American. New York: Academic Press, 1976.
- (25) Freeman, B. R., and Holloman, J. H. "The Declining Value of College Going." Change, Vol. 7, No. 7, Sep., 1975, pp. 24-31, 62.
- (26) Gay, L. R., Educational Research. Columbus, Ohio: Charles E. Merrill Publishing Company, 1976.

- (27) Graduate Catalog. Stillwater: Oklahoma State University, 1979-80.
- (28) Green, Thomas F. Work, Lesiure and the American Schools. New York: Random House, 1968.
- (29) Hacker, Andrew. The End of the American Era. New York: Atheneum, 1970.
- (30) Hoyt, Kenneth B. "Toward a Theoretical Career Development Process." New Directions for Education, Work, and Careers. No. 6, 1979, pp. 1-16.
- (31) Jacob, P. Changing Values in College. New York: Harper & Row, 1957.
- (32) Jones, J. "Education and Its Influence on Life-Direction." National ACAC Journal, Vol. 23, No. 2, Feb. 1979, pp. 23-24.
- (33) Kerr, Clark. "Opportunities and Dangers." AGB Reports, Jan./Feb., 1979, pp. 9-14.
- (34) Knock, Gary H. "Looking Backward and Forward at College Student Unrest." College Student Journal, Vol. 12, No. 2, Summer 1978, pp. 144-149.
- (35) Levine, Arthur. Handbook on Undergraduate Curriculum. San Francisco: Jossey-Bass Publishers, 1978.
- (36) Marland, Sidney P., Jr. "Career Education Now." NASSP Bulletin, No. 55, 1971, pp. 1-11.
- (37) Mayhew, Lewis B. Surviving the Eighties. San Francisco: Jossey-Bass Publishers, 1979.
- (38) Miller, Richard I. The Assessment of College Performance. San Francisco: Jossey-Bass Publishers, 1979.
- (39) Mincer, Jacob. "The Determination of Labor Incomes." Journal of Economic Literature, 8, 1970, pp. 1-26.
- (40) Nabors, Jon Huddleston. "A Survey and Analysis of Factors Related to Education and Employability." (Ed.D. disseration, The University of Tulsa, 1974.)
- (41) Newman, J. H. The Idea of a University. Garden City, New York: Image Books, 1959.

- (42) O'Toole, James. "The Reserve Army of the Underemployed." Change, Vol. 7, No. 4, 1975, pp. 26-33, 60-63.
- (43) O'Toole, James. Work, Learning & the American Future. San Francisco: Jossey-Bass Publishers, 1977.
- (44) Ochsner, Nancy L. and L. C. Solmon. College Education and Employment. Bethlehem: The CPC Foundation, 1979.
- (45) Padilla, Arthur H. "The Class of '74: Early Careers of Graduates from the Sixteen Campuses of the University of North Carolina." (Ph.D. dissertation, North Carolina University, 1976.)
- (46) Ribicoff, Abraham A. "A Seperate Department of Education: Why Not the Best?" Change, Feb., 1978, pp. 27-63.
- (47) Roberts, Dennis M. Descriptive and Inferential Statistical Topics. Dubuque, Iowa: Kendall/Hunt Publishing Company, 1975.
- (48) Simon, K., and Frankel, M. M. Projections of Educational, Vocational Statistics to 1980-81. Washington D.C.: U.S. Government Printing Office, 1972.
- (49) Solmon, L. C., Bisconti, A., and Ochsner, N. College as a Training Ground for Job. New York: Praeger, 1977.
- (50) Solmon, Lewis C. "The Education-Work Relationship in transition." New Directions for Education and Work, No. 1, Spring 1978.
- (51) Veblen, T. The Higher Learning in America. New York: Hill and Wang, 1968.
- (52) Whitehead, A. N. An Anthology. Selected by F. S. C. Northrop and M. W. Gross. New York: Macmillan, 1961.
- (53) Wiegner, Kathleen. "Plumbers with Ph.D's." AGB Reports, Jan./Feb., 1979, pp. 9-14.
- (54) Wilson, LaVell. "The Employment Success of Thornton Community College 1975 Career Graduates." (Ed.D. dissertation, Indiana University, 1977.)
- (55) Withey, Stephen B. A Degree and What Else? New York: McGraw Hill Book Co., Inc., 1971.

- (56) Work in America. Washington, D.C.: U.S. Department of Health, Education and Welfare, 1973.
- (57) Wright and Shaw, Scales for the Measurement of Attitudes. San Francisco: McGraw-Hill Inc., 1967.

APPENDIX A

COVER LETTER



Oklahoma State University

DEPARTMENT OF EDUCATIONAL ADMINISTRATION
AND HIGHER EDUCATION

STILLWATER, OKLAHOMA 74078
309 GUNDERSEN HALL
(405) 624-7244

Dear

The attached questionnaire concerned with the employability of Oklahoma State University graduates is part of a self-evaluation study. This study is being carried on by the Department of Education Administration and Higher Education with the assistance of the Institutional Research Office, Oklahoma State University. The study is concerned specifically with the employability of graduates, in order to determine the influence of college education on jobs and employment.

We are particularly desirous of obtaining your response because your experience and views will contribute significantly toward evaluating our programs of education at Oklahoma State University.

The questionnaire is designed to make it possible for us to obtain the necessary data while requiring a minimum of your time.

It will be appreciated if you will complete the questionnaire prior to September 1, 1980, and return it in the stamped envelope enclosed herewith. Other phases of this research cannot be carried out until we complete analysis of the questionnaire data.

Your anonymity as a participant is guaranteed. All information will be held in strict confidence and will be used only for statistical purposes.

Thank you for your cooperation.

Sincerely,

Thomas A. Karman, Department Head

M. L. Gilliam, Asst. Dir. Institutional Research

APPENDIX B

SURVEY QUESTIONNAIRE

OSU GRADUATES' VIEWPOINT

Please answer the following questions by a check (✓) mark or by writing in the appropriate spaces.

- (1) Sex: (a) Male () (b) Female ()
- (2) Age: A. 21-25 () E. 41-45 ()
 B. 26-30 () F. 46-50 ()
 C. 31-35 () G. Over 50 ()
 D. 36-40 ()
- (3) Degrees earned at OSU:
- (a) Undergraduate Degree: () B. A. in (state major) _____ Year _____
 () B. S. in (state major) _____ Year _____
- (b) Graduate Degree: () M. S. in (state major) _____ Year _____
 () M. A. in (state major) _____ Year _____
 () Ph.D. in (state major) _____ Year _____
 () Ed.D. in (state major) _____ Year _____
 () Other in (state major) _____ Year _____
- (4) Employment status:
- (a) Full-time () (b) Part-time () (c) Unemployed ()
- If unemployeed:
- (a) Are you currently looking for paid employment? Yes () No ()
- (b) Are you enrolled in an advanced educational program? Yes () No ()
- (c) Are you physically unable to work? Yes () No ()
- (d) For some other reason? () Please specify _____.
- (5) What is your present job title, or last job title if unemployed? _____

 (Please be as specific as possible so that responses can be accurately classified)
- (6) How many full time paid jobs have you had since receiving your undergraduate degree?

- (7) What was your first full-time job after graduation? _____
- (8) How long after graduation did you find your first full-time job?
- (a) Immediately () (b) Within 3 months () (c) Longer than 3 months ()
- (9) What is your approximate current annual gross income? (Please include only your personal income)
- A. Under \$10,000 () D. \$20,000-\$25,000 ()
 B. \$10,000-\$15,000 () E. \$25,000-\$35,000 ()
 C. \$15,000-\$20,000 () F. Over \$35,000 ()
- (10) What were your reasons for choosing your Undergraduate College major? Please indicate whether the following reasons were very important, moderately important or not important.
- | | very
imp. | mod.
imp. | not
imp. |
|-----------------------------------|--------------|--------------|-------------|
| (a) Because of personal interest. | () | () | () |
| (b) Because of peers. | () | () | () |

- | | very
imp. | mod.
imp. | not
imp. |
|--|--------------|--------------|-------------|
| (c) Because of my family. | () | () | () |
| (d) Because of the faculty. | () | () | () |
| (e) Because of its market value. | () | () | () |
| (f) Because of other reasons (Please specify) _____. | | | |

(11) Please respond to the following statements by indicating whether you strongly agree (SA), agree (A), undecided (U), disagree (D), or strongly disagree (SD) with the statement.

- | | SA | A | U | D | SD |
|---|-----|-----|-----|-----|-----|
| (a) My current job is closely related to my college major. | () | () | () | () | () |
| (b) Content of major course work is used frequently on the job. | () | () | () | () | () |
| (c) General education is most helpful on the job. | () | () | () | () | () |
| (d) My education at OSU gave me knowledge and skills that enabled me to get my first job. | () | () | () | () | () |
| (e) My college education helped me on the second job. | () | () | () | () | () |
| (f) Training on the first job helped me on the second job. | () | () | () | () | () |
| (g) I am very much satisfied with my OSU education "in terms of employability". | () | () | () | () | () |
| (h) I received good preparation for my vocation in life. | () | () | () | () | () |

(12) What course or courses would you recommend to be most useful in your job?

GENERAL COMMENTS

Your time and consideration in completing this questionnaire are deeply appreciated. The information you have provided will be of great value to the University in planning for future students.

APPENDIX C

CLASSIFICATION OF UNDERGRADUATE MAJORS,
BY SEX

TABLE XXI
 UNDERGRADUATE MAJORS OF COLLEGE OF
 AGRICULTURE GRADUATES

Undergraduate Majors	1970 Graduates		1976 Graduates		
	Total	Male Female	Total	Male	Female
Agriculture	1	1	2	1	1
Agr. Economics	4	4	4	4	
Agr. Education	5	4	3	2	
Agronomy	3	3	1	1	
Animal Science	4	3	3	3	
Biochemistry			1	1	
Entomology	2	2			
Forestry	1	1	2	1	1
Horticulture			3	2	1
Mech. Agriculture	1	1	1	1	
Pre.Vet.Science	1	1	1	1	
Total	22	20	21	17	3

Note : Total does not include Blank responses 1970 Graduates - 2
 1976 Graduates - 1

TABLE XXII
 UNDERGRADUATE MAJORS OF COLLEGE OF ARTS
 & SCIENCES GRADUATES

Undergraduate Majors	1970 Graduates			1976 Graduates		
	Total	Male	Female	Total	Male	Female
Aerospace	1	1				
Art	1					
Art Education	2		2			
Biological Science	2	1	1	1	1	
Chemistry	2	2				
English				1	1	
Foreign language	1		1			
Geography				1	1	
Geology				1	1	
Health & Phy.Edu.				1	1	
Hea.Phy.Edu.& Re.	1	1		2	1	2
History	3	2	1	3	2	1
Humanities	2	1	1			
Journalism	1	1		1		1
Mathematics	4	4		2	2	
Microbiology				3	2	1
Military Science				1	1	
Physiology	3	3				
Political Science	3	3		2	2	
Pre.Med.Science	1	1				
Psychology	3	3		3	1	4
Radio,Tel.& Film	2	2		3	3	
Social Science				1		1
Sociology	1		1	3	1	2
Speech	1		1	3		3
Wildlife Ecology				3	3	
Zoology	1	1		2	1	1
Total	35	26	8	39	24	14

Note: Total does not include Blank responses 1970 Graduates - 1
 1976 Graduates - 1

TABLE XXIII
 UNDERGRADUATE MAJORS OF COLLEGE OF
 BUSINESS ADM. GRADUATES

Undergraduate Majors	1970 Graduates			1976 Graduates		
	Total	Male	Female	Total	Male	Female
Accounting	4	3	1	12	7	5
Business Adm.	10	10		10	8	2
Business Edu.	1		1	2	2	
Economics	1	1		2	1	1
Finance	1			2	2	
Management	1	1		3	2	1
Marketing	2	2		8	6	2
Total	20	17	2	39	26	13

Note : Total does not include Blank responses 1970 Graduates - 1

TABLE XXIV
 UNDERGRADUATE MAJORS OF COLLEGE OF
 EDUCATION GRADUATES

Undergraduate Majors	1970 Graduates			1976 Graduates		
	Total	Male	Female	Total	Male	Female
Education	3	1	2	2		2
Elem. Education	13	1	12	5		5
Spe. Education	1		1	3		3
Tech. Education	2	2				
Trade & Ind. Edu.				1	1	
Total	19	4	25	11	1	10

TABLE XXV
 UNDERGRADUATE MAJORS OF COLLEGE OF
 ENGINEERING GRADUATES

Undergraduate Majors	1970 Graduates			1976 Graduates		
	Total	Male	Female	Total	Male	Female
Arch. Eng.	1	1		1	1	
Arch. Studies				2	2	
Chem. Eng.	2	2				
Civil Eng.	2	2		1	1	
Elect. Eng.	4	4		2	2	
Ele.Eng.Tech.	1	1		4	4	
Indus.Eng.				2	1	1
Mech.Eng.	3	3		4	4	
Nuclear Eng.				1		
Radia.& Nuc.Tech.				1	1	
Total	13	13		18	16	1

Note : Total does not include Blank responses 1976 Graduates - 1

TABLE XXVI
 UNDERGRADUATE MAJORS OF COLLEGE OF HOME
 ECONOMICS GRADUATES

Undergraduate Majors	1970 Graduates			1976 Graduates		
	Total	Male	Female	Total	Male	Female
Cloth. Tex. & Merch.				2		2
Fam. Re./Ch. Dev.	4		4	3		3
Food, Nut. & Ins. Adm.				1		1
Food Science				1	1	
Home Eco. Edu.	4		4	9		9
Hotel & Res. Adm.	4	4		1	1	
Total	12	4	8	17	2	15

APPENDIX D

COURSES RECOMMENDED FOR OWN JOB, BY
COLLEGE

TABLE XXVII
COURSES RECOMMENDED BY COLLEGE OF
AGRICULTURE GRADUATES

Courses	<u>1970 Graduates</u> Frequency	<u>1976 Graduates</u> Frequency	Total
Accounting	2		2
Actual Work Experience		5	5
Business Administration	3	3	6
Business Law	2		2
Communication Skills	2		2
Computer Science	1	1	2
Curriculum Development	1		1
Discipline	2		2
Economics	1	2	3
Fiscal Planning	2	2	4
Learn to Think	1		1
Management	1		1
Marketing		1	1
Mathematics	1		1
On the Job Training	1		1
Personnel Management		1	1
Planning		1	1
Public Relation	2		2
Resource Allocation	1		1
Sciences	1		1

TABLE XXVIII
 COURSES RECOMMENDED BY COLLEGE OF ARTS &
 SCIENCES GRADUATES

Courses	1970 Graduates Frequency	1976 Graduates Frequency	Total
Accounting	1	3	4
Actual work experience	2	4	6
Administrative Law	1		1
Budgeting	1	2	3
Business Administration	5	3	8
Communication Skills	3	1	4
Computer Science	3	1	4
Counseling	1		1
Decision Making		1	1
Discipline	1		1
Economics	1		1
English Composition	1	3	4
General Education	5		5
Group Dynamics	1		1
Human Relations	1		1
Management	1	3	4
Marketing		2	2
Mathematics	1	2	3
On the Job Training		2	2
Organization	1		1
Personnel Management	1		1
Philosophy	1	1	2
Planning		1	1
Psychology	2		2
Reading		1	1
Research		4	4
Sciences	2		2
Sociology	2	2	4
Statistics	1	4	5
Writing Skills		2	2

TABLE XXIX
COURSES RECOMMENDED BY COLLEGE OF
BUSINESS ADM. GRADUATES

Courses	<u>1970 Graduates</u> Frequency	<u>1976 Graduates</u> Frequency	Total
Accounting	5	14	19
Actual Work Experience	1	2	3
Business Law	2	2	4
Communication	2	6	8
Computer Science	1		1
Decision Making	1	1	2
Economics	4	6	10
English	2	2	4
Fiscal Planning	3	9	12
Group Dynamics	1	1	2
Human Behavior		2	2
Human Relations	1	1	2
Leadership		1	1
Management	2	8	10
Marketing	1	5	6
Mathematics	1		1
Personnel Management		2	2
Psychology	1	3	4
Research		1	1
Sales	1		1
Statistics	1	2	3
Sociology		1	1
Writing		2	2

TABLE XXX
 COURSES RECOMMENDED BY COLLEGE OF
 EDUCATION GRADUATES

Course	<u>1970 Graduates</u> Frequency	<u>1976 Graduates</u> Frequency	Total
Actual Work Experience	1		1
Child Motivation	1	2	3
Classroom Observation	3		3
English Composition		1	1
Human Behavior	1		1
Management		1	1
Mathematics	1		1
On the Job Training	2		2
Personnel Management	1		1
Psychology	4		4
Public Relations	1		1
Sociology	1		1
Student Teaching	4	4	8

TABLE XXXI
COURSES RECOMMENDED BY COLLEGE OF
ENGINEERING GRADUATES

Courses	<u>1970 Graduates</u> Frequency	<u>1976 Graduates</u> Frequency	Total
Actual Work Experience	2	1	3
Business Administration	2	1	3
Communication Skills		1	1
Computer Science	1	1	2
Engineering Economics		2	2
English Composition	1	2	3
General Education		2	2
Human Relations		1	1
Management	1	1	2
Marketing	1		1
Mathematics	1	2	3
Psychology		1	1
Report Writing	1	1	2
Research		1	1
Sciences		1	1
Statistics	1		1

TABLE XXXII
COURSES RECOMMENDED BY COLLEGE OF HOME
ECONOMICS GRADUATES

Course	<u>1970 Graduates</u> Frequency	<u>1976 Graduates</u> Frequency	Total
Accounting		1	1
Business Administration	1		1
Communication Skills	1	2	3
Curriculum Development		1	1
General Education	1		1
Human Behavior	2		2
Human Relations		3	3
Management	1	2	3
Personnel Management	2		2
Planning	2		2
Sciences	1		1
Student Reading	1	2	3

APPENDIX E

USE OF UNDERGRADUATE COURSES IN WORK

TABLE XXXIII
 USE OF UNDERGRADUATE COURSES IN WORK, BY
 COLLEGE

Type of Course	1970 Graduates		1976 Graduates	
	Strongly Agree & Agree N	%	Strongly Agree & Agree N	%
College of Agriculture				
Major Course Work	11	50.0	16	80.0
General Education	16	72.7	17	85.0
College of Arts & Sciences				
Major Course Work	17	48.5	24	61.5
General Education	29	82.8	30	76.9
College of Business Adm.				
Major Course Work	14	70.0	25	64.1
General Education	14	70.0	31	79.4
College of Education				
Major Course Work	10	52.6	6	54.5
General Education	11	57.8	4	36.3
College of Engineering				
Major Course Work	6	46.1	15	83.3
General Education	10	76.9	15	83.3
College of Home Economics				
Major Course Work	10	83.3	13	76.4
General Education	11	91.6	14	82.3

APPENDIX F

CHOICE OF UNDERGRADUATE MAJOR, BY REASON

TABLE XXXIV
 FACULTY AS REASON OF CHOOSING
 UNDERGRADUATE MAJOR,
 BY COLLEGE

COLLEGE	1970 Graduates			1976 Graduates		
	V Imp.	Mod.Imp.	Not Imp.	V.Imp.	Mod.Imp.	Not Imp.
Agriculture	3	8	10	1	6	13
Art & Sciences	2	6	27	5	16	16
Business Adm.	2	5	12	5	20	13
Education		8	11		3	8
Engineering		2	11	2	8	7
Home Economics	3	2	6	4	6	7
Total	10	31	77	17	59	64

Note: Total does not include Blank responses 1970 Graduates - 3
 1976 Graduates - 5

APPENDIX G

HELPFULNESS OF TRAINING ON THE FIRST JOB
ON THE SECOND JOB

TABLE XXXV
 HELPFULNESS OF TRAINING ON THE FIRST JOB
 ON THE SECOND JOB, BY SEX

Sex	1970 Graduates					1976 Graduates				
	SA*	A*	U*	D*	SD*	SA*	A*	U*	D*	SD*
Male	28	18	5	7	4	24	18	10	1	5
Female	13	7	2	5	2	24	5	3	7	5
Total	41	25	7	12	6	48	23	13	8	10

Note: Total does not include Blank responses 1970 Graduates - 18
 and Not Applicable responses 1976 Graduates - 25
 1970 Graduates - 12
 1976 Graduates - 18

*SA= Strongly Agree
 A= Agree
 U= Undecided
 D= Disagree
 SD= Strongly Disagree

APPENDIX H

GENERAL COMMENTS

1970 Graduates

College of Agriculture

I enjoyed OSU very much and felt that I was well-furnished in Entomology.

I loved my years at OSU. I think of OSU often. I really should have studied Business instead of Agriculture, but did not because of my farm background.

Current job is not related to my degree.
(Undergraduate major - Agricultural Education)

Would have received better coursework through school of Business and taken electives through Agricultural Economics.

Need more courses which would contribute directly to farming rather than dealing in theory.

After ten years of using the background I acquired at OSU, my strongest recommendation would be to place more emphasis on developing communication skills.

A vo-tech approach would have been much more helpful for someone like me, going into farming and ranching.

Students need more practical experience as part of the curriculum at OSU.

My affiliation with OSU at times opens more doors than an educational degree.

College of Arts & Sciences

I appreciate your concern.

I believe that when a student declares a major, he or she should have a course of study planned with the goal of employment. A major should directly relate to 'real life' after graduation. Employment is the only real goal in life. A major is nice, if there is a job market at the end of 4 years. A student should be counseled every year on the practicality of his or her major.

At 18 years, I went to college. I had no idea what I wanted to do at that time. I think college should come after a period of practical experience and when the individual is older and more mature, with a better idea of his educational goals.

Continue a strong general education core and resist the tendency to narrow vocational courses.

Need more 'real world' emphasis on many degree programs such as Math/Computer Science programs.

The ability to get along with other people is as important as course work in the major field.

General education is a necessity. When younger, I often asked why must I study 'this- Geography?' Now I only regret not taking an interest in all of the courses that I took.

I found the general education requirements to be least productive and would drop them and replace them by useful accounting courses or administrative courses.

How can you choose a career, that you will still enjoy at 40, at age of 18?

I feel that the general knowledge gathered in those 'required courses' may turn out to be the most valuable in the long run.

In art education the more areas one has knowledge is the better.

My learning to apply good study habits have been the most useful to me in my job.

The Art Department should have had more to do with the Education Dept., and visa versa. The Art Department was very poor in terms of variety of courses and especially money-making courses.

Those seeking administrative careers in Government should now plan to complete some graduate education in Public Administration.

On graduation I went to Medical school directly. I am quite pleased that my OSU education prepared me well for the rogors of medical school.

I only wish that I would have been accepted into graduate school at OSU. I feel a Master in Psychology would have been most helpful to me.
(Job title: Social Worker)

In my experience in the chemical industry, I have found that a degree in Chemical Engineering is more marketable than a degree in Chemistry. In my particular company, there are many more positions open to Ph.D. Chemists than for B.S. Chemists. Consequently, I would recommend engineering to anyone wanting a just four year education. For those interested in graduate school, the undergraduate preparation at OSU was adequate.

College of Business

Education and Experience are inseparable ingredients to success. How many professors have actual experience in the 'real' business world? Theories need to be explained with actual situations by involved participants when possible.

Too much time is spent on courses that do little in preparing one to earn a living with his knowledge. Courses should take theories and basic principles and should show the students how they can be used to tackle real life problems.

A graduate business degree aids longer term placement at the executive level.

My undergraduate degree is not directly related to my current employment. My three years of law school are my greatest resource at this time. (Undergraduate major - Business General Job Title - Attorney)

College of Education

Two hour observation (2 wk) with classroom teacher at start of school (including meetings, enrollments, issuing books, paperwork etc.) is essential for student-teaching. It removed fear and uncertainty that I see in a lot of new teachers. I think it should be a must.

I have found the reading program at OSU to be exceptionally helpful in my present position as a classroom teacher. Undergraduate education courses were not particularly effective in preparing one for the elementary classroom. As I took these courses ten years ago, however, my comments may no longer be appropriate.

I am proud to be an OSU graduate and am grateful for the broadening of general knowledge and skills I received at OSU. However, in the field of teaching the elementary child, I feel I have gained much more from experience and on-the-job training than from my undergraduate education and methods courses.

I enjoyed attending OSU. The friendly, spacious campus and the many students who come from small Oklahoma towns were reassuring to me.

I learned more from the smaller classes in my major area (elementary education). I wish I could have known some of the professors on a more 'human' basis. I think a smaller professor-student ratio would be beneficial, supportive to future college students.

My degree is in education, the job I am doing now needs someone with an engineering background. I am self-employed.

The main training came through block courses and student teaching. Experience sharing with other educators and inservice training were by far the most valuable.

College of Engineering

I was always good at Math, didn't really know what I wanted to be. I have always felt like I 'stumbled' into this profession.

My training at OSU supplied me with the basics required to begin my training in Industry. I received more detailed training about being an engineer from 'older' engineers at my first place of employment.

I am very satisfied with my engineering training at OSU. It has provided me with the basic tools for my vocation and given me the skills to pursue new areas of interest and knowledge.

My engineering education at OSU has been and continues to be an excellent foundation and building block. I have also noticed that from the salary point of view, after about 4 years a Ph.D. and M.S. degree in engineering are essentially equivalent.

I found my education to be much too oriented toward producing someone who was instantly

productive (could make money for someone). Much more emphasis on fundamentals to provide the capability for life-long learning was needed.

Certain Petroleum Engineering courses not relevant to OSU curriculum.

College of Home Economics

In the Hotel, Restaurant, Food Service related fields (which incidently is the #1 employer in the U.S., and the #2 in total dollar sales), 90% of our problems are 'people' problems. Control of one's behavior, interviewing, hiring, counseling, terminating, training, scheduling etc. All of these realistic problems and areas are ignored. The theory should be taught, but realistic problem-solving must be stressed.

I feel that my OSU education prepared me adequately for jobs, in the area that I was studying (Home Economics), but I now feel inadequately prepared for the changing job market. In other words, perhaps my education was too specific.

I don't think the word 'alternatives' was ever mentioned during my education. I wish someone, somewhere had said 'look at your options' - learn to know yourself first, before you lock yourself into a degree program.

Working in Texas, my peers are graduates of this state and I find their specific education (Child Development) to lack the depth mine had. I wish, however, that my education had included an interpersonal communication course and one on personnel management.

I appreciate OSU because it gave me confidence, knowledge and backbone. The school was tough, disciplined and interested in its students (especially Hotel and Restaurant).

I graduated with a bachelor's degree in Family Relations and Child Development and was not adequately prepared for any specific job. I later changed major and at the Graduate level and went into Speech Pathology.

Being a wife and mother is important to me at this time in life. I have chosen to stay at home.

The fact that I am not currently working in my field does not mean that my education has not been beneficial to me.

1976 Graduates

College of Agriculture

I believe taking a part-time job within your major while attending classes is as important as your academic studies. My part-time job in field research was a major deciding factor in my being hired for the second job.

I consider my coursework at OSU very valuable. However, the key is one's ability to apply this learned knowledge to the real world. In my field (Agricultural Economics), practical application of classroom subjects was stressed by the professors. This was a great help to me, in that, I was better prepared to accept a working position upon graduation, rather than a training position.

Education should stay with practical content no matter at what level it is being applied. Interest and achievement can only be attained in a subject when its content proves to be something that can be used in daily life.

OSU needs a more technical course in banking, and related businesses. It could more specifically cover the various methods of computing interests. Also, a business machine course in this area would be helpful. These classes may have been available but I was not made aware of it if they were. The one course I took that related specifically to banking, the first course of money & banking was totally worthless. The course was too general and the teacher seemed to know only the large overview of the banking system and nothing of the daily operations of a bank.

I feel the instructors of the Engineer Science courses should take more of an interest in the students and explain what they think we should know for a test. I realize the classes are quite large which is part of the problem. If the class-size could be limited to 100 or less, it would be helpful from the students' point of view.

A business oriented background is becoming more job oriented because work related to field

problems is very research oriented, thus probably you need management and business skills. Forestry skills are less important.

I believe that I got my first job because I had a degree and practical experience. I was lucky enough to work for the university Horticulture Department and gained more practical experience from the university. So, I believe people look for the degree and for practical experience more than what you learned in the classes you took.

Although I am not teaching, I feel my preparation in history and education proved useful for this job as editor of the Initiative and Referendum Report. Of particular help are the writing and research skills developed in my years as a graduate student in history and education.

College of Arts and Sciences

A B.S. in Psychology is only good for background. You can't really do a lot with it alone. It has helped me some in dealing with people in my jobs. However, I just wish that there was some kind of training given in the undergraduate Psychology programs to help those who can't afford to go to graduate school.

I feel the internship program at OSU's 'Student Personnel and Guidance' program was the most valuable experience I obtained. It allowed me to see the 'realistic picture' of the work and 'get my feet wet' before moving into a position on my own. Also offered an excellent opportunity to make contacts within the field.

The coursework at OSU was very enjoyable but of only minor usefulness in the outside world. It would seem to be very helpful if more practical aspects were taught in the coursework.

Although I am not currently employed as a Social Science teacher, many of the things I learned in college have been helpful as well as the fact that I do have a college degree is helping me in achieving my goal of becoming a

commercial writer.

I graduated with a degree in Radio, T.V. and was pleased with my two jobs in the field. However, due to salary, I left them for more money. I do not like my current job and am looking to get back in the media business. Money means a lot, but you have got to be happy first. I enjoyed my education at OSU and found it helpful in finding my job.

I am just over a year out of Law School. Although my undergraduate training did not 'train' me for present employment, it did enable me to succeed in my legal training, and indirectly has assisted me in my practice. Of course, my college education at OSU trained me well to go on for more education.

High grades helped and general education with attention to the basics. English and Math is more important than I ever dreamed.

Three months after I graduated I turned down the only job offering in my field to work at a factory for higher wages. The field of Radio, T.V. and Film is not a good field for minorities, because all stations have their quota and once they fill it then they don't need nor desire any additional minorities.

I have been well pleased by the training I received at OSU through the Department of Speech-Language Pathology. The department is well respected throughout the State and I obtained an excellent job immediately upon graduation. My background and training in my field is such that I feel quite capable upon comparison with graduates from other universities.

I feel my education at OSU has been very beneficial to me even though I am not presently using my degree in Speech Pathology. Many of the classes, especially in Language Disorders apply to my field of teaching now.

Sociology as a major was not helpful at

all (no demand for B.A., but larger demand for M.A.) I probably got my present job because I was a college graduate, not because of Sociology. Sociology does help, because I supervise people. I enjoyed my sociology classes.

I made a mistake in choosing Wildlife Ecology as a major due to its lack of demand. My advisor made a more serious mistake in not informing me of that fact. Generally, I believe much more emphasis should be placed on counseling and advising students about professions that have a high marketability and show a promising future. I earnestly believe competent guidance on the college, high school and even junior high levels would greatly help our educational systems.

After graduation I went directly to law school. My Journalism major is not closely associated with my practice of law, but a number of skills I gained in my major have been very helpful to me, such as, learning to write concisely; learning to condense facts and list thing in a logical and orderly sequence. My OSU education in general was very rewarding and enjoyable.

People are more interested in job skills, especially qualifications and 'know-how'. My college education has never been the determining factor as to whether or not I was hired. Annual attendance at Seminars/Conventions is probably the best way I have to keep my skills updated. Perhaps OSU should get more involved in provision of seminars.

A good briefing on interviews would be helpful in getting the best job possible. I feel that if I had been better prepared in an interview, I would feel more confident in myself even though I feel myself very knowledgeable in my field of physical education.

The advisory staff at OSU was not good. If you are going to take a student's money for 4 years, a little help after graduation should be mandatory.

College of Business Administration

It would be most helpful to graduating students to know that a degree will get them a job but only hard work ever gets you longterm promotion and advancement.

All students should be required to take both a Business English Composition course and some kind of Interpersonal Communication course. The technical training provided by a degree is useless unless the student can effectively communicate what he has learned.

I would like to see more insurance oriented classes at OSU. It is large area of employment that needs more attention.

Business majors need a course in business machines. There should be more emphasis in the electives towards artistic thinking. More courses in group dynamics needed.

On-the-job-training in the major field of study is a big plus to all graduates.

From my work experience in the field of employment, I have found that many disciplines offered by OSU provide excellent employability. I believe OSU graduates in General Business Administration (when properly advised by informed and interested faculty) are among some of the best in the central USA.

My greatest gain in going to OSU was in associating with the many students and instructors. I learned more about the world in which I would be living. My college experience has helped me immensely in everyday business and social life.

Could it be that the University will be only as good as the advisors and/or counselors who direct students through their college years? I feel that OSU classes offered were a good, broad spectrum.

College of Education

Stronger emphasis need to be placed on 'in the classroom' training. Theories and methods are useless without the opportunity to apply them.

I feel like experience is the best teacher, but my education at OSU was satisfactory.

I feel that a program preparing a teacher should include more practical experience. The conditions of my student-teaching were too ideal, and I don't feel that I was totally prepared for some of the situations I have had to deal with in 'real life'.

Very satisfied with career choice and employment. I think my education was very good. On-the-job-training is extremely valuable in the Special Education field.

College of Engineering

I think my OSU education cheated me of a good education when I check into the undergraduate courses offered by other colleges. My degree gave me a background but did not prepare me to be a professional. Courses were too general, not specific enough.

I am very well-suited for my work due to my ability to communicate an work with technical application oriented problems which arise.

The courses I took to complete my degree have been very helpful, however, I feel the requirements should include some basic management background to better equip graduates as managers which many will become.

Degree programs in Engineering contain very few hours available to pick up other general courses. Would recommend that majors should be expanded to pick up general business courses.

More coursework should be devoted to practical application to industrial situations.

College of Home Economics

We need better one-to-one counseling at graduation. It would help students find the 'right' first job. I knew the job I really wanted, but family and peer pressure to 'get a job' influenced me to take the first job that came along.

I am very satisfied with the education I received at OSU compared to other universities and colleges.

I feel the University has an excellent academic program. I am very proud to be an alumni.

I care for my children. After my children start to school I plan to work in my field of training.

Sometimes I feel that our (OSU) degree programs are outdated. It is a university and students come to get an overall education. But, there are some courses that are worthless to those who must make a living after graduation and do not help prepare that student for his or her future. I hope programs will be examined carefully to equip new graduates to cope with the pressures of the world.

I feel the FRCD department needs to broaden its emphasis. There needs to be an infant-toddler program and a model K-3 lab school for students in the education part.

I also feel the masters program desperately needs a supervised internship program. This is required in many social service agencies.

I think classes in Child Abuse and Parent Education should be added. Play therapy would also be a good addition.

School of Hotel & Restaurant places too much emphasis on obsolete courses and far less on the necessary business-

related courses. Stronger depth in management courses would be most beneficial.

OSU is excellent in preparing the person who wants to be successful and is truly interested in working hard.

VITA

Nuzhat Parveen Chaudhry

Candidate for the Degree of
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