The primary purpose of this study was to determine the difference in "career progress" and satisfaction between cooperative education/internship graduates and non-co-op/intern graduates of a small, private, non-engineering college. A secondary purpose was to determine which other independent variables (age; gender; SAT score; GPA; percent of related work) contributed significantly to any existing differences.

The principle data gathering technique was a mail questionnaire. Graduates from 1986; 1988; and 1990 were sampled allowing for a cross-sectional overview of workforce participation. A 61% usable response rate was achieved using Dillman's (1978) Total Design Method.

In general, study data offered little direct evidence supporting co-op/internship participation, although participants held slight advantages in regard to length of
time to obtain employment; working within the field of study; merit pay increases; job promotions; salary levels; and responsibility levels.

Two outcomes, further analyzed, however, indirectly supported co-op/intern participation.

1. Co-op/intern participants, in comparison to non-participants, began college at a significant disadvantage in terms of SAT score (866 to 922). At graduation, GPAs were similar (3.14 to 3.19) and following graduation "career progress" occurred at the same rate. How was the disadvantage overcome? It is logical to assume, as Siedenberg (1990) did for salary, that cooperative education enabled "disadvantaged" students to catch up with their peers and compete on an even basis following graduation.

2. Percent of related experience as an undergraduate is a main predictor of "career progress." Those with a higher percent of related work were more likely to be employed within their field of study and were more satisfied. Associated with this, co-op/intern students reported a significantly higher percent of related experience.

In addition to the previous findings, gender provided significant results in regard to salaries and promotions. Males "outperformed" females, apparently continuing an existing pattern of gender discrimination. Integrating all of the study data, it seems plausible that females might overcome this gender "disadvantage" by participating in co-op and increasing their percent of related work experience.
An Evaluation of the Career Progress and Satisfaction of Cooperative Education/Internship Graduates and Regular Graduates at Mercyhurst College

by

Darwin V. Kysor

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Typed by researcher for Darwin V. Kysor
In Memory of Riley Schmidt Hunter-Kysor
8/7/91--12/1/91

I learned a lot about research and persistence as I completed my dissertation. Others said they could never write one, believing that "it would be so hard." I never felt this was the case. No amount of coursework or related out-of-class experience, however, could teach me as much as my baby Riley did in the 16 short weeks of her life.

When I began my doctoral program, my precious Riley existed only in dreams. In these dreams she was the perfect child, healthy and full of fun. In reality, when Riley was born, she was unfortunate enough to inherit a terminal genetic disorder from myself and my wife called Spinal Muscular Atrophy - Werdnig Hoffman disease. Her life expectancy was less than two years, but we knew our time with her would be significantly shorter. We were right, but I wouldn't exchange those 16 weeks with Riley for anything. In a short time my baby taught me about all the truly important things in life.

Riley taught me not to worry about the little things; she taught me to live for the moment and to live each moment to the fullest; she taught me to "live the value of family" and not just speak it as many do; she taught me to share my love each and every day because there may not be a tomorrow; and she taught me how to be a good Dad. For all that Riley taught me, I dedicate this dissertation to her.

I used to tease my wife Patricia that when I finished my Ph.D, I would make our kids call me "Dr. Dad." One final thing Riley taught me is that the Dr. title is not the important one. Riley, if you were still alive, it would be fine if you just called me "Dad." I love and miss you baby! I always will....
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An Evaluation of the Career Progress and Satisfaction of Cooperative Education/Internship Graduates and Regular Graduates at Mercyhurst College.

I. INTRODUCTION

Since its beginning at Harvard in 1636, higher education in America has changed continuously and at times dramatically. These changes often occurred in response to the needs and desires of students and of society in general.

For example, at Harvard under President Charles William Elliot, student desire for academic freedom led to the beginning of the elective system in the latter half of the 1800s. This system soon spread across the country to other educational institutions (Brubacher & Rudy, 1976).

In similar fashion, the societal demand for a practical education available to all led to the Morrill Act of 1862. With this act came the creation of Land Grant Colleges with more emphasis on the sciences and a decline in the emphases on the liberal arts and the professions.

This demand for a more practical education continues today as students seek to balance academics with hands-on work experience. Cooperative education, whereby students alternate periods of academic study with para-professional work, is one such method of a practical education. This paper presents a six year cross-sectional follow-up of co-op
graduates attempting to measure some student career outcomes resulting from such a program.

Today, as in the past, two of the major factors guiding the development of educational institutions are economics and the desires of the customer, the student. The following passages will discuss these two pressures as they now exist.

The U.S. Labor Force and Productivity

The United States workforce is undergoing changes. Each year the Bureau of Labor Statistics projects employment patterns for the following ten to fifteen years. Current, 1992, projections indicate that the U.S. population will grow more slowly during the next twelve years. At the same time, the Civilian Labor Force is projected to rise from 125 million in 1990 to 151 million in the year 2005 (U.S. Department of Labor, Bureau of Labor Statistics, 1992). This means that the U.S. population as a whole will stabilize and age causing employers to seek alternatives to the traditional white male when filling available jobs.

These workforce changes are reflected, not only in the number of positions, but in the types of positions as well. Most of the new positions (50%) will be in the service sector (Kutscher, 1989). This change has already begun. In the 1950s over two-thirds of the American population earned a living by producing a product, by the 1980s more than two-thirds produced information or service (Annison, 1986). If
this trend continues, according to the U.S. Department of Labor (1992) by the year 2000 four of every five jobs will be in industries and businesses that provide a service. This is reflective of the idea that many proclaim when saying society is changing from an industrial to a service orientation.

Dramatic increases in technology have also changed the workforce.

"Where once the 'average mind' could make-do, even do well, with native common sense and a nodding acquaintance with basic knowledge, we now live in societies in which the dominant modes of thinking, and the technology which is the dominant mode of acting, are mysteries to the majority of us" (Duffey, 1985, p. 57).

If the United States is to compete in the now evolving global economy it must increase productivity with an increase in technical capacity. (Annison, 1986).

However, Kutscher (1989) indicates this is where a problem occurs.

"... productivity has grown much more slowly in the past 10 to 15 years than in earlier periods... The prospect for productivity growth is related to several factors: research and development, equipment embodying newer technologies, capacity utilization, and energy prices. Also, an important factor is the education and training of the labor force. A potential education gap highlights the importance of meeting our economy's educational requirements to be assured of future productivity
growth. Whether the United States can remain competitive in foreign as well as domestic markets is linked to productivity growth" (p. 70).

Without productivity growth the U.S. cannot compete in the international marketplace. However, without a change of focus in the educational system to bridge gaps, productivity growth will not reach minimum levels necessary for the U.S. to be competitive.

**Student Characteristics**

Students have also changed. They achieve physiological and social maturity at earlier ages yet remain in a dependent status longer (Carnegie Commission, 1974). The number of traditional college students, white, aged 18-25, male is also declining and will continue to do so for the next ten years. More students today are older than average, female, and part-time. Different populations have different needs. For example, older than average students may be financially independent and have more family responsibilities. Thus they may have a need for more evening classes or they may have to drop out of school periodically to work to pay their educational expenses.

Recent generations of students have often been referred to as the "me generation" by writers and educators. This is consistent with the main reason cited by students for going to college: improvement of their economic status and to
prepare for better professional positions (Emry & Page, 1985; Weintraub, 1984). Astin's (1990) annual surveys of college freshmen consistently show that upwards of 85% of students go to college for the express purpose of getting a better job. Many may not realize this goal.

"Today's employer wants more from their employees than just skills; they are looking for employees who have the ability to grow and advance with the company. Therefore, if a student is to compete in today's job market, he/she must develop positive attitudes" (Testa, 1984, p. 25).

"Attitude can have more of an effect on success in the business world than aptitude" (Testa, 1984, p. 8).

All of these problems are interconnected. "People who are very satisfied tend to be more highly motivated and more productive than those who are merely satisfied" (Alwell, 1977, p. 39). Therefore the satisfaction and motivation of a student in regard to their academic preparation, career choice, and career position would seem to relate to their productivity on the job following graduation.

According to a theory developed by Herzberg (1966) there are two sides to the satisfaction issue in relation to one's career. Based on his study in which 200 Engineers and Accountants, representing a cross-section of Pittsburgh industry, were interviewed, Herzberg concluded that factors affecting job satisfaction and job dissatisfaction were separate. He found five factors stood out as strong
determinants of job satisfaction (motivators):
  Achievement;
  Recognition;
  Work Itself;
  Responsibility; and
  Advancement.

Job dissatisfiers (hygienes) were unfair or poor:
  Company Policy and Administration;
  Supervision;
  Salary;
  Interpersonal Relations; and
  Working Conditions (Herzberg, 1966).

Herzberg made the distinction that satisfiers are related to what one does and the human need for personal growth or self-actualization. Dissatisfiers are related to the context or environment in which one does his/her job and the human need to avoid unpleasantness. Also according to the theory, the satisfactory presence of motivators will lead to job satisfaction, while their absence will not lead to dissatisfaction. If hygienes aren't present at satisfactory levels, dissatisfaction may occur, but satisfactory levels will not necessarily lead to satisfaction, but only to a neutral state (Raelin, 1980). This is because satisfaction and dissatisfaction are not opposites, but instead are on two different continuum with the opposite of satisfied being
"not satisfied" and the opposite of dissatisfied being "not dissatisfied" (Herzberg, 1966).

Some criticisms have arisen from Herzberg's theory. For example, salary was difficult to classify. Herzberg classified it as a dissatisfier because it more closely defined the environment than the work itself. However, in some other studies it proved to be more of a satisfier (Bellott, 1990).

One major, common criticism of Herzberg's theory is that he downplays the importance of individual differences. Many have added to the theory placing more emphasis on the compatibility or interaction between the work features and the individuals needs, values, and expectations (Graneberg, 1979; Mortimer, 1979).

As the previous information indicates, America has an economic/productivity problem, needing to have trained employees for jobs in a more service and technical oriented environment. Students have a problem of wanting to "get ahead" via a satisfying and professional position, and educational institutions have the problem of finding the best means to meet these needs.

Role of Higher Education

"We have an everchanging society in the United States today. The recent innovations in technology, economic growth, and new demands that these changes have required have made the
world of work much different for prospective employees. The goal of education has always been to help the students become confident about their skills and abilities and ready to meet the demands" (Testa, 1984, p. 7).

Is it the college's or university's role to meet the needs and desires of students and society in general? In a series of reports in the early 1970s, the Carnegie Commission on Higher Education discussed various challenges facing higher education and the roles that should be performed. In *Less Time, More Options*, (Carnegie Commission, 1974) it was stated that jobs have changed, often requiring less "extended formal education in advance...and then a willingness to keep on learning..." p. 43). They recommended that:

"opportunities be expanded for students to alternate employment and study, such as the 'sandwich' programs in Great Britain and the programs at some American Colleges" (Carnegie Commission on Higher Education, 1974, p. 46).

Another important and related report by the Carnegie Commission, *The Purposes and the Performance of Higher Education in the United States Approaching the Year 2000* (Carnegie Commission, 1974) delineated five major purposes of higher education:

be given the opportunity to grow intellectually, socially, culturally, and morally.

2. "Advancing Human Capability in Society at Large" (Carnegie Commission, 1974, p. 178). The ability to find and train talent while developing new technologies and cultural advancement is important in this role.

3. "Educational Justice for the Postsecondary Age Group" (Carnegie Commission, 1974, p. 179). Educational opportunities are needed for all, not just in a college environment with special services. All students do not and cannot fit the required mold.


These five roles still seem very relevant and applicable to today's higher education institutions. Add in an increased emphasis on accountability caused by declining shares of the tax dollar received by educational institutions and one has continued claims for "'relevance' and 'flexible innovations' in the teaching curriculum" (Harris, 1989, p. 60).

What can be done about the Nation's economic problems and the student demands for relevance in academics and
satisfying, professional positions upon graduation? Is there an interconnectedness of these concerns? Throughout history, work and education have been nearly as separate as church and state. The changing workforce has led to a need for educational change. Today many are questioning the traditional style of education. Because of this, attempts have been made to combine conventional classroom training with work experience to better prepare students for their futures.

"Methods used to provide students with practical training in their academic preparation vary with the nature of disciplines and fields. Chemistry and anatomy, for example, are laboratory disciplines. Law uses a combination of on-campus case studies and off-campus internships. Education has practicum programs" (Belanger & Tremblay, 1983, p.2).

**Definition and Use of the Cooperative Education Plan**

Cooperative education programs (co-op) are available in many fields and disciplines, although they are more readily available to some majors than to others, depending upon local economic situations, employer needs, and other variables. Cooperative education programs offer solutions to many of the problems facing our educational institutions today.

"Cooperative vocational education, as a concept, has been utilized in the United
States since its beginning when Herman Schneider, Dean of the College of Engineering at the University of Cincinnati, developed in 1906 this concept to insure that graduating engineers would have practical application as well as theory, before full-time employment commenced" (Welch, 1980, p.2).

As originally planned by Schneider, students would alternate equal periods of time in the classroom and in a work position. It was called the Cooperative Plan of Education because cooperation is needed from the students, the educational institution, and the employers for the program to work (Wilson, 1971). Schneider's plan sought to solve two problems that he observed in preparing students for the world of work:

"1. many elements of most professions could not be taught effectively or at all in the classroom but rather required practical experience for their adequate mastery.  
2. most students either needed or wanted to work sometime during their college careers; most of these jobs he further observed, were menial and unrelated to the students' career goals" (Wilson, 1971, p.4--cited in Parks, 1943).

Even though co-op programs have been in existence for over eighty years, they have been defined in many different ways since Schneider. Wilson (1978) summed it up well in listing three vital conditions for a program to be considered cooperative education:
"(1) the student work experience is planned for and goal directed, in contrast to being casual and educationally unrelated; (2) the institution assumes principal responsibility for the integration of work and study; and (3) the student is involved in the work study experience, in contrast to being an observer" (p. 1).

Regardless of the exact definition of cooperative education, its use and practices have grown. Overall, from 1906 to 1942 only thirty-six institutions had cooperative education programs. Between 1943 and 1962 fifty more schools instituted programs. From 1963 to 1972 major expansion began and three hundred new programs began. Today, approximately 800 or a little less than 1/3 of all institutions of higher learning offer cooperative education. Over 200,000 students and 50,000 employers take part in the program yearly. The students earn $1.5 billion and pay over $150 million in taxes (National Commission for Cooperative Education, 1992). Even with budget cutbacks, expansion continues. Cooperative education is a major part of the economic system and with all of the potential benefits is probably here to stay.

Benefits and Problems with Cooperative Education

As the knowledge about cooperative education and other work experience programs grows, educators become more conscious of the costs and benefits so as to determine
whether the program is worthwhile. Most of the literature does not indicate many weaknesses in the cooperative education program, but many of the costs and benefits are difficult to measure as one cannot easily place a dollar value on them. A few researchers, however, have attempted to quantify the monetary and time costs to the educational institution. Welch (1980) citing Moore's 1976 study of ten thousand students in Southern California cooperative education programs suggested that the average cost is $50 or less per student and he believed the benefits easily outweighed the costs. Lewis, Glyde, McKee, and Kozak (1976) indicate the cost is $125 per year, per student. This was deemed as too expensive and the extra cost was blamed on the fact that teacher salaries must be paid whether the student is on the job or in the classroom. The actual cost per student of the co-op program is not easily determined. It depends on the size of the program and other factors. One must also take into consideration student benefits upon which a dollar value cannot be placed.

There are many suggested benefits of cooperative education to employers, students, educational institutions and society as a whole. Weisbord (1990) believes

"The benefits of co-op to the students are obvious, but many don't know them yet. For the most part they still have the FIFO mentality: First In; First Out. In their minds, a traditional four-year baccalaureate program is the most efficient and effective way to move into
the world of work and earnings. Co-oping usually means delay. Only by convincing them of the benefits will students be able to view the co-op experience as well worth the graduation postponement" (p. 80).

Various potential benefits to four populations are listed below:

Employer benefits  Cooperative Education:

1. can be used to recruit, screen, select and train students for permanent employment while saving employers the money of paying the salary and benefits of a full-time professional (Ell, 1935; Kerka, 1989; Knowles, 1971; Tyler, 1971; Wilson, 1978).

2. can provide the opportunity to fill a regular and important job with sub-professional help, thus freeing full-time professionals for more advanced duties (Knowles, 1971; Tyler 1971; Wilson, 1978).

3. students are productive and often more highly motivated with a higher retention rate upon graduation than other hires (Ell, 1935; Kerka, 1989; Tyler, 1971; Wilson, 1978).

4. provides a way for employers to relate in a positive manner to the community and educational institutions (Tyler, 1971; Wilson, 1978).

5. brings an infusion of bright young talent into a system of established procedures, often leading to innovation (Knowles, 1971).
6. provides access to students majoring in fields where there is an employee shortage (Tyler, 1971).
7. students can be grounded in established employment practices while still at the formative level (Hunt, 1971).
8. provides access to women and minority employees (Kerka, 1989; Tyler, 1971).
9. provides the best means of evaluating an employee—observing work (Tyler, 1971).
10. students, upon returning to campus, serve as good-will ambassadors for the employer with faculty and other students (Hunt, 1971).

**Student Benefits** Cooperative Education:

1. allows one to clarify career goals in a realistic manner (Fletcher, 1989; Kerka, 1989; Tyler, 1971).
2. enables theory and practice to be more closely related/integrated leading to increased relevance of learning and motivation (Ell, 1935; Kerka, 1989; Knowles, 1971; Tyler, 1971).
5. provides financial assistance that makes education possible for those who otherwise would/could not attend (Ell, 1935; Kerka, 1989; Tyler, 1971; Wilson & Lyons, 1961).
6. provides contact with potential employers and feedback through performance assessment (Kerka, 1989).
7. increases employability skills and marketable job skills (Kerka, 1989; Tyler, 1971).
8. provides exposure to practicing role models (Kerka, 1989; Tyler, 1971).
9. leads to development of positive work attitudes and greater maturity (Ell, 1935; Fletcher, 1989; Knowles, 1971; Wilson & Lyons, 1961).
10. provides an orientation to the world of work leading to a smoother transition to full-time employment (Ell, 1935; Knowles, 1971; Wilson & Lyons, 1961).
11. leads to higher starting salary, more responsibility, and more and earlier raises and promotions (Fletcher, 1989; Kerka, 1989;)
12. students have a more realistic understanding of jobs, conditions, and rewards (Tyler, 1971).
13. graduates are better able to deal with change and diversity (Tyler, 1971).

**Institutional Benefits** Cooperative Education:

1. provides for integration of academic and career development and enhances student motivation (Wilson, 1978).
2. can enhance retention and job placement rates (Kerka, 1989; Wilson, 1978).
3. keeps the curriculum up to date because students bring knowledge back to the classroom and the curriculum is workplace tested (Ell, 1935; Kerka, 1989; Tyler, 1971; Wilson, 1978; Wilson & Lyons, 1961).
4. enhances relations with the community and business (Kerka, 1989; Tyler, 1971).
5. provides an extension of financial resources and is a potential resource for fundraising (Kerka, 1989).
6. can be used to successfully recruit able students to college (Tyler, 1971).
7. allows for more economical and effective use of school facilities because one may increase the number of students without increasing the physical plant. There is also less of a need for state of the art facilities (Ell, 1935; Kerka, 1989; Tyler, 1971; Wilson & Lyons, 1961).

Societal Benefits

Cooperative Education:

1. makes college more available for those who have the talent but lack the financial resources (Ell, 1935; Tyler, 1971).
2. lessens dependence on grants and loans and adds to the state and federal tax base (Tyler, 1971).
3. furnishes an avenue for the placement of minorities (Tyler, 1971).
4. leads to better citizens (Ell, 1935; Tyler, 1971).
5. provides a better match of employment needs to educational services, thus decreasing the chances of training people for non-existent jobs (Brown, 1984; Lewis, et al., 1976; Molnar & Pesut, 1975; Weiss, 1982).

Various concerns in regard to cooperative education have also been pointed out. They, however, do not seem to be inherent problems, but problems that arise with improper management of the individual programs. The major drawbacks of cooperative education are that it costs money to run a program; untrained personnel may do an inadequate job managing the program; a business recession can hurt the program; it may cut back on the ability of the student to participate in college activities; and it takes longer for the student to graduate.

The benefits and costs listed above are only potential. If a program is managed effectively the problems are less likely to occur and the benefits should increase. To assist administrators, some factors have been suggested by various authors to establish successful programs. Without these factors being present, a program probably will not be successful. The educational institution must make a commitment and gain faculty support for the program. Employer participation must be mobilized and a flexible attitude with regard to curriculum time frames must be shared by all.
Statement of the Problem

Today's world of work is changing quickly and dramatically. In the past, the world of work was simpler. One got an education and following this, obtained a decent job. Today, things are more complex. Simply having a college degree does not guarantee one a "good job." Something extra is needed from education to meet the specialized needs of our complex society and students.

The primary aims and goals of our educational system have remained relatively stable over the years, though the means may have changed. In the past, and today, the major aims of education in general have been "to assist each individual in becoming a productive and responsible citizen" and to help "form attitudes and behaviors which will enable him/her to become a happy, productive individual" (Testa, 1984, p. 13). A more specific goal is to "prepare the student for gainful employment" (Mason & Haines, 1965, p. 422). With this goal, it is "important that the college look at the performance of its graduates in the labor market as a key measure of its educational effectiveness" (Weintraub, 1980, p. 13). With today's schools continuing to accept these responsibilities they also accept the responsibility to prepare students for increasingly technical and specialized jobs. They are responsible for specialized training.
The U.S. educational system is currently having a difficult time meeting these needs as shown through the large drop-offs in productivity increases in the United States in recent years. A good fit of employee with career is necessary for increasing productivity. Cooperative education/internship programs are potential solutions to the problem.

Hypotheses

This study was concerned with graduates of Mercyhurst College in Erie, Pennsylvania, describing those who participated in the cooperative education/internship program and a comparable group who did not participate in the program. The major purpose was to assess the role of cooperative education and internship programs in aiding students/graduates in selection of their occupational field and in contributing to their satisfaction and success following graduation.

The following hypotheses will be considered:

1. Co-op/internship participants will obtain a job more quickly following graduation than non-participants.

2. Co-op/internship participants will be more likely than non-participants to have obtained their initial job within their field of study and to be currently working within their field of study.

3. Co-op/internship participants will begin their first job at a higher salary and will be earning more than non-participants at the time of the study.
4. Co-op/internship participants will have received more merit increases and promotions than non-participants in their initial and present jobs.

5. Co-op/internship participants will feel more satisfied in regard to their initial and present positions than non-participants.

6. Co-op/internship participants will perceive their initial and present positions to hold a higher level of responsibility than will non-participants.

7. Co-op/internship graduates will have changed employers fewer times than non-participants.

**Definitions**

For the purposes of this research project, the following definitions will be used:

**Internship** - a program that involves the student going out into the work world and gaining work experience and knowledge on the job while receiving college credit toward one's degree. These usually occur during one semester of the student's final year of college. At Mercyhurst College an internship is the same as a co-op experience except an internship is unpaid.

**Cooperative education** (co-op) - similar to an internship except that the student is usually paid a reduced salary, wage or credit fee for his/her time on the job. Cooperative education can also be more involving than an internship in that the student may work alternating terms or part-time for more than one term.
"Co-op" - an abbreviation for cooperative education used in this text and many others i.e. a co-op student; a co-op program; a co-op graduate

Off-campus experience - includes all off-campus work experiences including internships, co-ops, fieldworks, practicums, regular jobs etc..

Satisfaction - any combination of feelings that cause one to truthfully say "I am satisfied with my job" (Baskin, 1954).

This report will progress in the following manner.

Chapter two will begin with a brief history of cooperative education on the collegiate level. This will be followed by a literature review of studies on the significance of work experience programs relative to one's satisfaction and success in a field of work.

Chapter three will deal with the design of the study. It will describe the selection of the participating college, the instrument used, means for obtaining the questionnaire response, the representativeness of the sample population, and statistical tools used.

Chapter four will present an analysis of the survey results.

Chapter five provides conclusions and interpretations of the study and recommendations for further study.
II. REVIEW OF THE LITERATURE

Historical Review

Following its inception in 1906 at the University of Cincinnati, Cooperative Education began to expand. The second institution to initiate a co-op program was the Polytechnic School of the YMCA Evening Institute (later to become Northeastern University) in 1909. From there the University of Pittsburgh, the University of Detroit, Georgia Institute of Technology and other technical oriented schools typically located in large industrial cities established programs, so that by 1920 approximately 20 institutions had engineering co-op programs (Barbeau, 1973; Knowles, 1971). This slow yet continuous development was seemingly a result of the belief that co-op graduates achieve more in regard to salary, satisfaction with work, and responsibility levels.

In 1919 the University of Cincinnati initiated the first cooperative education program outside the field of engineering, beginning one in their School of Business. Following this, in 1921 Antioch College of Yellow Springs, Ohio began the first program in a totally liberal arts college. The "Antioch Plan" was unique in that it emphasized the experience, not for specific technical skills learned, but for its monetary rewards and its ability to assist students in their understanding of life in general (Barbeau, 1973; Wilson, 1971). From these two initiatives
co-op programs began to develop across the academic curriculums.

The cooperative program's first major test was the Great Depression of the 1930s. By the beginning of the depression the number of schools offering cooperative education had risen to 33. During the depression, less than one-third of the colleges dropped their co-op program and several schools added programs. World War II however, did cause the temporary suspension of most co-op programs. There was a labor shortage and the time to earn a degree needed to be as short as possible. The overall outcome of these two "tests" was that cooperative education continued to have approximately the same number of programs following the war, though many of the institutions were different (Barbeau, 1973).

Following WWII until the late 1950s few advances were made in cooperative education, though approximately 50 more colleges added the program. A major breakthrough came in 1957 when Charles F. Kettering, Chairman of the Thomas Alva Edison Foundation called for a meeting of educators, business representatives and industry representatives to examine co-op as a solution to educating the dramatic onslaught of students. This meeting led to the first systematic study of cooperative education through a $95,000. grant from the Fund for Advancement of Education. The result of this study by Wilson and Lyons (1961) Work-Study
College Programs: Appraisal and Report of the Study of Cooperative Education concluded that co-op had important values for employers and students and thus, needed to be better publicized. It led to the major expansion of cooperative education in disciplines outside engineering and the development of the National Commission on Cooperative Education (NCCE) in 1962 whose purpose was to assist in the establishment of new programs (Barbeau, 1973; Wilson, 1971).

Another important organization was formed at about the same time.

"Until 1963, the organization which did the most to encourage and promote the cooperative idea was the Society for the Promotion of Engineering Education--which became the American Society for Engineering Education in 1946" (Barbeau, 1973, p. 121).

This organization had a co-op component, but it was mainly for the engineering co-op practitioner. By 1963 an organization was needed for all co-op practitioners and the Cooperative Education Association (CEA) was formed.

Cooperative education had become much more recognizable and with the help of the NCCE and the CEA, finally received some federal funding through several governmental acts. The Economic Opportunity Act of 1964; The Higher Education Act of 1965; Titles I and III of the Secondary and Elementary Act of 1965; The Vocational Education Act of 1964 and its amendments in 1968 all provided some indirect funding of
Cooperative Education. However, the greatest impact during this time was President Lyndon Johnson's Message to Congress in February of 1967 where he urged colleges to adopt cooperative education. Eventually all of these efforts led to the "direct funding of cooperative education by the Department of Health, Education and Welfare. Under Public Law 91-204, the U.S. Office of Education was authorized to grant $1,540,000 to seventy-four institutions of higher education for planning or improving their cooperative program. Specifically, 1 percent of the money appropriated for the College Work-Study Program may be allocated to cooperative education" (Barbeau, 1973, pp. 149-150).

Federal funding of cooperative education has continued through today and has led to its major expansion across fields of study and across the nation.

"Movements [like the Co-op movement] have lifecycles, every stage marked by objectives. A key word or phrase usually clarifies or simplifies each goal. Early phases are dominated by a search for 'recognition' and 'acceptance.' Later, the attention shifts, depending on a host of internal and/or external factors. The primary emphasis of the cooperative education movement and key concern of practitioners today appears to be 'evaluation'" (Siedenberg, 1990, p. 21).

Early research on cooperative education relied upon observational and anecdotal data. Broad categories of benefits were identified and then used as testimony to the
value of co-op in efforts to promote its adoption (Fletcher, 1989). The first systematic study of co-op was reported in 1961 in Wilson and Lyon's *Work-Study College Programs*. Since this report there has been an increase in the amount of research carried out on cooperative education programs. Most of the studies have looked at three categories of student outcomes: 1) career development; 2) career progress; and 3) personal growth (Fletcher, 1989). However, this research seems to leave out some types of institutions and often shows contradictory results, thus additional research would be beneficial.

As previously stated, information indicates that over 800 colleges and universities offer cooperative education and over 200,000 students participate in the program. Of these 200,000 students, over 40% attend 6% of the colleges and universities offering co-op (Kerka, 1989). Therefore, as one can easily deduce, this would indicate that there are several very large co-op programs and a large number of smaller programs. Yet, most of the research to date has been on large programs at large "elite" schools. The typical program, which is smaller in size, has received little research attention. Do the smaller programs do things differently that may make the student outcomes more or less pronounced? Ricks, Van Gyn, Branton, Cutt, Loken, and Ney (1990) indicate that there is a wide variability in co-op practices in regard to the number of work quarters
required; the sequencing of the work terms; and the extent to which work terms are integrated in the academic program. Therefore,

"programs cannot be replicated, since no two populations will be the same; and no two staffs will perform the same functions in the same ways; therefore studies are not replicated and no attempt should be made to generalize to other programs" (Ricks et al, 1990, p. 13).

Certainly the size of the program should be a major consideration. Will participants in a program of 100 students reap the same benefits as those in a program of 1,000 students? With 5,000 students? This question on staffing and the student ratio has not been answered.

A second concern in regard to cooperative education research is contradictory results. Some studies indicate that co-op graduates do much better in regard to salary, satisfaction, responsibility levels, etc., while others show no differences. In relation to this, some studies show co-op participants initially doing better with the differences declining over time, while others show the opposite. Are the positive outcomes of co-op, if they in fact do exist, longlasting? If the benefits are not lasting, "it could be concluded that the initial advantage of... [co-op] graduates in the labor market may reflect nothing more than the nine months work experience obtained through the Cooperative Education Program" (Weintraub, 1984, p. 3). Most of the
research on cooperative education involves a short-term follow-up, thus, as of yet, there is no definitive answer as to how long any benefits persist.

Very little of the research on cooperative education assesses only one aspect. Most look at 3-4 aspects and thus are difficult to separate into areas of review. The following literature review will attempt to do so with as little overlap as possible.

**Literature Review**

As the hypotheses of the present study indicate, there are many proposed advantages of a student getting a degree with some cooperative education or internship experience. Are these proposed advantages real?

**Obtaining Job Within Field of Study**

There are numerous studies assessing whether co-op students are more likely to obtain a position within their field of study upon graduation. Brown (1984) indicated that co-op students are more concerned about selecting jobs that are relevant to their career plans and education, but do they get the jobs? A survey by the Cherry Creek School District 5 (1984) which was a five year follow-up of high school graduates indicated that 61% worked within their field of study. However, without a comparison group, this
Edison (1981) completed a doctoral dissertation at Harvard University comparing two co-op schools. Central State, which is a small, state funded school with an optional co-op program, and Wilberforce University, which is a small, private school with a mandatory co-op program. Both schools are predominately black schools and are located in Wilberforce, Ohio. Edison (1981) looked at three groups of graduates from the years 1971 and 1979: 1) co-op students from Wilberforce; 2) co-op students from Central; and 3) non-co-op students from Central. The study found that the two co-op groups obtained the exact same percentage (85%) of jobs within their field of study, but also found that both co-op groups exceeded the non-co-op group in which only 71% of the graduates obtained positions within their field of study.

Yensco (1970) also completed a doctoral dissertation on cooperative education, comparing engineering graduates who had completed a co-op experience with those who had not. Yensco compared the classes of 1962 and 1965 from four "regular" colleges and four that had mandatory co-op programs. In relation to the outcome of getting a job within one's field of study, the study found the groups to be similar with approximately 66% of both groups doing so. Yensco also assessed the related aspect of whether the job
met the career objectives of the graduates and the results indicated that there were no significant differences between the two groups, with 60% of the co-op graduates and 58% of the regular graduates stating that their job met their objectives.

A third doctoral dissertation compared male, liberal arts co-op graduates from Antioch College with male, non-co-op liberal arts graduates from Oberlin College (Baskin, 1954). This study which matched the participants in regard to intelligence level, economic status, year of graduation, gender, advanced training received, and present field of employment found that the non-co-op group was actually more likely, though not significantly, to gain a position within their field of study (93.6% to 91.5%).

Various other studies show similar inconsistent results. Wilson (1978) in a survey comparing mandatory co-op school graduates with non-co-op school graduates found a significant difference between the two. Of the co-op graduates, 58.3% had jobs related to their major, while only 45.1% of the non-co-op graduates did. The study also found that co-op graduates were significantly more likely to feel there was a direct relationship between their current job and their career plans (62.7% to 56.2%). In Wilson's earlier study with Lyons (1961) they produced similar results, finding that 17% of the non-co-op students and only 12% of the co-op students saying they applied very little of
the knowledge and skills they gained while enrolled in college.

Rogers and Weston (1987) in an assessment of the North Carolina State University co-op program found non-significant differences between the co-op and non-co-op groups even though 76% of the co-op group and only 68% of the non-co-op group reported having a position related to their major.

Hamlin (1978), in an evaluation of the co-op program at the Annandale Campus of the Northern Virginia Community College, found that a higher percentage (61%) of co-op graduates in comparison to non-co-op graduates (39%), indicated their job was directly related to their field of study.

**Time to Obtain Position Following Graduation**

One expectation of professionals in the field of cooperative education is that the co-op experience makes the student's transition to full-time work quicker and easier (Rogers and Weston, 1987). But less research has been completed in regard to whether or not co-op graduates find work sooner following graduation. The research that has been completed seems to indicate that co-op graduates do find work more quickly.

Rogers and Weston's (1987) study of North Carolina State University graduates found that only 7% of the co-op
and 12% of the regular graduates took longer than three months to find a job. The difference was not significant. Hamlin (1978) found similar results, though more in favor of co-op. Hamlin concluded that co-op graduates took less time to get jobs based on his survey which indicated that 63% of the co-op and only 37% of the regular graduates obtained employment in less than one month.

Brown (1976) determined that a higher percentage of co-ops (76.3% to 69.4%) got jobs within six months, while Lewis, Glyde, McKee, and Kozak (1976) found support for their hypothesis that the additional skills learned via the co-op experience would allow graduates to find comparable jobs in less time.

Finally, in an evaluation of Pennsylvania High School Cooperative Vocational Education Programs, Slick and Welch (1974) found that co-op graduates, when compared to a sample of non-co-op graduates, were more than twice as likely (50% to 24%) to obtain a job before leaving school.

Numerous authors attribute this advantage of cooperative education to the fact that many co-op students continue full-time work with their co-op employer. According to statistics from the National Commission for Cooperative Education (1992), 80% of co-op graduates received permanent employment offers from their co-op employer upon graduation. Regardless of the reason for this
advantage, it does seem that the co-op experience enables graduates to begin work more quickly following graduation.

**Salary Levels, Merit Increases and Promotions**

Nearly every follow-up study on cooperative education considers factors related to salary and whether co-op graduates achieve higher salaries initially and over time. Do co-op graduates start at higher salaries and receive more merit pay increases and promotions? With variable results, more research is needed in this area.

Several studies involve follow-ups of high school programs. Kingston (1970), in a one year follow-up study of high school business programs, found that there were no significant effects on beginning salary, but there were effects on salary increases with 59% of the co-op graduates receiving at least one pay increase as opposed to only 39% of the non-co-op graduates. Slick and Welch (1974) found that co-op graduates earned approximately $20 more per week than non-co-op graduates. Lewis, Glyde, McKee, and Kozak (1976) found no significant differences between co-op and non-co-op graduates in wage rates, though they agreed that a slight short-term benefit may accrue to some.

In a two-year follow-up study of both secondary and postsecondary programs, Walsh and Breglio (1976) found that at the secondary level there were no differences in either starting or current salaries, but at the postsecondary level
co-op participants earned "substantially" more in both their first and current job.

In studies focusing solely on the college co-op student, Epting (1975) assessed Mississippi State University co-op graduates. He found "that in almost every case the co-op graduates received a higher starting salary" (p. 106), earning anywhere from 17% to 22% higher salaries. However, these results are questionable due to the fact that there was a high concentration of engineering students in Mississippi States' co-op program and the figures were compared to the overall student body's mean reported earnings.

Rogers and Weston's (1987) study at North Carolina State University, using a random sample of non-co-op graduates, found that the co-op graduates reported significantly (p<.01) higher salaries. Seventy-three percent of the co-op graduates reported earning more than $24,000 compared to only forty-three percent of the sample of students in the non-co-op group.

In Hamlin's (1978) study of the Annandale Campus co-op program the results were also significant, indicating that 33.9% of the co-op graduates and 26.8% of the non-co-op control group earned over $10,000. and that co-op graduates were significantly (54.1% to 45.9%) more likely to receive merit increases from $2,501 - $5,000. Hamlin did find that the number of promotions were similar, but also found that
62% of the co-op students and only 38% of the non-co-op sample took less than six-months to earn their promotion.

Brown (1976) in a 10-year follow-up study of co-op and non-co-op schools also found that significantly more co-op students than non-co-op students reported earnings of more than $10,000 per year in their first job. However, Brown found no differences in merit pay increases and number of promotions and found no differences in the current salary level of the graduates. Brown concluded that any salary differences dissipate over time.

A study by Jarrell (1974) took a different approach to assessing cooperative education. This study examined engineering and science positions at NASA's Langley Research Center, comparing 104 former co-op students to non-co-op college recruits, assuming that they were similar because all had minimum college GPAs of 3.1 or above. Although none of the results were statistically significant, Jarrell concluded that co-op graduates outperformed the regular graduates on various criteria including "rate of advancement."

Another study showing significant results was completed by Alwell (1977). This study was an evaluation of the Marymount College co-op program and assessed graduates of the years 1973 and 1974. Marymount is a small liberal arts college for women that started a co-op program in 1970. The results of the follow-up indicated that the mean co-op
graduate salary was $9,595 while the mean non-co-op graduate salary was $8,434. This difference was significantly (p<.01) in favor of the co-op graduate.

Gore (1972a; 1972b; 1972c) completed several studies related to post-graduation salaries of co-op students and non-co-op students. To alleviate the problem of comparing students from different environments, he limited his study to the University of Cincinnati, College of Business Administration where students had the option of whether or not to participate in the co-op program (1972a). Collecting data in 1970 on the classes of 1964 through 1969, Gore studied salaries in general, salaries within specialty area (i.e. Accounting, etc.), by year of graduation, and by overall grade point average. Gore (1972a; 1972b; 1972c) found no significant differences between the starting salaries of the two groups. In the first job, the median salaries were identical and the mean salaries were nearly so with co-op graduates earning $623 per month and non-co-op graduates earning $626. In terms of the present job, the co-op graduates earned $38 more per month, with a mean of $956 per month in comparison to $918 per month for the non-co-op graduate (Gore 1972a, 1972b, 1972c). In relation to this result, Gore (1972a) also found a direct correlation of GPA with salary. As the GPA increases, so does the salary level, but, Gore (1972a) concluded that the GPA as a
predictor "topped out." In summation, Gore (1972a) stated that

"There would seem to be an indication that as time progressed, the value of the cooperative work experience begins to be more and more meaningful to the recipient as he becomes more deeply embroiled in his working career" (p.29).

"All evidence continues to point to the marked advantage of the co-op student over the non-co-op student as time in full employment progresses. This evidence is not only in monetary terms but in job titles and positions..." (Gore, 1972C, p. 47).

Not all of the research in regard to cooperative education's effect on salary level are positive. The first comprehensive study of cooperative education completed by Wilson and Lyons (1961) indicated that there were no major differences in initial or current salary levels of co-op graduates in comparison to non-co-op graduates. Many other studies produced similar results. In Wilson's (1978) more recent national assessment of co-op programs at 112 institutions, he found no differences in the salary levels of co-op students and non-co-op students.

Baskin's (1954) 10-year follow-up study of Oberlin (non-co-op) and Antioch (co-op) graduates found few significant differences in regard to salary. The average first job salary for Antioch graduates was $1,800 and the Oberlin average was $1,600. This observed difference was
not statistically significant. After five years in the workforce, the average Antioch graduate salary was $4,500 and the average Oberlin salary was $4,000, again not different at the p<.05 level. In 1954 the median salary of the Antioch graduate was $8,000 compared to $7,000 for Oberlin graduates. This too, proved to be not significant. Baskin found that current salary levels in the field of education favored Antioch graduates with an average salary of $5,900 in comparison to Oberlin graduates who earned an average of $5,000 (p<.05).

Edison's (1981) study of Central State and Wilberforce University found that on their first job, co-op graduates earned an average of $12,360 in comparison to non-co-op graduates who earned an average of $10,186. The $2,174 (18%) difference was not statistically significant. In terms of current salary, results indicated that the average co-op graduate earned $1,344 more per year, but again this difference was not significant. In regard to merit increases and promotions, Edison (1981) also found no significant differences, though co-op graduates again appeared to do better than the non-co-op graduates. On the first job following graduation, 46% of the co-op graduates reported receiving a promotion and 48% reported merit pay increases. In comparison, only 39% of the non-co-op graduates reported earning promotions and 41% reported merit increases. In the current position of the graduates, 77% of
the co-op students reported merit increases and 64% reported promotions, while 50% of the non-co-op students reported merit increases and 42% reported earning promotions.

In a large study of engineering graduates completed by Jagacinski, LeBold, Linden, and Shell (1986) eight major colleges and nine engineering and scientific societies were surveyed in regard to work experience. The authors hypothesized that co-op graduates, graduates with work experience related to their major, and graduates with unrelated work experience would earn more than graduates with no experience at all. The study found no significant differences in regard to starting salary, but in terms of the present job, the study found that graduates with co-op experience and graduates with related work experience(s) earned significantly (p<.01) more than those with no experience. The average yearly difference was $2,000.

Gillin, Davie, and Beissel (1984) did a similar study on Australian engineering graduates using regression analysis to minimize confounding variables. The study found no significant differences in terms of salary on the first professional position. In regard to salary after one to five years in the workforce, the study concluded that co-op graduates may earn more than non-co-op graduates, but this seems to be only an indirect result of the co-op experience and depends more upon other factors such as confidence and employer contact.
Yensco's (1971) study comparing engineering co-op students and non-co-op students also found co-op graduates earning a little more ($12-$75 per month), but found the differences to be not statistically significant.

Finally, Siedenberg (1990), an economist, took a different approach to study salaries. Attempting to ascertain whether co-op was worth the extra year in school where one wouldn't be earning a full-time wage, Siedenberg determined that a wage disadvantage of $0.28 per hour was held by co-op students while in school, but that the co-op experience had no effect in explaining post-college wage rates. Siedenberg reported that the co-op students were typically four years younger and came from larger families than did non-co-op students. Siedenberg concluded that upon entering college, co-op participants "possessed both less measurable human capital and less 'worldly wisdom' than a non-co-op counterpart" (p. 23). From this disadvantaged stage, while in college, co-op students were able to increase the quantity and quality of their human capital and the initial wage disadvantage was eliminated by the time one graduated. The co-op experience appeared to improve one's graduate wage potential. This led Siedenberg to conclude that:

"The cooperative education philosophy has an important investment benefit to nontraditional students: it brings inexperienced students up to the level of their non-co-op counterparts. Thus,
upon graduation, they are all 'even' in the race to secure quality jobs in the labor market" (Siedenberg, 1990, p. 28).

Responsibility Level

Closely related to the salary level and number of promotions is the level of responsibility. Are co-op graduates initially placed in more responsible positions and/or are they more likely to achieve them over time? Studies in this area assess responsibility level two ways: 1) by asking the graduates; and 2) by asking the employers. Most studies use only one of the approaches, asking the students.

One study that did assess the employer's as well as the student's views was completed by Rodes (1968). This study of the General Motors Institute and the General Motors Corporation asked supervisors to rate their employees (co-op graduates versus non-co-op graduates) on various factors, indicating whether a co-op graduate was better, equal, or less prepared than the non-co-op graduates hired. In ratings on the ability to supervise others, most supervisors indicated that both groups were similar in their abilities. Only 11% of the supervisors and 26% of the co-op graduates indicated an advantage for co-op graduates. In terms of advancement, results indicated that both groups were also similar with 24% of the co-op graduates and 18% of the supervisors believing co-op graduates superior. For
"overall preparation", 66% of the co-op graduates said they were at an advantage and 30% said they were equal. Forty-two percent of the supervisors said co-op graduates were at an advantage while 53% said the preparation was equal.

Another study which assessed both groups was Wilson's (1978) national assessment of 1970 and 1973 graduates. This study found that a higher percent of co-op graduates (61.5%) reported doing a more difficult job at the time surveyed than when hired. This was in comparison to only 46.8% of the non-co-op graduates. Overall, employers felt that:

"cooperative students compared favorably with regular employees. Only in the case of technical knowledge were there as many as a quarter of the employers who judged the cooperative students to be less good than regular employees. With regard to such characteristics as their ability to work with other people, ability to follow instructions and motivation, half or more than half the employers sampled view co-op students to be better than regular employees" (Wilson, 1978, p. 34).

Most other studies in the literature considered level of responsibility in terms of student perceptions. These are most relevant to this study since the students' assessment and perception would seem to relate most closely to their level of satisfaction.

Edison's (1981) dissertation on Central State and Wilberforce University found no significant differences between the co-op and non-co-op graduates in terms of
responsibility level and supervising others, while Brown's (1976) study comparing co-op graduates from schools offering co-op programs to non-co-op graduates from schools not offering cooperative education found only one significant difference related to responsibility. This difference was in the aspect of supervising others. The study found that liberal arts co-op graduates were less likely to supervise than were engineering co-op graduates. Brown also found that a higher percent of male co-op graduates worked as professional employees whereas male non-co-op graduates tended to work as managerial, sales, or clerical personnel.

Gore (1972c) in his study which assessed students from the classes of 1964-1969 who were still with the same employer, found that about one in three had advanced from operative to supervisory positions. There were no differences between the co-op and non-co-op groups. In Gore's (1972b) related study (not evaluating on the basis of those remaining with the same employer), it was concluded that former co-op students began working in slightly more responsible positions and as time passed increased their responsibility level more.

Gillen, Davie, and Beissel's (1984) study of Australian engineering graduates came up with the same results, excluding the position that co-op graduates earn more over time. The study found general support for the hypothesis that engineering co-op graduates begin at higher levels of
responsibility in their first full-time position than do non-co-op graduates and indicate that two factors influence this outcome: 1) course-educational method (co-op or not); and 2) degree of contact with first employer. They also found that after one to five years in the workforce, co-op graduates in the specialties of Electrical and Civil Engineering were significantly more likely to hold positions at a higher level of responsibility and that co-op Civil Engineering graduates were significantly more likely to report greater on the job responsibility than Civil Engineering non-co-op graduates.

A final study of responsibility level was conducted by Jagacinski, LeBold, Linden, and Shell (1986). The study included groups of engineering graduates with various levels/types of work experiences: 1) no experience; 2) co-op; 3) other related; and 4) non-engineering related. The results indicated that on the graduates' first jobs, in terms of technical responsibility, there was a significant (p<.05) difference, with the non-co-op but related experience group reporting the highest levels. In terms of supervisory responsibility, there were no major differences, as all groups were given very little. In the graduates' present jobs, there were no significant differences between the groups in terms of technical and supervisory responsibility, though these levels increased for all. These results suggest that work experience is an important
factor, at least initially, but it doesn't matter whether the experience is classified as co-op or not.

Changing Employers—Turnover

Employee turnover is a major concern for employers. Training new employees is a major cost in terms of money, time, and loss of productivity. Several studies attempted to assess whether co-op graduates are more or less likely to remain with an employer longer.

Slick and Welch's (1974) evaluation of Pennsylvania high school cooperative education programs indicated that co-op graduates had fewer job changes during the first two years after graduation. Many studies of college co-op programs either supported this conclusion or found no significant differences.

Wilson and Lyons' (1961) national assessment reported that there were no differences in the length of time the groups of graduates spent on their first job. Edison's (1981) study of the Central State and Wilberforce classes of 1971 and 1979 reported no significant differences, indicating that 28% of the co-op graduates and 31% of the non-co-op graduates were still working for their first employer. Gillen, Davie, and Beissel (1984) also found no differences between Australian engineering co-op and non-co-op graduates in regard to the number of times they changed employers.
On the otherhand, Jarrell (1974) in his study of NASA co-op and non-co-op graduates concluded that the co-op graduates had the lower rate of turnover.

Assessing turnover is difficult because there are many reasons that an employee may leave an organization. Change may be positive, especially from the standpoint of the employee. Gore's (1972c) results support this contention. In his study of the 1964-1969 University of Cincinnati business graduates, he concluded that "the majority of the sample were 1-job people who began at the highest mean salary and tended to stagnate... as job movement increased, the beginning pay declined, but the final pay increased" (p. 36). Many of the reasons an employee leaves an organization are beyond the control of the organization and/or the individual. Trying to predict whether co-op graduates are or are not more likely to change employers, is a guessing game. One cannot predict individual circumstances, though one may assume that co-op and non-co-op groups experience similar hardships.

Satisfaction

Job satisfaction is one of the most often assessed factors in cooperative education follow-up studies. Typically, most researchers hypothesize that co-op graduates will feel higher levels of satisfaction than non-co-op graduates because they have had the opportunity to try out
their chosen field and know what to expect. In general, if the co-op experience occurs early enough in the academic career and is not satisfying, the individual, as a student, can change his/her career direction into an area that is more satisfying. Once graduated and in the "chosen field", changing career direction is less likely and often more costly.

Most studies have generally indicated that co-op graduates tend to be more satisfied than regular graduates on the job, but the difference is not always at a significant level. In Slick and Welch's (1974) evaluation of Pennsylvania high school co-op programs they found that co-op graduates were more satisfied with the adjustments and challenges on the job, but Kingston's (1970) similar study of New Jersey high school business co-op programs found no differences, indicating that both groups professed high satisfaction levels.

Foster, Franz, and Waller (1986) in a study of Central Missouri State University business graduates compared responses of co-op students and a stratified random sample of non-co-op students on the short form of the Minnesota Satisfaction Questionnaire. The study investigated whether the desire or lack of desire to change geographic locations was related to co-op participation and satisfaction. Results indicated that the geographic location variable was a major factor (p<.05) in predicting job satisfaction and
that the interaction between the co-op experience and geographic location was not significant. The researchers concluded that this implied that co-op graduates were better able to separate external job satisfaction from location desires. "For those who have had a co-op experience, location does not play a significant role in their liking/disliking of jobs (p. 51).

Walsh and Breglio's (1976) assessment of urban secondary and postsecondary co-op programs found that co-op graduates at both educational levels initially scored higher than non-co-op graduates in job satisfaction. After two years in the workforce, the difference diminished; although the co-op graduates still expressed more positive attitudes than did the non-co-op graduates.

Hamlin (1978) in his study of the Annandale Campus of the Northern Virginia Community College found that 57.4% of the co-op graduates and 42.6% of the non-co-op graduates claimed to be fully satisfied. The difference was not statistically significant. Baskin (1954) also found no significant differences between the co-op graduates of Antioch College and the non-co-op graduates of Oberlin College. Using the Hoppock Job Satisfaction Blank, Antioch graduates scored an average of 21.934 while Oberlin graduates scored 21.598.
Other studies that showed no significant differences in satisfaction levels were Lyons and Hunt (1961); Brown (1976); and Edison (1981).

Finally, Yencso (1970; 1971) found no significant differences in overall satisfaction of engineering co-op and non-co-op graduates. Yencso (1970), however, did indicate that co-op students were somewhat more satisfied with some major aspect of their jobs and, overall, found that 66% of the co-op group and 59% of the non-co-op group were satisfied with their position.

A few studies did find significant differences, all concluding that co-op graduates were more satisfied with their jobs. Gillen, Davie, and Beissel's (1984) study of Australian graduates found general support for the conclusion that after one to five years in the workforce, co-op graduates experienced greater satisfaction than non-co-op graduates. The study indicated that those having higher satisfaction levels were those who had more responsibility initially. Cooperative education proved to be the most advantageous educational method.

Wilson (1978) also found significant differences in his national assessment of cooperative education. He found that 52% of the co-op graduates were satisfied in comparison to 48% of the non-co-op students. Because of the size of the sample, this small observed difference proved to be statistically significant.
Finally, Alwell (1977) found significant differences in a study of the women in the Marymount College co-op program. Having respondents rank their satisfaction level from one to five (one being most satisfied) Alwell discovered that 52/69 of the co-op group were above the mean and eight were below. For the non-co-op group, 101/185 were above the mean and 47 were below. The co-op graduates were significantly (p<.025) more satisfied in their current job than were the non-co-op graduates. Alwell concluded that "what the co-op placement adds, it would appear, is that extra dimension which makes the employee 'very satisfied' as opposed to 'satisfied'" (p. 39).

Conclusion

A review of the literature dealing with the significance of cooperative education in relation to the individuals initial professional position; current professional position; and career progress yields several major conclusions:

1.) Most of the studies dealing with the aspect of getting a job within one's field of study show an advantage for the co-op graduate. Many of the studies indicate a significant advantage, but even those that do not, tend to favor the co-op graduates. Only one study was reviewed that showed a tendency for the non-co-op graduate to be more likely than a co-op graduate to get a position within his/her field.
2.) On the variable of obtaining a job more quickly following graduation, co-op graduates again do better than non-co-op graduates. Four of the five studies reviewed that look at this outcome showed significant support for the co-op group. The fifth study showed a tendency in this direction.

3.) In regard to initial salary, current salary, and merit pay increases, the evidence is mixed. In general, it seems that co-op graduates earn slightly more, but most often the observed difference is not significant. There is also some question as to whether co-op graduates start at a higher salary with the difference declining over time, whether they start at the same or a lower salary and then increase more quickly, or whether they are higher initially and maintain this advantage over time. In the aspect of promotions earned, there seems to be little difference.

4.) The studies that look at level of responsibility show no significant differences between the co-op group and the non-co-op graduates. However, most of the studies show a slight advantage for co-op graduates.

5.) The studies reviewed that look at whether co-op graduates stay longer with their employers than do non-co-op graduates also show few differences. There is little evidence that co-op graduates stay with an employer for a longer period of time.
6.) Some studies dealing with the effects of co-op programs on later job satisfaction have reported significant differences with co-op graduates being more satisfied than non-co-op graduates. However, the majority of the studies show no significant differences in terms of job satisfaction levels, though often there is a slight advantage for co-op students. Whether co-op graduates feel more satisfied is yet to be fully answered.
III. DESIGN OF THE STUDY

The purpose of this chapter is to describe the location and design of the study and the procedures used to collect and analyze the data.

Selection of Mercyhurst College

When considering colleges/universities for the study the researcher took into account three important criteria: size of the program; accuracy and availability of records; and support. Mercyhurst College was selected as the participating college for this study because it fit the description the researcher was looking to fill:

1. As indicated in the literature review of Chapter Two most of the previous studies evaluating outcomes of Cooperative Education Programs have been carried out on large, "elite" co-op schools. Very few studies have been completed evaluating colleges/universities with smaller programs (i.e. <200 participants yearly). Mercyhurst College met this criteria perfectly. In 1986, Mercyhurst had approximately 100 placements per year. By 1990 this had risen to about 200 per year.

2. Having done some previous work with Mercyhurst, the researcher is familiar with the college and is confident in the accuracy of their record keeping. In addition, the Co-op Program has maintained a significant amount of
continuity. The basic program structure did not change during the years of consideration in this study. Two personnel changes did occur, however. In 1987, the Assistant Director of Co-op left for different employment and was replaced. In addition to this change, in 1989, a new position of Co-op Coordinator was added to the Co-op staff. Throughout the duration of the years for this study, the Director of the Program has remained the same. In fact, he has been employed at Mercyhurst for 19 years, 15 years as the Director of Co-op, providing long-term continuity to the program (Tyrone Moore interview, 3/23/93).

3. Mercyhurst administrators and personnel are receptive to and supportive of program evaluation. They agreed to cooperate with the project and offered access to desired information.

Description of Mercyhurst College

Mercyhurst College is situated in the northwest corner of Pennsylvania on the shores of Lake Erie in the city of Erie. Erie, which is the third largest city in the state, has a population of approximately 116,500 residents. The surrounding county brings the total population base to over 282,000. Erie is conveniently located in the center of three large metropolitan areas with Buffalo, New York; Cleveland, Ohio; and Pittsburgh, Pennsylvania all being within about 100 miles distance.
Mercyhurst College itself, is a fully accredited, four-year, private, Catholic, liberal arts institution that is co-ed and primarily undergraduate. It was founded in 1926 by the Sisters of Mercy and presently enrolls approximately 2,100 students (55% women, 45% men). Sixty percent of the student body comes from outside the Erie area, chiefly from Ohio, New York, New Jersey, and other areas of Pennsylvania.

Mercyhurst operates on a three term, 10 1/2 week academic calendar with credit hours equivalent to semester hours. A 6 1/2 week summer session is also offered. Master's Degrees are available in two fields: Criminal Justice Administration and Special Education. Associate Degrees are available in six fields.

Bachelor's Degrees, those degrees that are of interest for this study, require a student to complete a minimum of 120 credit hours with at least 30 in the major program. They are available in 33 fields (28 emphases) including:

Accounting
Archaeology/Anthropology
Art
  Studio Emphasis
  Graphic Design Emphasis
  Art Therapy Emphasis
Biology
Business
  Business Administration Emphasis
  Marketing Emphasis
  Finance Emphasis
  Organization Resource Management Emphasis
  International Business Emphasis
Business/Chemistry
Chemistry
Communications
   Broadcasting Emphasis
   Public Relations/Journalism Emphasis
Computer Management
Criminal Justice
   Corrections Emphasis
   Police Science Emphasis
   Security/Loss Prevention Emphasis
Dance
Early Childhood Education
Earth/Space Science Education
Elementary Education
English
Foreign Languages & Cultures
Geology
   Petroleum Geology/Hydrogeology Emphasis
History
Hospitality Management
Human Ecology
   Dietetics Emphasis
   Family Ecology Emphasis
   Family Life Education Emphasis
   Fashion Merchandising Emphasis
   Interior Design Emphasis
Mathematics
   Mathematics Education
Medical Technology
Music
   Applied Music Emphasis
   Music Education
Nursing
Philosophy
Political Science
   Pre-Law Emphasis
Psychology
Religious Education
   Lay Ministry Emphasis
Sociology
Social Science Education
Social Work
   Gerontology Emphasis
Special Education
Sportsmedicine
   Athletic Training Emphasis
   Wellness Emphasis
   Pre-Medical Emphasis
(Mercyhurst College Catalog, 1992-93).
Description of the Mercyhurst College Co-op Program

At Mercyhurst College, both the Cooperative Education and Internship Programs are coordinated through the Office of Career Services, Cooperative Education, and Internship Programs.

"Co-op is the combination of classroom and on-the-job work organized in an educationally sound manner and coordinated so that experiences in business, industry, and various public agencies become an integral part of a student's college education" (Mercyhurst College Catalog, 1991-92, p. 20).

"An internship is an on-the-job experience in business, industry, government, public agencies, etc. It is similar to a co-op in that it is coordinated through the Career Services office, but it is a non-paid experience" (Mercyhurst College Catalog, 1991-92, p. 21).

Both co-ops and internships are available via two options: the Alternate Plan and the Parallel Plan.

The Alternate Plan is limited to Juniors and Seniors. In this plan the student is enrolled in school for three or six months, then participates in a full-time job assignment for the same amount of time.

The Parallel Plan is available for third term Sophomores, Juniors and Seniors. In this plan the student is simultaneously employed and in school part-time.

In each of the above described options, students can complete several experiences and still be able to graduate
in four years. For both plans, 12 credits is the maximum amount that can be earned and applied toward one's degree. In order to receive academic credit, the student, employer, and Co-op Coordinator design learning objectives which the student must meet or exceed to receive academic credit. For three credit hours, a student is required to successfully complete a minimum 200 hours of employment. Each additional three credit hours require a minimum 200 additional employment hours. Mercyhurst tries to make cooperative education experiences available to all students. However, like many other institutions, the cooperative education program is not normally used by some majors which may already have work experiences built into the educational program through practicums, fieldwork, student teaching, etc. Academic Departments at Mercyhurst College which have experiences built into their program and thus do not typically participate in co-op include: Dietetics; Nursing; Social Work; and all Education areas.

**Development of the Measurement Instrument**

Initial work on the measurement instrument began in September, 1991, the final instrument was completed in July 1992. As a beginning step in developing survey items many previous research studies were reviewed. Of particular help were Rogers and Weston's (1987) study of North Carolina State engineering graduates; Baskin's (1984) dissertation on
Antioch and Oberlin College graduates; and Edison's (1981) dissertation on Central State and Wilberforce College graduates.

Once initial questions were developed, the next step was to consider the validity of the instrument. Validity is the degree to which a measurement tool measures what it claims to measure (Borg, 1987). Of five types of validity, content, predictive, concurrent, construct, and face, the only type that seems to relate to the present study is face validity. To enhance the value of the face validity of the instrument, the researcher decided to use an adapted Delphi Method.

The Delphi Method was started in the early 1950s by the RAND Corporation as part of an Air Force sponsored defense research project. Historically, the Delphi has concerned itself with the use of expert group opinion. Using the method, one identifies experts in the field of interest and tries to get them to reach a consensus of opinion on a topic. Overall, the "Delphi may be characterized as a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem" (Linstone & Turoff, 1975, p. 3). A typical Delphi has five features including: experts; anonymity; communication; controlled feedback; and statistical group response (Riggs, 1983). As mentioned previously, the Delphi used in this study was an
adapted version, with a main difference being that no statistical group response was provided (i.e. participants were not informed what percent of the other respondents wanted a specific change etc.). Another main difference was that the panel was not discussing an issue, but evaluating the content of a survey instrument already being developed by the researcher.

The first step in setting up a Delphi is to establish criteria for selecting the panel of experts. In this case it was decided that it would be best to have a variety of individuals on the panel so that the instrument might be usable in future studies at other colleges and universities. The researcher thought it best to include a current or past co-op student on the panel in addition to seven co-op educator representatives. It was also decided that the co-op educators needed to come from a variety of educational institutions and co-op programs to achieve a balance in the instrument. The final panel consisted of eight individuals:

Ms. Vicky Biggers - a past Co-op Student at Georgia Southern University
Ms. Sheri Dressler - Director, Cooperative Education
University of Central Florida
Mr. Roy Gregg - Associate Director, Cooperative Education
University of Alabama and the Southeastern Regional Cooperative Education Center
Mr. Jack Leer - Director, Cooperative Education  
Drexel University  

Mr. Don Parks - Director, Cooperative Education  
Valdosta State College  

Dr. Shirley Snarr - Coordinator, Cooperative Education  
Eastern Kentucky University  

Mr. Robert Way - Chairman, Cooperative Education  
Lane Community College - Past President,  
Cooperative Education Association  

Mr. William Weston - Director, Cooperative Education  
North Carolina State University  

These individuals represent small, medium, and large institutions; institutions with both centralized and decentralized co-op programs; institutions with both optional and mandatory programs; liberal arts and engineering schools; two year colleges through major universities; small co-op programs to very large co-op programs; and public and private colleges/universities. In general they appear to represent a well balanced panel of cooperative education experts.  

Once these panel members were selected and agreed to participate on the panel, the first draft of the survey instrument was sent along with the hypotheses to be considered and the list of independent variables: gender, age, SAT score, college major, college GPA and year of graduation. The instrument was first sent on April 28, 1992
and participants were asked to evaluate it, specifically looking at whether it was easy to follow and understand; whether it covered important issues in the field of co-op in relation to student outcomes; whether a college graduate would be willing to answer the questions; and whether the instrument would gather the information needed to assess the hypotheses. They were also encouraged to supply any additional input that they felt would enhance the value of the survey and they were asked to return it by May 13, 1992 (see appendix #1).

Once the response date passed, the instrument was revised and resent to the panelists, with the second mailing taking place on May 28, 1992 (see appendix #2). Panelists were asked to respond again by June 15, 1992. Following this second return agreement appeared to have been reached and it was decided that no additional mailing would be needed. Very few of the suggested changes were content based. Most of the suggestions involved minor wording changes etc. to make the instrument easier to read and understand. The main content suggestion involved question number three "How much of your experience [as an undergraduate] related to your major?" Instead of having a response such as "NONE OF IT" or "MOST OF IT", it was suggested that it be broken down by percentages i.e. 25%, 50% etc.
Sampling Procedures

Lists of graduates and mailing addresses from the relevant years of the study: 1986; 1988; and 1990 were secured from the Mercyhurst College Alumni Office. It was decided, based on the number of graduates and an anticipated 60-70% response rate that a fifty percent sample would satisfactorily allow the researcher to acquire enough responses to able to make some valid assessments and conclusions. In selecting a sample, each of the three years was completed separately. Individuals from each of the years were assigned a number and then selected when and if their number came up in a book of random digits (The RAND Corporation, 1955). This selection process left the researcher with the sample population of 109 graduates from 1986; 118 graduates from 1988; and 132 graduates from 1990.

Mailing and Follow-up Procedures

The mailing and follow-up procedures for the study mirrored that of the Total Design Method developed by Dillman (1978). The Total Design Method sets out a complete plan that one needs to follow to carry out a successful mail survey. It assists one in developing questions; setting up the physical layout of the instrument; packaging directions; and mailing and follow-up procedures. The main emphasis of the method is to make the survey as personalized as
possible. According to Dillman (1978), depending upon the population, if one follows this method completely, a response rate of over 70% should ensue.

The first mailing of the survey for this research was sent on Monday, August 24, 1992. All addresses were individually typed. Included in the mailing was a cover letter on Mercyhurst College stationary (see appendix #4). Both the address and signature were personalized. Also included was a survey instrument with a code in red on the front of it. This code was not hidden and was placed there for the sole purpose of not sending follow-ups to those graduates who had already completed and returned their surveys. Finally, a stamped, self-addressed envelop was also part of the packet. Any of the surveys returned as "forwarding address expired" were resent to the correct address. Any returned as "undeliverable" were not resent.

Exactly one week later on August 31, 1992, a follow-up postcard was mailed (see appendix #5). This postcard was a brief reminder, asking those who had not completed and returned their survey to do so, while thanking those who had. Replies to the initial mailing and follow-up postcard were received from 104 graduates or 29% of the study sample. Broken down by graduation year: 30 or 28% of the 1986 graduates responded; 29 or 25% of 1988 graduates responded; and 45 or 34% of 1990 graduates responded.
Three weeks after the initial mailing and two weeks after the reminder postcard, another mailing took place. This mailing was sent only to those individuals who had yet to respond. Included in this mailing was a second cover letter (see appendix #6) indicating that it was essential for each person to respond; another copy of the survey instrument; and a self-addressed, stamped envelope. Ninety-five additional responses resulted from the follow-up appeal bringing the overall response rate to 199 or 55% of the sample.

Following the second mailing, a final one took place, again three weeks later on Monday, October 5, 1992. This mailing also included a cover letter (see appendix #7), survey, and self-addressed envelope. Though Dillman (1978) proposed the third mailing be sent via certified mail, due to expense, the researcher chose to continue with regular first class postage. This third appeal to graduates brought an additional 31 responses bringing the overall response rate to 230 or 64%. Twelve of the returned surveys were unusable leaving 218/359 or 61% as having usable responses: 62/109 or 57% of 1986 graduates; 72/118 or 61% of 1988 graduates; and 84/132 or 64% of 1990 graduates.

After receiving all the completed surveys, additional information necessary for analyzing the data was gathered from Mercyhurst College. From the transcripts, of those graduates who had returned surveys, age; Scholastic Aptitude
Test (SAT) score; Academic Major; and College Grade Point Average (GPA) were determined. This information along with the respondents gender; year of graduation; and percent of related work experience (survey question number three) are independent variables for the study.

**Methods of Data Analysis**

The hypotheses under investigation were analyzed utilizing t-tests, Analysis of Variance, and Multiple Regression Analysis.

**Hypothesis 1: Co-op/internship participants will obtain a job quicker following graduation than non-participants.**

Conclusions to hypothesis number one will be based on the respondent answers to question number seven on the questionnaire. "How long did it take you to obtain your first full-time position following your graduation from Mercyhurst?" In looking at the data as a whole and sorted by graduation year, to determine whether statistically significant differences exist, two t-tests will be completed. The first will consider whether the graduate did or did not participate in a co-op/internship experience and the number of months beyond graduation that it took to obtain a position. The second will consider gender. An Analysis of Variance (ANOVA) test will also be computed to consider the percent of work related to the respondents
academic major as an undergraduate (see survey question #3) and the number of months after graduation before becoming employed. In addition to these tests, Stepwise Multiple Regression Analysis will be used taking into account the following independent variables: age; SAT score; and college GPA and their effects on the amount of time needed to secure full-time employment after graduation. The same Multiple Regression Analyses will be completed when the data is sorted by co-op/internship participation versus non-participation and by major.

Hypothesis 2: Co-op/internship participants will be more likely than non-participants to have obtained their initial job within their field of study and to be currently working within their field of study.

The respondents perception, as assessed by question number eight (Do you consider your first full-time position related to your college major?) and question number nineteen (Is your present job related to your college major?), is used to make conclusions in regard to hypothesis number two. For overall data and data sorted by graduation year, a total of six one-way Chi Square tests will be run, three on question eight and three on question nineteen. The first pair of Chi Square tests on each question compares co-op/internship participants with non-co-op/internship participants and whether or not a position was obtained within the field of study.
The second pair of one-way Chi Square tests looks at percentage of undergraduate work related to ones major: 0%, 25%, 50%, 75%, 100% and whether a position was obtained within the respondents field of study.

The third pair considers gender and whether a position within the field of study was obtained.

In addition to the above mentioned Chi Square tests, T-tests for age; GPA; and SAT scores will be run to ascertain the impact of these independent variables.

Hypothesis 3: Co-op/internship participants will begin their first job at a higher salary and will presently be earning more than non-participants.

Questions number ten (What was your entry level salary in your first full-time position after graduation?) and twenty-six (In your present job, what is your current salary range?) on the survey instrument will be used to assess this hypothesis. Six tests of significance will be run for each of the two questions. Four t-tests and two one-way ANOVAs will be completed. One set of t-tests will be used to compare co-op/internship participation versus non-participation and initial and current salary levels. The second set will consider gender. The two ANOVA tests will consider the percent of related experience and salary. Multiple Regression Analysis will be computed for the overall data; the data sorted by graduation year; and by co-op/internship participation and will consider age; SAT
score; and grade point average (GPA) and the effects on both initial and current salary levels.

**Hypothesis 4:** Co-op/internship participants will have received more merit increases and promotions than non-participants in their initial and present jobs.

Questions numbered twelve, thirteen, fourteen, fifteen, twenty-two, twenty-three, twenty-four, and twenty-five will be used to make conclusions in regard to this hypothesis.

Four one-way Chi Square tests will be completed for merit pay increases and promotions in both first and current jobs. The first one for each will compare co-op/intern and non-co-op/intern respondents and whether or not merit pay increases and promotions were earned. The second will consider gender, the third graduation year and the fourth set will consider the percent of undergraduate work experience related to ones major and whether or not merit pay increases and promotions were earned. As the data is sorted by co-op/internship participation, t-tests will be run for the age; SAT score; and college GPA variables.

For percent of merit pay increase and number of months before promotion, t-tests will be completed. The first three in regard to merit increases will compare co-op/intern and non-co-op/intern participants and percent of first year merit pay increase in the first and current job as well as average yearly increase. The second group of t-tests will do the same except for it will use gender as the independent
variable. ANOVAs will be run in regard to percent of related experience and percent of merit increases and months before being promoted.

Finally, Multiple Regression Analysis will be used to take into account the other identified independent variables: age; GPA; and SAT score and percent of merit increase and number of months until promotion.

Hypothesis 5: Co-op/internship participants will feel more satisfied in regard to their initial and present positions than non-participants.

Responses to questions eleven (How would you best describe your overall satisfaction with your initial position following graduation?) and twenty-seven (How would you best describe your overall satisfaction with your current position?) will be used to assess initial and present job satisfaction levels. Two t-tests will be completed on responses to each question. The first set will look at co-op/intern participation or non-participation and satisfaction with ones initial job following graduation and one's current job.

A second set of t-tests will consider gender and satisfaction with both initial and current jobs. Two one-way ANOVAs will be used to analyze the percent of related experience and satisfaction level with one's first and current job.
Finally, Multiple Regression Analysis will be completed to assess the strength of the effects of age; SAT score; and college GPA; on satisfaction levels on the initial job upon graduation and the present job.

Hypothesis 6: Co-op/internship participants will perceive their initial and present positions to hold a higher level of responsibility than will non-participants.

The sums of A (How often do you supervise the work of others?), B (How often are you responsible for several types of progressively more difficult work?), and C (How often do you plan your own work?) for both questions nine and twenty will be used to assess perceptions of responsibility level. Two t-tests will be completed on the sums of questions nine and twenty considering co-op/internship participation and responsibility level. An additional two t-tests will be completed considering gender and perceived responsibility levels.

Two one-way ANOVAs will be calculated to consider percent of related experience and finally, Multiple Regression Analysis will be completed looking at the rest of the independent variables: age; SAT score; GPA; and year of graduation and the effects on perceived responsibility levels.
Hypothesis 7: Co-op/internship graduates will have changed employers fewer times than non-participants.

Questions sixteen and seventeen will be used to assess this hypothesis.

Independent t-tests will completed for each of the two questions: number of months with the initial employer and number of full-time employers since graduation. The first independent variable to be used will be co-op/internship participation or non-participation. The independent variable for the second set of t-tests will be gender. One-way ANOVAs will be used to assess the impact of percent of related work experience on number of employers.

Multiple Regression Analysis will also be used to determine the effects of the previously mentioned independent variables and the graduates persistence with an employer.

Additional Analyses

Besides considering the seven hypotheses of the study, the researcher decided to look at two additional outcomes: How do graduates rate Mercyhurst College in regard to their preparation for full-time professional employment and are they enrolled in or have they completed any graduate or professional degrees?

To answer the first question, responses to question number four (How would you rate Mercyhurst College in regard
to your preparation for full-time professional employment?) on the survey will be considered. Two t-tests will be completed: one considering co-op/internship participation and professed satisfaction with Mercyhurst and the second gender. A one-way ANOVA will look at percent of related undergraduate work experience and satisfaction with Mercyhurst. Multiple Regression Analysis will also be used to take into account the other independent variables.

To evaluate participation in graduate/professional degree programs, three one-way Chi Square tests will be completed with the independent variables being co-op/internship participation and non-participation; percent of related work; gender; and graduation year and the dependent variables being enrollment in graduate programs and completion of graduate degrees.

Finally, t-tests will be run to determine which of the other identified variables (age; GPA; SAT) play the most important roles in enrollment in and completion of graduate and professional degrees.

The results of all the previously mentioned statistical analyses will be presented in Chapter 4 in the order that the hypotheses are listed. The presentation of these results will follow a brief demographic description of the study respondents.
IV. RESULTS OF THE STUDY

This chapter will present and analyze the results of the study. It will begin with a demographic summary of the survey respondents based on the variables to be considered. Following this demographic overview, the hypotheses will each be considered. If significant initial results were observed, the data were further analyzed to gain additional insight into potential conclusions. The chapter will end with an analysis of graduate school participation and an informal analysis of the graduates written comments.

The Survey Respondents

As previously stated, the final response rate was 230/359 or 64%. Twelve of the completed instruments were unusable, leaving 218 usable responses or 61% of the population sample: 62/109 or 57% of the 1986 graduates; 72/118 or 61% of the 1988 graduates; and 84/132 or 64% of the 1990 graduates. Table I gives a demographic overview of respondents by co-op/internship participation, age, SAT score, GPA, gender, and percent of related undergraduate work experience (see question three on the survey instrument). Just over one-half (58.7%) of the respondents participated in co-op/intern experiences, including a significantly (p<.05) higher percentage of males (70%) than females (54%). The age of co-op/intern graduates appears to
be similar to non-co-op/intern graduates. However, the SAT scores of co-op/intern participants are significantly (p<.05) lower than for non-participants with a mean difference of 55 points. Non-participants also earned higher GPAs, though the difference was not as large. A significant (p<.01) difference occurred for percent of related experience with co-op/intern graduates indicating that they had more related experience.

TABLE I. Demographics & Co-op/Intern Participation
--Overall Data

<table>
<thead>
<tr>
<th>Category</th>
<th>Co-op/Intern</th>
<th>Non-Co-op/Intern</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>46 (70%)</td>
<td>20 (30%)</td>
<td>X²=4.71 p&lt;.05</td>
</tr>
<tr>
<td>Female</td>
<td>82 (54%)</td>
<td>70 (46%)</td>
<td>p&lt;.54</td>
</tr>
<tr>
<td>Age</td>
<td>28.12</td>
<td>28.66</td>
<td>p&lt;.54</td>
</tr>
<tr>
<td>SAT Score</td>
<td>866.39</td>
<td>921.81</td>
<td>p&lt;.05</td>
</tr>
<tr>
<td>GPA</td>
<td>3.14</td>
<td>3.19</td>
<td>p&lt;.43</td>
</tr>
<tr>
<td>% Related</td>
<td>62.99%</td>
<td>36.24</td>
<td>p&lt;.01</td>
</tr>
</tbody>
</table>

In summarizing Table II, some things are obvious. Over twice as many females (152 to 66) responded to the survey. Since the college, at one time, was a female institution and according to the 1991-92 Mercyhurst College Catalog 55% of the students are female, this result was somewhat anticipated. However, the difference was not expected to be
this great. Males (55%) and females (56%) claimed like amounts of related experience overall. In the other variables analyzed: age; GPA; and SAT Score, females were slightly older with higher SAT Scores and GPAs.

TABLE II. Demographics & Gender—Overall Data & By Graduation Year

<table>
<thead>
<tr>
<th>Category</th>
<th>Male</th>
<th>Female</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Respondents</td>
<td>66 (30%)</td>
<td>152 (70%)</td>
<td>N/A</td>
</tr>
<tr>
<td>Age</td>
<td>27.79</td>
<td>28.58</td>
<td>p&lt;.40</td>
</tr>
<tr>
<td>SAT Score</td>
<td>882.10</td>
<td>892.29</td>
<td>p&lt;.68</td>
</tr>
<tr>
<td>GPA</td>
<td>3.04</td>
<td>3.21</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>% Related</td>
<td>55.68%</td>
<td>56.14%</td>
<td>p&lt;.72</td>
</tr>
</tbody>
</table>

A breakdown of respondents by academic major and year is presented in Table III. Twenty-four of the 33 majors were represented by respondents with strong representation from Business; Criminal Justice; Elementary Education; Hospitality Management; and Human Ecology.

TABLE III. Respondents By Major—Overall Data & By Graduation Year

<table>
<thead>
<tr>
<th>Major</th>
<th>Overall</th>
<th>1990</th>
<th>1988</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>12</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Art</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Biology</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Business</td>
<td>25</td>
<td>11</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Chemistry</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Communications</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>
TABLE III. Continued

<table>
<thead>
<tr>
<th>Major</th>
<th>Overall</th>
<th>1990</th>
<th>1988</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Management</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Criminal Justice</td>
<td>23</td>
<td>9</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Dance</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Elementary Education</td>
<td>27</td>
<td>11</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>English</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Geology</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>History</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Hospitality Management</td>
<td>39</td>
<td>16</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>Human Ecology</td>
<td>19</td>
<td>7</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Music</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Nursing</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Psychology</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Religious Education</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Social Science Educ.</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Social Work</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Special Education</td>
<td>9</td>
<td>2</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Sports Medicine</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

An Analysis of the Hypotheses Investigated

Hypothesis 1: Co-op/internship participants will obtain a job more quickly following graduation than non-participants.

Question number seven on the survey instrument asked graduates how long it took them to obtain full-time employment, in number of months, after college graduation. In looking at the data overall, t-tests run based on co-op/internship participation and gender indicate no significant differences at the p<.05 level.

Co-op/intern graduates took an average of 3.39 months to become employed, while non-participants took an average of 3.40 months. Males appeared to gain employment quicker
than females, 2.80 months to 3.65 months, but the difference was not statistically significant.

When considering the data overall, only one significant difference was observed. For percent of related experience, the one-way Analysis of Variance test (ANOVA) indicated that significant differences among the five groups (0%, 25%, 50%, 75%, 100%) existed with an F probability of .0471. A follow-up Student-Newman-Keuls test indicated the direction(s) of the differences (see Table IV).

### TABLE IV. Number of Months to Become Employed & Percent of Related Experience

<table>
<thead>
<tr>
<th>% Related Experience</th>
<th># of Months to Become Employed</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>6.38</td>
</tr>
<tr>
<td>25%</td>
<td>2.84</td>
</tr>
<tr>
<td>50%</td>
<td>1.95</td>
</tr>
<tr>
<td>75%</td>
<td>4.11</td>
</tr>
<tr>
<td>100%</td>
<td>2.54</td>
</tr>
</tbody>
</table>

Students with both 100% and 50% related experience acquired full-time employment significantly faster (p<.05) than those with 0% related experience. With the data controlled for graduation year, no significant differences were found, though several "tendencies" could possibly exist. Just looking at the data, it appears that males and co-op/intern participants gain full-time employment following graduation at a slightly quicker pace. However,
none of these differences proved to be significant at the p<.05 level so they cannot be attributed to anything except chance. For a summary of the data see Table V.

**TABLE V. Number of Months to Become Employed & Co-op/Intern Participation—Overall Data & By Graduation Year**

<table>
<thead>
<tr>
<th>Category</th>
<th>Overall</th>
<th>1990</th>
<th>1988</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-op/Intern</td>
<td>3.39</td>
<td>2.71</td>
<td>2.15</td>
<td>5.91</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>3.40</td>
<td>3.63</td>
<td>3.52</td>
<td>2.96</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.99</td>
<td>p&lt;.38</td>
<td>p&lt;.30</td>
<td>p&lt;.20</td>
</tr>
<tr>
<td>Male</td>
<td>2.80</td>
<td>1.76</td>
<td>1.47</td>
<td>5.05</td>
</tr>
<tr>
<td>Female</td>
<td>3.65</td>
<td>3.54</td>
<td>3.15</td>
<td>4.49</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.37</td>
<td>p&lt;.12</td>
<td>p&lt;.25</td>
<td>p&lt;.81</td>
</tr>
</tbody>
</table>

Stepwise Multiple Regression Analysis used to consider the independent variables age; SAT score; and GPA provided little insight in terms of significant results. The only significant result occurred when the data were analyzed controlling participation in co-op/internship experiences. In this case, age was the only variable to enter the regression equation with an $F=.0146$, $R=.22919$, and $R^2=.052528$. In general, this means that age can eliminate or account for approximately 5% of the difference in number of months taken to acquire a job upon graduation for those who participated in co-op/intern experiences. No Multiple Regression Analysis was able to be completed for number of
months to become employed or any of the other statistical analyses with the data sorted by academic major due to insufficient numbers.

Hypothesis 2: Co-op/internship participants will be more likely than non-participants to have obtained their initial job within their field of study and to be currently working within their field of study.

Data in regard to obtaining the initial job upon graduation within the field of study produced several significant differences. In considering the overall database, gender and co-op/intern participation provided no significant differences. However, percent of related experience as an undergraduate did provide significant results. The Chi Square test presented in Table VI indicates that the higher the percent of related experience, the more likely that one would have obtained a position within his/her field of study. Conversely, those with a lower percent of related experience were more likely to get a job outside their field of study. This difference was significant at the p<.01 level.
TABLE VI. 1st Job Within Field of Study & Percent of Related Experience--Overall Data

<table>
<thead>
<tr>
<th>Category</th>
<th>0%</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job In Field</td>
<td>fo=19</td>
<td>fo=26</td>
<td>fo=17</td>
<td>fo=24</td>
<td>fo=59</td>
</tr>
<tr>
<td></td>
<td>fe=22.9</td>
<td>fe=34.7</td>
<td>fe=15.8</td>
<td>fe=22.1</td>
<td>fe=49.6</td>
</tr>
<tr>
<td>Job Outside Field</td>
<td>fo=10</td>
<td>fo=18</td>
<td>fo=3</td>
<td>fo=4</td>
<td>fo=4</td>
</tr>
<tr>
<td></td>
<td>fe=6.1</td>
<td>fe=9.3</td>
<td>fe=4.2</td>
<td>fe=5.9</td>
<td>fe=13.4</td>
</tr>
</tbody>
</table>

fo= frequency observed  fe= frequency expected

X²=22.88  df=4  p<.01

With the data sorted by graduation year, similar significant results for the years 1986 and 1988 in regard to percent of related experience occurred in the Chi Square Analysis. For the two years in question, those with a higher percent of related experience again were more likely to get a position within their field of study (see Table VII). However, one must be careful and/or conservative in interpreting these results as the validity of the statistical analysis becomes questionable when the frequency expected is less than five.

For the year 1990, percent of related experience did not prove to be a determinate of whether or not one gained a position within his/her field of study. However, the t-test completed for SAT score did indicate a significant difference. Those respondents who got jobs within their field of study had mean SAT scores of 899 in comparison with
those who got jobs outside their field with mean SAT scores of 812 ($t=2.24$, $p<.05$).

**TABLE VII. 1st Job Within Field of Study & Percent of Related Experience--1986 & 1988 Data**

<table>
<thead>
<tr>
<th>Category</th>
<th>0%</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job In Field</td>
<td>$f_0=5$</td>
<td>$f_0=7$</td>
<td>$f_0=3$</td>
<td>$f_0=7$</td>
<td>$f_0=13$</td>
</tr>
<tr>
<td></td>
<td>$f_e=8.6$</td>
<td>$f_e=8.6$</td>
<td>$f_e=2.9$</td>
<td>$f_e=5.0$</td>
<td>$f_e=10.0$</td>
</tr>
<tr>
<td>Job Outside Field</td>
<td>$f_0=7$</td>
<td>$f_0=5$</td>
<td>$f_0=1$</td>
<td>$f_0=0$</td>
<td>$f_0=1$</td>
</tr>
<tr>
<td></td>
<td>$f_e=3.4$</td>
<td>$f_e=3.4$</td>
<td>$f_e=1.1$</td>
<td>$f_e=2.0$</td>
<td>$f_e=4.0$</td>
</tr>
<tr>
<td>Probability</td>
<td>$X^2=12.19$</td>
<td>df=4</td>
<td></td>
<td></td>
<td>$p&lt;.05$</td>
</tr>
<tr>
<td>1988</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job In Field</td>
<td>$f_0=5$</td>
<td>$f_0=9$</td>
<td>$f_0=6$</td>
<td>$f_0=7$</td>
<td>$f_0=59$</td>
</tr>
<tr>
<td></td>
<td>$f_e=5.2$</td>
<td>$f_e=12.2$</td>
<td>$f_e=5.2$</td>
<td>$f_e=7.0$</td>
<td>$f_e=49.6$</td>
</tr>
<tr>
<td>Job Outside Field</td>
<td>$f_0=1$</td>
<td>$f_0=5$</td>
<td>$f_0=0$</td>
<td>$f_0=1$</td>
<td>$f_0=1$</td>
</tr>
<tr>
<td></td>
<td>$f_e=.8$</td>
<td>$f_e=1.8$</td>
<td>$f_e=.8$</td>
<td>$f_e=1.0$</td>
<td>$f_e=3.6$</td>
</tr>
<tr>
<td>Probability</td>
<td>$X^2=9.62$</td>
<td>df=4</td>
<td></td>
<td></td>
<td>$p&lt;.05$</td>
</tr>
</tbody>
</table>

Both age and GPA proved significant when respondents indicated that 0% of their work experience prior to graduation was related to their major. For age and GPA, those with 0% related experience who got a job within their field had a mean age of 25.79 years and a mean GPA of 3.19. In comparison, those with 0% related experience who got jobs outside their field of study had a mean age of 27.90 and a mean GPA of 2.82. Corresponding t-scores and probability were Age $t=-2.61$, $p<.05$; GPA $t=2.45$, $p<.05$. 
The second part of hypothesis two was concerned with whether or not co-op/intern participants were more likely to be presently working within their field of study. Fewer, but related, significant results occurred for this portion of the hypothesis.

In looking at the overall data, percent of related experience again proved to be important with those having more related experience being significantly (p<.05) more likely to be currently employed within their field of study (see Table VIII).

**Table VIII. Current Job Within Field of Study & Percent of Related Experience--Overall Data**

<table>
<thead>
<tr>
<th>Category</th>
<th>0%</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job In Field</td>
<td>fo=17</td>
<td>fo=32</td>
<td>fo=18</td>
<td>fo=23</td>
<td>fo=56</td>
</tr>
<tr>
<td></td>
<td>fe=21.5</td>
<td>fe=36.9</td>
<td>fe=16.1</td>
<td>fe=21.5</td>
<td>fe=49.4</td>
</tr>
<tr>
<td>Job Outside Field</td>
<td>fo=11</td>
<td>fo=11</td>
<td>fo=3</td>
<td>fo=5</td>
<td>fo=9</td>
</tr>
<tr>
<td></td>
<td>fe=6.5</td>
<td>fe=11.1</td>
<td>fe=4.9</td>
<td>fe=6.5</td>
<td>fe=15.1</td>
</tr>
</tbody>
</table>

\[X^2=11.42 \quad df=4 \quad p<.05\]

With the data sorted by graduation year, 1990 provided the only significant results. Of 1990 graduates, those currently working within their field of study had higher mean SAT scores; (900) than those employed outside their field (818). The t-score for this difference was 2.13 with a probability of p<.05.
The only other significant results in regard to current employment within the field of study occurred when looking at those with only 0% and 25% related experience. For those with 0% related experience, GPA provided significant differences with those currently employed within their field of study having a mean GPA of 3.17 in comparison to those employed outside their field with a GPA of 2.83. The t-score for this difference was 2.44 with a probability of p<.05.

For those with 25% related experience, age proved to be an important factor with those working in their field of study having a mean age of 26.38 and those outside their field of study having a mean age of 30.38 (t=-2.61, p<.05).

Hypothesis 3: Co-op/internship participants will begin their first job at a higher salary and will presently be earning more than non-participants.

In considering both entry level salary for respondents as well as current salary level, answers to questions ten and twenty-six on the survey instrument were used. These Likert scale questions allowed respondents to pick one of five possible answers including a lower limit, an upper limit and three choices in between with ranges of $5,000. Statistical tests used to assess the answers used exact upper and lower limit numbers and the mid-point for the choices with a range i.e. the mid-point used for $15,000 - $19,999 was $17,500.
TABLE IX. Salary Level & Co-op/Intern Participation--
Overall Data & By Graduation Year

<table>
<thead>
<tr>
<th>Category</th>
<th>Overall</th>
<th>1990</th>
<th>1988</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entry Salary</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>$19,400</td>
<td>$19,150</td>
<td>$19,750</td>
<td>$19,300</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>$18,700</td>
<td>$19,300</td>
<td>$19,050</td>
<td>$17,650</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.41</td>
<td>p&lt;.90</td>
<td>p&lt;.65</td>
<td>p&lt;.37</td>
</tr>
<tr>
<td><strong>Current Salary</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>$21,800</td>
<td>$19,100</td>
<td>$21,750</td>
<td>$24,950</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>$21,000</td>
<td>$19,300</td>
<td>$21,500</td>
<td>$21,800</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.48</td>
<td>p&lt;.73</td>
<td>p&lt;.88</td>
<td>p&lt;.11</td>
</tr>
</tbody>
</table>

In looking at the data overall and sorted by graduation year, co-op/intern graduates most often earned more money in both their first job starting salary level and in their current salary. However, t-tests indicated that these differences were not at significant levels and thus cannot be attributed to anything except chance. Table IX gives an overview of co-op/intern participation and salary.

One-way ANOVA tests completed to look at percent of related experience and salary levels also indicated no differences at significant levels. In fact, excluding Multiple Regression Analysis, only gender provided differences that are significant. Table X presents an overview of gender and salary levels.
TABLE X. Salary Level & Gender--Overall Data & By Graduation Year

<table>
<thead>
<tr>
<th>Category</th>
<th>Overall</th>
<th>1990</th>
<th>1988</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entry Salary</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>$20,200</td>
<td>$20,350</td>
<td>$21,450</td>
<td>$18,950</td>
</tr>
<tr>
<td>Female</td>
<td>$18,100</td>
<td>$18,650</td>
<td>$18,150</td>
<td>$17,275</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.05</td>
<td>p&lt;.17</td>
<td>p&lt;.05</td>
<td>p&lt;.20</td>
</tr>
<tr>
<td><strong>Current Salary</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>$23,400</td>
<td>$20,950</td>
<td>$24,250</td>
<td>$24,950</td>
</tr>
<tr>
<td>Female</td>
<td>$20,000</td>
<td>$18,875</td>
<td>$20,000</td>
<td>$22,800</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.01</td>
<td>p&lt;.05</td>
<td>p&lt;.01</td>
<td>p&lt;.28</td>
</tr>
</tbody>
</table>

As one can easily see, males earn significantly more money than females. This difference is fairly consistent across the years encompassed by the study and in both entry and current salary levels. In entry level salaries males earned from $1,650 - $3,300 more annually and this difference grew to between $2,075 - $4,250 for current salary levels.

Multiple Regression Analysis computed for the variables age, GPA and SAT score provided only one significant result. With the data sorted by graduation year, looking at entry level salary, age entered the regression equation for 1986. No other variables entered at significant levels. The probability for age was F=.0298 with an R=.29870 and an R²=.089. This means that for the year 1986, age accounts
for approximately 9% of the variability in entry salary level. No other analyses provided significant results.

Hypothesis 4: Co-op/internship participants will have received more merit increases and promotions than non-participants in their initial and present jobs.

1st Job Merit Pay Increases

As Table XI indicates, co-op/intern participants appear more likely than non-participants to earn merit increases in the first job, 54% to 45%. However, this difference is not at a significant level so it cannot be attributed to co-op/intern participation. With the data sorted by graduation year, co-op/intern graduates continued to have a slight advantage in merit pay increases, however these differences proved to be not significant (see Table XII).

TABLE XI. 1st Job Merit Pay Increases & Co-op/Intern Participation--Overall Data

<table>
<thead>
<tr>
<th>Category</th>
<th>Merit Increase</th>
<th>% Earning Increase</th>
<th>No Merit Increase</th>
<th>% Not Earning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-op/Intern</td>
<td>66</td>
<td>54%</td>
<td>56</td>
<td>46%</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>35</td>
<td>45%</td>
<td>43</td>
<td>55%</td>
</tr>
</tbody>
</table>

X²=1.62  df=1  p<.20

Analyzed by graduation year, only one variable, age, indicated significant differences in regard to first job
merit pay increases (see Table XII), though several approached significant levels. For the graduation year 1988 the average age for those earning merit pay increases was 27.78 years in comparison to those who did not earn increases whose average age was 31.50. The other variables: gender; GPA; and percent of related experience approached significant levels with males, those with higher GPAs and those with more related experience being more likely to have earned merit pay increases. However, none of these variables reached the p<.05 cutoff level.

**TABLE XII. 1st Job Merit Pay Increases & Co-op/Intern Participation--By Graduation Year**

<table>
<thead>
<tr>
<th>Category</th>
<th>Merit Increase</th>
<th>% Earning</th>
<th>No Merit Increase</th>
<th>% Not Earning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1990</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>22</td>
<td>61%</td>
<td>14</td>
<td>39%</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>26</td>
<td>62%</td>
<td>16</td>
<td>38%</td>
</tr>
<tr>
<td>Probability</td>
<td>X²=.01</td>
<td>df=1</td>
<td></td>
<td>p&lt;.94</td>
</tr>
<tr>
<td><strong>1988</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>25</td>
<td>69%</td>
<td>11</td>
<td>31%</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>16</td>
<td>53%</td>
<td>14</td>
<td>47%</td>
</tr>
<tr>
<td>Probability</td>
<td>X²=1.81</td>
<td>df=1</td>
<td></td>
<td>p&lt;.18</td>
</tr>
<tr>
<td><strong>1986</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>19</td>
<td>66%</td>
<td>10</td>
<td>35%</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>14</td>
<td>52%</td>
<td>13</td>
<td>48%</td>
</tr>
<tr>
<td>Probability</td>
<td>X²=1.08</td>
<td>df=1</td>
<td></td>
<td>p&lt;.30</td>
</tr>
</tbody>
</table>
Current Job Merit Pay Increases

Table XIII presents the results of the analysis of the current job merit pay increase for the co-op/intern and non-co-op/intern groups for each of the years under study and for the overall data.

**TABLE XIII. Current Job Merit Pay Increases & Co-op/Intern Participation--Overall Data & By Graduation Year**

<table>
<thead>
<tr>
<th>Category</th>
<th>Merit Increase</th>
<th>% Earning</th>
<th>No Merit Increase</th>
<th>% Not Earning</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Co-op/Intern</td>
<td>68</td>
<td>56%</td>
<td>54</td>
<td>44%</td>
<td>X²=3.26 df=1 p&lt;.07</td>
</tr>
<tr>
<td>Overall Non-Co-op/Intern</td>
<td>37</td>
<td>43%</td>
<td>49</td>
<td>57%</td>
<td></td>
</tr>
<tr>
<td>Overall Probability</td>
<td>X²=3.26 df=1</td>
<td></td>
<td></td>
<td></td>
<td>p&lt;.07</td>
</tr>
<tr>
<td>1990 Co-op/Intern</td>
<td>26</td>
<td>54%</td>
<td>22</td>
<td>46%</td>
<td>X²=1.08 df=1 p&lt;.30</td>
</tr>
<tr>
<td>1990 Non-Co-op/Intern</td>
<td>14</td>
<td>42%</td>
<td>19</td>
<td>58%</td>
<td></td>
</tr>
<tr>
<td>1990 Probability</td>
<td>X²=1.08 df=1</td>
<td></td>
<td></td>
<td></td>
<td>p&lt;.30</td>
</tr>
<tr>
<td>1988 Co-op/Intern</td>
<td>21</td>
<td>51%</td>
<td>20</td>
<td>49%</td>
<td>X²=1.81 df=1 p&lt;.18</td>
</tr>
<tr>
<td>1988 Non-Co-op/Intern</td>
<td>11</td>
<td>41%</td>
<td>16</td>
<td>59%</td>
<td></td>
</tr>
<tr>
<td>1988 Probability</td>
<td>X²=1.81 df=1</td>
<td></td>
<td></td>
<td></td>
<td>p&lt;.18</td>
</tr>
<tr>
<td>1986 Co-op/Intern</td>
<td>21</td>
<td>64%</td>
<td>12</td>
<td>36%</td>
<td>X²=.94 df=1 p&lt;.33</td>
</tr>
<tr>
<td>1986 Non-Co-op/Intern</td>
<td>12</td>
<td>46%</td>
<td>14</td>
<td>54%</td>
<td></td>
</tr>
<tr>
<td>1986 Probability</td>
<td>X²=.94 df=1</td>
<td></td>
<td></td>
<td></td>
<td>p&lt;.33</td>
</tr>
</tbody>
</table>
As Table XIII indicates, co-op/intern graduates may have a slight advantage over non-participants, but the difference is not statistically significant.

Similar to the analyses completed for first job merit pay increase, only one variable reached significant levels. For the graduation year 1990, percent of related experience proved significant at the $p<.05$ level (see Table XIV) with those having a higher percent of related experience being more likely to have earned merit pay increases in their current job.

**TABLE XIV. Current Job Merit Pay Increases & Percent of Related Experience--1990 Data**

<table>
<thead>
<tr>
<th>Category</th>
<th>0%</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merit Increase</td>
<td>$fo=4$</td>
<td>$fo=7$</td>
<td>$fo=3$</td>
<td>$fo=10$</td>
<td>$fo=14$</td>
</tr>
<tr>
<td></td>
<td>$fe=5.6$</td>
<td>$fe=9.6$</td>
<td>$fe=5.6$</td>
<td>$fe=6.6$</td>
<td>$fe=10.6$</td>
</tr>
<tr>
<td>No Merit Increase</td>
<td>$fo=7$</td>
<td>$fo=12$</td>
<td>$fo=8$</td>
<td>$fo=3$</td>
<td>$fo=7$</td>
</tr>
<tr>
<td></td>
<td>$fe=5.4$</td>
<td>$fe=9.4$</td>
<td>$fe=5.4$</td>
<td>$fe=6.4$</td>
<td>$fe=10.4$</td>
</tr>
</tbody>
</table>

$X^2=10.50$  $df=4$  $p<.05$

Percent of Merit Pay Increase

In looking at the percent of merit pay increase (see Table XV), three periods were considered: percent of increase for first year on initial job; average yearly increase on first job; and average yearly increase on current job. In each of these three situations, the only variable to indicate significant differences was
co-op/intern participation. The co-op/intern graduate earned from 3%-6% higher (p<.05) merit pay increases for 1986 than did the non-co-op/internship graduate. However, overall for the three years, the amounts seem to balance out.

TABLE XV. Percent of Merit Pay Increase & Co-op/Intern Participation--Overall Data & By Graduation Year

<table>
<thead>
<tr>
<th>Category</th>
<th>% 1st Year Increase</th>
<th>Average Increase 1st</th>
<th>Average Increase Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>8.70</td>
<td>7.41</td>
<td>8.31</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>6.70</td>
<td>6.44</td>
<td>7.35</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.25</td>
<td>p&lt;.37</td>
<td>p&lt;.55</td>
</tr>
<tr>
<td>1990</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>7.86</td>
<td>5.31</td>
<td>6.25</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>6.23</td>
<td>7.00</td>
<td>8.71</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.63</td>
<td>p&lt;.24</td>
<td>p&lt;.26</td>
</tr>
<tr>
<td>1988</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>8.73</td>
<td>7.38</td>
<td>9.67</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>9.80</td>
<td>6.33</td>
<td>10.44</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.72</td>
<td>p&lt;.51</td>
<td>p&lt;.85</td>
</tr>
<tr>
<td>1986</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>9.71</td>
<td>9.06</td>
<td>9.63</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>4.20</td>
<td>5.86</td>
<td>3.09</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.05</td>
<td>p&lt;.21</td>
<td>p&lt;.01</td>
</tr>
</tbody>
</table>
Using Multiple Regression Analysis for the variables age, GPA, and SAT score, only one variable entered the regression equation at a significant level. In considering only those who had participated in co-op/internship experiences and average yearly increase on ones first job, the variable age was significant with an $F=.0285$, $R=.33038$, and $R^2=.1011509$. This means that for those with co-op/intern experience, the variable age accounts for about 10% of the variance in regard to average yearly merit pay increase for ones first job.

Job Promotions

Of the variables considered, gender appears to be the main influence on whether or not survey respondents earned promotions in their first and current job. Tables XVI; XVII; XVIII; and XIX provide an overview of gender; co-op/internship participation; and job promotions.

As shown in Tables XVI and XVII, males consistently receive more job promotions in both their first and current jobs. From an overall data standpoint, these differences were significant at the $p<.05$ level.
### TABLE XVI. 1st Job Promotions & Gender--Overall Data & By Graduation Year

<table>
<thead>
<tr>
<th>Category</th>
<th># Promoted</th>
<th>% Promoted</th>
<th># Not Promoted</th>
<th>% Not Promoted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>33</td>
<td>54%</td>
<td>28</td>
<td>46%</td>
</tr>
<tr>
<td>Female</td>
<td>51</td>
<td>37%</td>
<td>88</td>
<td>63%</td>
</tr>
<tr>
<td>Probability</td>
<td>X²=5.27</td>
<td>df=1</td>
<td>p&lt;.05</td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>9</td>
<td>43%</td>
<td>12</td>
<td>57%</td>
</tr>
<tr>
<td>Female</td>
<td>20</td>
<td>35%</td>
<td>37</td>
<td>65%</td>
</tr>
<tr>
<td>Probability</td>
<td>X²=.40</td>
<td>df=1</td>
<td>p&lt;.53</td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>10</td>
<td>53%</td>
<td>9</td>
<td>47%</td>
</tr>
<tr>
<td>Female</td>
<td>19</td>
<td>40%</td>
<td>28</td>
<td>60%</td>
</tr>
<tr>
<td>Probability</td>
<td>X²=.82</td>
<td>df=1</td>
<td>p&lt;.37</td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>14</td>
<td>67%</td>
<td>7</td>
<td>33%</td>
</tr>
<tr>
<td>Female</td>
<td>12</td>
<td>34%</td>
<td>23</td>
<td>66%</td>
</tr>
<tr>
<td>Probability</td>
<td>X²=.99</td>
<td>df=1</td>
<td>p&lt;.32</td>
<td></td>
</tr>
</tbody>
</table>
### TABLE XVII. Current Job Promotions & Gender—Overall Data & By Graduation Year

<table>
<thead>
<tr>
<th>Category</th>
<th># Promoted</th>
<th>% Promoted</th>
<th># Not Promoted</th>
<th>% No Promoted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>31</td>
<td>49%</td>
<td>32</td>
<td>51%</td>
</tr>
<tr>
<td>Female</td>
<td>47</td>
<td>32%</td>
<td>99</td>
<td>68%</td>
</tr>
<tr>
<td>Probability</td>
<td>$X^2=5.44$</td>
<td>df=1</td>
<td>p&lt;.05</td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>12</td>
<td>57%</td>
<td>9</td>
<td>43%</td>
</tr>
<tr>
<td>Female</td>
<td>28</td>
<td>47%</td>
<td>32</td>
<td>53%</td>
</tr>
<tr>
<td>Probability</td>
<td>$X^2=.68$</td>
<td>df=1</td>
<td>p&lt;.41</td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>10</td>
<td>50%</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td>Female</td>
<td>14</td>
<td>29%</td>
<td>34</td>
<td>71%</td>
</tr>
<tr>
<td>Probability</td>
<td>$X^2=2.68$</td>
<td>df=1</td>
<td>p&lt;.10</td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>11</td>
<td>50%</td>
<td>11</td>
<td>50%</td>
</tr>
<tr>
<td>Female</td>
<td>14</td>
<td>39%</td>
<td>22</td>
<td>61%</td>
</tr>
<tr>
<td>Probability</td>
<td>$X^2=.99$</td>
<td>df=1</td>
<td>p&lt;.32</td>
<td></td>
</tr>
</tbody>
</table>
Tables XVIII and XIX show no significant differences between co-op/intern participants and non-participants and whether promotions were earned in their first and current job.

**TABLE XVIII. 1st Job Promotions & Co-op/Intern Participation—Overall Data & By Graduation Year**

<table>
<thead>
<tr>
<th>Category</th>
<th># Promoted</th>
<th>% Promoted</th>
<th># Not Promoted</th>
<th>% Not Promoted</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>52</td>
<td>43%</td>
<td>70</td>
<td>57%</td>
<td>X²=.05</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>32</td>
<td>41%</td>
<td>46</td>
<td>59%</td>
<td></td>
</tr>
<tr>
<td>Probability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>df=1 p&lt;.82</td>
</tr>
<tr>
<td><strong>1990</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>17</td>
<td>35%</td>
<td>31</td>
<td>65%</td>
<td>X²=.17</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>12</td>
<td>40%</td>
<td>18</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>Probability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>df=1 p&lt;.68</td>
</tr>
<tr>
<td><strong>1988</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>20</td>
<td>49%</td>
<td>21</td>
<td>51%</td>
<td>X²=1.03</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>9</td>
<td>36%</td>
<td>16</td>
<td>64%</td>
<td></td>
</tr>
<tr>
<td>Probability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>df=1 p&lt;.31</td>
</tr>
<tr>
<td><strong>1986</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>15</td>
<td>46%</td>
<td>18</td>
<td>54%</td>
<td>X²=.03</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>11</td>
<td>48%</td>
<td>12</td>
<td>52%</td>
<td></td>
</tr>
<tr>
<td>Probability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>df=1 p&lt;.86</td>
</tr>
</tbody>
</table>
TABLE XIX. Current Job Promotions & Co-op/Intern Participation--Overall Data & By Graduation Year

<table>
<thead>
<tr>
<th>Category</th>
<th># Promoted</th>
<th>% Promoted</th>
<th># Not Promoted</th>
<th>% Not Promoted</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X²=.00</td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>46</td>
<td>37%</td>
<td>77</td>
<td>63%</td>
<td>df=1</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>32</td>
<td>37%</td>
<td>54</td>
<td>63%</td>
<td></td>
</tr>
<tr>
<td>Probability</td>
<td>X²=.00</td>
<td>df=1</td>
<td>p&lt;.98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>18</td>
<td>38%</td>
<td>30</td>
<td>63%</td>
<td></td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>11</td>
<td>33%</td>
<td>22</td>
<td>67%</td>
<td></td>
</tr>
<tr>
<td>Probability</td>
<td>X²=.18</td>
<td>df=1</td>
<td>p&lt;.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X²=1.64</td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>12</td>
<td>29%</td>
<td>29</td>
<td>71%</td>
<td>df=1</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>12</td>
<td>44%</td>
<td>15</td>
<td>56%</td>
<td></td>
</tr>
<tr>
<td>Probability</td>
<td>X²=1.64</td>
<td>df=1</td>
<td>p&lt;.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X²=.94</td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>16</td>
<td>47%</td>
<td>18</td>
<td>53%</td>
<td>df=1</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>9</td>
<td>35%</td>
<td>18</td>
<td>65%</td>
<td></td>
</tr>
<tr>
<td>Probability</td>
<td>X²=.94</td>
<td>df=1</td>
<td>p&lt;.33</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Among the other study variables, only GPA provided a significant result. With the data sorted by graduation year, for 1988, GPA proved significant in regard to whether a respondent earned a promotion on the first job. Those earning a promotion had a mean GPA of 3.31 in comparison to those who did not earn a promotion with a mean GPA of 3.01. These means provided a t=2.77 with a probability of p<.01.
In regard to the length of time (in number of months) before earning a promotion in the first and current job, neither co-op/internship experience nor gender proved significant when considering the overall data. However, when the data were analyzed by graduation year, gender was significant for the year 1986 and co-op/intern participation for the year 1988 and number of months to promotion in ones first job. No variable proved significant in regard to months to promotion in the current job.

**TABLE XX. Months to Promotion - 1st Job & Co-op/Intern Participation--Overall Data & Significant Results By Graduation Year**

<table>
<thead>
<tr>
<th>Category</th>
<th>Months to Promotion 1st</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>10.04</td>
<td>p&lt;.15</td>
</tr>
<tr>
<td>Non-Coop/Intern</td>
<td>13.91</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>13.30</td>
<td>p&lt;.28</td>
</tr>
<tr>
<td>Female</td>
<td>10.42</td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>9.60</td>
<td>p&lt;.05</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>23.67</td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>8.00</td>
<td>p&lt;.05</td>
</tr>
<tr>
<td>Female</td>
<td>15.62</td>
<td></td>
</tr>
</tbody>
</table>
Table XX summarizes the overall results for gender and co-op/intern participation and months to promotion in one's first job as well as the significant results recorded with the data analyzed by graduation year. There appears to be a tendency for co-op/intern graduates to earn promotions more quickly, however, not all of the differences are significant so the results are inconclusive.

In regard to gender, for the year 1986, males were significantly (p<.05) more likely to earn promotions quicker, however, in looking at the overall data, females actually outperformed their male counterparts and earned promotions more quickly.

GPA was the final variable with significant results. Multiple Regression Analysis on the overall data considering GPA; SAT score and age indicated that GPA played a significant role in predicting (eliminating error) the number of months to promotion in the first job. Grade Point Average (GPA) entered the regression equation with a significance of F=.0358, R=.23662, and R²=.055989. This means that GPA can account for approximately 6% of the variance in regard to number of months until promotion in one's first job.
Hypothesis 5: Co-op/internship participants will feel more satisfied in regard to their initial and present positions than non-participants.

TABLE XXI. Satisfaction Levels with 1st and Current Job & Co-op/Internship Participation--Overall Data & By Graduation Year

<table>
<thead>
<tr>
<th>Category</th>
<th>Satisfaction 1st</th>
<th>Satisfaction Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>3.53/5.00</td>
<td>3.88/5.00</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>3.67</td>
<td>3.98</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.74</td>
<td>p&lt;.51</td>
</tr>
<tr>
<td>1990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>3.15</td>
<td>3.63</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>3.67</td>
<td>4.09</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.09</td>
<td>p&lt;.06</td>
</tr>
<tr>
<td>1988</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>3.61</td>
<td>3.88</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>3.72</td>
<td>4.11</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.72</td>
<td>p&lt;.35</td>
</tr>
<tr>
<td>1986</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>4.00</td>
<td>4.09</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>3.61</td>
<td>3.95</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.22</td>
<td>p&lt;.65</td>
</tr>
</tbody>
</table>

The two survey questions seeking to assess satisfaction allowed respondents to choose from five levels, one being "very dissatisfied" and five being "very satisfied."
The t-tests completed on co-op/intern participation for first and current jobs indicated no significant differences, although non-participants actually held a slight advantage in regard to satisfaction levels. Table XXI provides an overview of co-op/intern participation and job satisfaction.

Table XXII which summarizes satisfaction levels by gender also indicates no significant differences.

**TABLE XXII. Satisfaction Levels with 1st & Current Job & Gender--Overall Data & By Graduation Year**

<table>
<thead>
<tr>
<th>Category</th>
<th>Satisfaction 1st</th>
<th>Satisfaction Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3.66/5.00</td>
<td>3.78/5.00</td>
</tr>
<tr>
<td>Female</td>
<td>3.55</td>
<td>3.98</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.60</td>
<td>p&lt;.22</td>
</tr>
<tr>
<td>1990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3.19/5.00</td>
<td>3.43/5.00</td>
</tr>
<tr>
<td>Female</td>
<td>3.40</td>
<td>3.95</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.53</td>
<td>p&lt;.06</td>
</tr>
<tr>
<td>1988</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3.84</td>
<td>3.80</td>
</tr>
<tr>
<td>Female</td>
<td>3.58</td>
<td>4.40</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.42</td>
<td>p&lt;.36</td>
</tr>
<tr>
<td>1986</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3.95</td>
<td>4.09</td>
</tr>
<tr>
<td>Female</td>
<td>3.77</td>
<td>3.95</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.58</td>
<td>p&lt;.65</td>
</tr>
</tbody>
</table>
Only three significant differences were observed, all related to satisfaction with the current work position. For percent of related experience, an ANOVA and follow-up Student-Newman-Keuls test indicated a significant (p<.05) difference between the five levels of related experience (0%, 25%, 50%, 75%, 100%) with those having 100% related experience indicating a mean satisfaction level of 4.05/5.00. They were significantly more satisfied than the 0% related group with a mean satisfaction level of 3.43.

With the data analyzed by graduation year, for 1986, percent of related experience also proved to be significant in the same direction as for the overall data. The one-way ANOVA indicated a difference with a probability of p<.05. The follow-up Student-Newman-Keuls test for directionality indicated that group five (100% related experience) with a mean satisfaction level of 4.38 was significantly more satisfied than group one (0% related experience) with a mean satisfaction level of 3.25.

The only other significant result also occurred with the data sorted by graduation year. For the year 1988, Multiple Regression Analysis indicated that GPA entered the regression equation at a significant level, F=.0277, R=.28197, and R²=.079507. This means that for the year 1988, GPA explains about 8% of the variance in regard to satisfaction level in the current work position.
Hypothesis 6: Co-op/internship participants will perceive their initial and present positions to hold a higher level of responsibility than will non-participants.

Respondent answers to questions 9a, 9b, 9c, and 20a, 20b, and 20c were used to assess responsibility level in the initial and current work positions. Each sub-question (a,b,c) asked respondents to select/rank a characteristic of their job. These 1-5 rankings were summed then divided by three to provide a "responsibility level" from 1-5 with 1 being the least responsible and 5 being the most responsible.

Results for co-op/intern participation and responsibility level were mixed and none of the differences were significant. Table XXIII summarizes the results.

<table>
<thead>
<tr>
<th>Category</th>
<th>Overall</th>
<th>1990</th>
<th>1988</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Job Responsibility</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>3.45/5.00</td>
<td>3.20</td>
<td>3.75</td>
<td>3.40</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>3.50</td>
<td>3.60</td>
<td>3.55</td>
<td>3.40</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.52</td>
<td>p&lt;.12</td>
<td>p&lt;.54</td>
<td>p&lt;.91</td>
</tr>
<tr>
<td><strong>Current Job Responsibility</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op/Intern</td>
<td>3.90/5.00</td>
<td>3.65</td>
<td>3.80</td>
<td>3.90</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>3.70</td>
<td>3.60</td>
<td>4.00</td>
<td>3.50</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.59</td>
<td>p&lt;.86</td>
<td>p&lt;.44</td>
<td>p&lt;.10</td>
</tr>
</tbody>
</table>
In considering gender, although males typically held an advantage in terms of responsibility levels in both the first and current job, these advantages were slight and none proved to be significant at the p<.05 level.

For the overall data, no significant results were recorded for percent of related experience and first and current job responsibility levels.

The only statistical analysis that proved to be significant involved Multiple Regression on the variables age, GPA, and SAT score. In considering responsibility on the first job with the data sorted by graduation year, SAT score entered the regression equation for the graduation year 1990 with an F=.0368, R=.24317, and R²=.0591316. This means that for 1990, SAT score can explain approximately 6% of the variance in relation to responsibility level.

With the data analyzed by percent of related experience, for those who indicated they had 0% related experience as a student, GPA entered the regression equation with an F=.0046, R=.51108, and R²=.2612027. This means that for those with 0% related experience, GPA explains about 26% of the variance related to responsibility level.

Significant results for responsibility level in the current position were also minimal. With data analyzed by graduation year, Multiple Regression indicated that for 1986, GPA entered the regression equation with an F=.0010, R=.42296, and R²=.1788951. GPA explains approximately 18%
of the variance in regard to responsibility level for 1986 graduates.

Hypothesis 7: Co-op/internship graduates will have changed employers fewer times than non-participants.

Question seventeen on the survey instrument asking how many employers respondents had worked for full-time since graduation was used to assess this hypothesis. Question sixteen, asking how long the respondent worked for their initial employer following graduation was also reviewed.

In looking at the number of months employed by ones initial employer upon graduation and co-op/internship experience, those respondents who participated in the co-op/internship program consistently worked for shorter periods of time. Overall data indicated this difference was significant at the p<.01 level. Table XXIV summarizes the data in regard to length of time with the initial employer and co-op/internship experience.

<table>
<thead>
<tr>
<th>Category</th>
<th>Overall</th>
<th>1990</th>
<th>1988</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-op/Intern</td>
<td>29.25</td>
<td>20.02</td>
<td>30.81</td>
<td>42.48</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>41.96</td>
<td>26.43</td>
<td>51.12</td>
<td>47.27</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.01</td>
<td>p&lt;.16</td>
<td>p&lt;.06</td>
<td>p&lt;.61</td>
</tr>
</tbody>
</table>
Table XXV presents data in regard to gender and number of months with initial employer. No differences in regard to gender and number of months employed proved to be significant and no consistent pattern emerged.

**TABLE XXV. Number of Months with Initial Employer & Gender --Overall Data & By Graduation Year**

<table>
<thead>
<tr>
<th>Category</th>
<th>Overall</th>
<th>1990</th>
<th>1988</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>36.39</td>
<td>20.67</td>
<td>47.05</td>
<td>42.48</td>
</tr>
<tr>
<td>Female</td>
<td>33.25</td>
<td>23.16</td>
<td>35.04</td>
<td>47.29</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.55</td>
<td>p&lt;.62</td>
<td>p&lt;.31</td>
<td>p&lt;.61</td>
</tr>
</tbody>
</table>

One pattern of significant differences did appear when Multiple Regression Analysis was used. In looking at the data overall and by graduation year, age was the only variable to enter the regression equation. For the graduation year 1986, age entered with an $F=.01$, $R=.53738$, and $R^2=.2887772$. This means that for 1986 graduates, age accounts for about 29% of the variability in number of months employed by ones initial employer. Statistical results for 1988, 1990, and the overall data indicate that age also entered with an $F=.01$ and accounted for 43%, 25%, and 37% of the variability respectively.

In considering the number of employers since graduation, again, very few significant results existed. Tables XXVI and XXVII summarize the results for
co-op/internship participation and gender as related to number of employers.

**TABLE XXVI. Number of Employers & Co-op/Intern Participation--Overall Data & By Graduation Year**

<table>
<thead>
<tr>
<th>Category</th>
<th>Overall</th>
<th>1990</th>
<th>1988</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-op/Intern</td>
<td>1.80</td>
<td>1.67</td>
<td>1.75</td>
<td>2.03</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>1.59</td>
<td>1.46</td>
<td>1.64</td>
<td>1.70</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.12</td>
<td>p&lt;.28</td>
<td>p&lt;.62</td>
<td>p&lt;.26</td>
</tr>
</tbody>
</table>

**TABLE XXVII. Number of Employers & Gender--Overall Data & By Graduation Year**

<table>
<thead>
<tr>
<th>Category</th>
<th>Overall</th>
<th>1990</th>
<th>1988</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>1.73</td>
<td>1.64</td>
<td>1.71</td>
<td>1.83</td>
</tr>
<tr>
<td>Female</td>
<td>1.70</td>
<td>1.57</td>
<td>1.71</td>
<td>1.92</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.87</td>
<td>p&lt;.75</td>
<td>p&lt;.97</td>
<td>p&lt;.74</td>
</tr>
</tbody>
</table>

Only three significant differences did exist in relation to number of employers and all occurred through Multiple Regression Analysis completed for the variables age, GPA, and SAT score. For the overall data, both SAT score and GPA entered the regression equation with an F=.0152, R=.20301, and R²=.04123. This means that SAT score and GPA together account for only about 4% of the variance in regard to number of employers. Individually, each accounted for about 2%.
With data sorted by graduation year, for 1990, GPA entered the regression equation with an $F=0.0315$, $R=0.24222$, and $R^2=0.0586705$. This means that for 1990 graduates, GPA accounted for about 6% of the variance related to number of employers.

For the year 1986, SAT score entered the equation with an $F=0.0243$, $R=0.29312$, and $R^2=0.0859193$. This means that SAT score accounts for about 9% of the variance in regard to number employers since graduation for 1986 graduates.

Satisfaction with Mercyhurst College

**TABLE XXVIII.** Mercyhurst College Satisfaction Level & Co-op/Intern Participation—Overall Data & By Graduation Year

<table>
<thead>
<tr>
<th>Category</th>
<th>Overall</th>
<th>1990</th>
<th>1988</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-op/Intern</td>
<td>3.95/5.00</td>
<td>3.88</td>
<td>4.02</td>
<td>3.94</td>
</tr>
<tr>
<td>Non-Co-op/Intern</td>
<td>4.00</td>
<td>4.09</td>
<td>4.19</td>
<td>3.69</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.65</td>
<td>p&lt;.28</td>
<td>p&lt;.42</td>
<td>p&lt;.30</td>
</tr>
</tbody>
</table>

Question number four on the survey instrument asked students to rate how well Mercyhurst College had prepared them for full-time professional employment on a scale of 1-5 with one being very poor and five being very good. Several significant results occurred, though none in direct relation to co-op/internship participation. Table XXVIII summarizes
satisfaction level with Mercyhurst College and co-op/internship experience.

Table XXIX presents the results for gender and satisfaction level with Mercyhurst College. Even though the data for graduation year 1990 indicates that female graduates are significantly more satisfied with Mercyhurst College, no real pattern seems to exist as graduation year 1988 indicates that males are more satisfied at nearly significant levels and the overall data indicates no significant differences.

TABLE XXIX. Mercyhurst College Satisfaction Level & Gender --Overall Data & By Graduation Year

<table>
<thead>
<tr>
<th>Category</th>
<th>Overall</th>
<th>1990</th>
<th>1988</th>
<th>1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>3.89/5.00</td>
<td>3.59</td>
<td>4.35</td>
<td>3.77</td>
</tr>
<tr>
<td>Female</td>
<td>4.00</td>
<td>4.10</td>
<td>3.98</td>
<td>3.87</td>
</tr>
<tr>
<td>Probability</td>
<td>p&lt;.40</td>
<td>p&lt;.05</td>
<td>p&lt;.09</td>
<td>p&lt;.69</td>
</tr>
</tbody>
</table>

Percent of related experience as an undergraduate appears to be the most significant indicator of satisfaction with the preparation provided by Mercyhurst College. In looking at the overall data, a one-way ANOVA indicated that significant (p<.001) differences existed between the five groups (0%, 25%, 50%, 75%, 100%). A follow-up Student-Newman-Keuls test showed that those with 100% related experience were significantly (p<.05) more satisfied with
Mercyhurst College than were those with 0% or 25% related experience. Also, those with 75% related experience were significantly (p<.05) more satisfied with Mercyhurst College than those with 0% related experience. There appears to be an almost direct relationship between percent of related experience and satisfaction with the preparation provided by Mercyhurst. As the percent of related experience rises, satisfaction level also rises. No other significant results occurred. Table XXX presents an overview of percent of related experience and satisfaction with Mercyhurst College.

<table>
<thead>
<tr>
<th>% or Related Experience</th>
<th>Mean Satisfaction Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>3.57/5.00</td>
</tr>
<tr>
<td>25%</td>
<td>3.78</td>
</tr>
<tr>
<td>50%</td>
<td>3.96</td>
</tr>
<tr>
<td>75%</td>
<td>4.11</td>
</tr>
<tr>
<td>100%</td>
<td>4.28</td>
</tr>
</tbody>
</table>

Graduate School Attendance

On the survey instrument, question number twenty-nine asked if the respondent was presently enrolled in graduate school and question number thirty-two asked if a graduate degree has already been earned. These two questions were
used to assess the impact of the independent variables on graduate school attendance.

In looking at the overall data using Chi Square Analysis, no significant relationship exists between co-op/intern participation and whether or not a graduate degree had already been earned. However, a significant (p<.05) relationship does exist for current enrollment status. Those who participated in co-op/internship experiences were less likely to be presently enrolled in graduate school (see Table XXXI for an overview).

**TABLE XXXI. Graduate School Attendance & Co-op/Intern Participation—Overall Data**

<table>
<thead>
<tr>
<th>Category</th>
<th>Co-op/Intern</th>
<th>Non-Co-op/Intern</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Graduate Degree</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>fo=17</td>
<td>fe=18.8</td>
</tr>
<tr>
<td>No</td>
<td>fo=111</td>
<td>fe=109.2</td>
</tr>
<tr>
<td>Probability</td>
<td>(X^2=0.48)</td>
<td>df=1</td>
</tr>
<tr>
<td><strong>Graduate Enrolled</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>fo=22</td>
<td>fe=28.2</td>
</tr>
<tr>
<td>No</td>
<td>fo=106</td>
<td>fe=99.8</td>
</tr>
<tr>
<td>Probability</td>
<td>(X^2=4.21)</td>
<td>df=1</td>
</tr>
</tbody>
</table>

When considering graduation year, as expected, those who graduated in 1986 were significantly (p<.01) more likely than 1988 or 1990 graduates to have completed an advanced
degree. In regard to current program enrollment, GPA proved significant (p<.01) with those currently enrolled having higher GPAs (3.31 to 3.12) than those not enrolled. No significant results occurred in regard to percent of related experience, SAT score, age, or gender.

An Informal Analysis of Questionnaire Comments

Each survey instrument provided the respondent with blank space and invited them to comment of their experiences at Mercyhurst College. Only selected comments directly or indirectly related to the co-op/internship program will be included in this analysis. Some of the comments will be shared verbatim, while others will be paraphrased, including those that were stated by more than one respondent. Analysis will look at comments and will consider co-op/intern participation, gender and graduation year. Percentages of positive and negative comments will be noted.

Whereas the preceding statistical analysis provided an assessment related to the graduates' career progress and satisfaction. This section provides an informal assessment of respondent comments related to the co-op/internship program, supplementing the previously presented data.

A total of forty-one respondents made comments related to the co-op/internship programs. Thirty-four, or 83% of the comments were positive and/or supportive of the co-op/intern programs.
Eighty-five percent of those who participated in co-op/internship experiences as undergraduates provided positive feedback. Typical comments included:

The co-op/internship experience was invaluable. Without it, I don't think I'd have been able to function in the workplace.

Mercyhurst prepared me for my career and more importantly for life after graduation.

I believe everyone should work in their field of study. It helps one gain a better understanding of classroom topics.

I think work experience in a variety of areas should be stressed. I focused predominately in one area and it limited me after graduation.

The more practical internship experiences, the better off the graduate is when applying for a position.

My co-op experiences definitely gave me confidence in myself and my abilities.

Students need more experience. After graduation it is extremely difficult to find related work with no related experience.

College was no help at all as far as career employment preparation. Maybe it is college in general--There is no guarantee of a good paying job upon graduation.

In addition to the positive feelings of those who participated in co-op experiences, 80% of the comments from those who did not participate were also positive. Many of these respondents had gained related experience via other means, but saw co-op as a viable, positive option as well.
Typical comments included:

There is not enough emphasis on gaining practical work experience. While I was at Mercyhurst, all career oriented programs seemed geared for large and/or Business majors and not for Science, Psychology, Geology, Math, etc.

Work experience during college would benefit any student entering the job market. Therefore, it should be a required part of the degree.

My degree in Education at Mercyhurst included 'real world' experiences along with text book theories. This has helped tremendously!

As a former Mercyhurst student, I realize that the few job experiences I had as an undergraduate played no part in my career. I also know that co-op experiences are important and wish I had participated. I think it should be an integral part of every major.

It is important that students see the relationship of school to the real world. A good education would have practicums beginning freshmen year and would also emphasize writing.

The one piece of advice I would give to future students would be to do one or more internships while attending college--get out into the community and learn about the real working world while in school. It would have helped me to get a job sooner and be more confident.

Finally, 88% of the males and 80% of the females who made comments responded positively. Table XXXII provides an overview of the comments by graduation year, co-op/intern participation, and gender.
TABLE XXXII. Respondent Comments & Gender & Co-op/Intern Participation--Overall Data & By Graduation Year

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Co-op/Intern</th>
<th>Non-Co-op/Intern</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>41</td>
<td>16</td>
<td>25</td>
<td>26</td>
<td>15</td>
</tr>
<tr>
<td>Positive</td>
<td>34(83%)</td>
<td>14(88%)</td>
<td>20(80%)</td>
<td>22(85%)</td>
<td>12(80%)</td>
</tr>
<tr>
<td>Negative</td>
<td>7(17%)</td>
<td>2(13%)</td>
<td>5(20%)</td>
<td>4(15%)</td>
<td>3(20%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Co-op/Intern</th>
<th>Non-Co-op/Intern</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>12</td>
<td>1</td>
<td>11</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Positive</td>
<td>11(92%)</td>
<td>1(100%)</td>
<td>11(44%)</td>
<td>8(31%)</td>
<td>4(27%)</td>
</tr>
<tr>
<td>Negative</td>
<td>1(8%)</td>
<td>0(0%)</td>
<td>1(9%)</td>
<td>1(13%)</td>
<td>0(0%)</td>
</tr>
<tr>
<td>1988</td>
<td>18</td>
<td>8</td>
<td>10</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>Positive</td>
<td>15(83%)</td>
<td>8(100%)</td>
<td>7(70%)</td>
<td>11(85%)</td>
<td>4(80%)</td>
</tr>
<tr>
<td>Negative</td>
<td>3(17%)</td>
<td>0(0%)</td>
<td>3(30%)</td>
<td>2(15%)</td>
<td>1(20%)</td>
</tr>
<tr>
<td>1986</td>
<td>11</td>
<td>7</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Positive</td>
<td>8(73%)</td>
<td>5(71%)</td>
<td>3(75%)</td>
<td>4(80%)</td>
<td>4(67%)</td>
</tr>
<tr>
<td>Negative</td>
<td>3(27%)</td>
<td>2(19%)</td>
<td>1(25%)</td>
<td>1(20%)</td>
<td>2(33%)</td>
</tr>
</tbody>
</table>

Summary

This chapter presented a review of the data gathered in connection with each of the seven hypotheses of the study and presented additional measures regarding the students' graduate school attendance, satisfaction with the preparation provided by Mercyhurst College, and personal comments.

The first hypothesis presented the thesis that college graduates who had participated in co-op/internship experiences would obtain their job following graduation in
significantly less time than non-participants. Support for this hypothesis did not exist as co-op/intern graduates took a mean of 3.39 months to become employed in comparison to non-participants who took 3.40 months. One indirectly related significant result did occur. In regard to percent of related experience as an undergraduate, those with 100% and 50% related experience, as asserted on question number three of the survey instrument, obtained jobs more quickly (p<.05) than those with 0% related experience. Since co-op/intern experiences are a means of obtaining related work, some of this difference may be attributed to them.

The second hypothesis dealt with working within one's field of study initially and in the present position. The theses presented were that co-op/intern participants would be significantly more likely to have obtained their initial job within their field of study and to currently be working within their field of study. Again, no direct statistically significant evidence existed indicating that those who participated in co-op/internship experiences were more likely to either initially or currently be working within their field of study.

Those respondents with a higher percent of related work experience were more likely to be working within their field. In one's initial position, the higher the percent of related experience, the more likely one worked within his/her field of study (p<.01). Related to this outcome,
for those with 0% related experience, age and GPA played significant roles in whether a position within the field of study was obtained. Respondents who were younger (25.79 years to 27.98; p<.05) and had higher GPAs (3.19 to 2.82; p<.05) were more likely to be initially employed within their field of study.

In regard to the current position, outcomes were similar with percent of related experience again proving to be important. The more related experience, the more likely one would be presently employed in his/her field (p<.05). For those with 0% related experience, GPA was important (p<.05) and for those with 25% related, age was important (p<.05).

Hypothesis three looked at entry and current salary levels, theorizing that co-op/internship graduates would earn more. Although co-op/intern graduates consistently earned more money in both their initial and current work positions, these differences were slight and not statistically significant. Males earned significantly higher salaries than females in both initial and current work positions. These differences ranged from $1,650 to $4,250.

The fourth hypothesis considered merit pay increases and job promotions, posing that co-op/intern graduates would earn more and larger merit increases and more and faster promotions in both initial and current jobs. Although it
appeared that co-op/intern graduates earned more merit increases in their first and current jobs, these differences were not at significant levels and thus may only be due to chance. In looking at the percent of the merit pay increases, co-op/intern graduates again appeared to do better, but the overall data indicated the differences were not significant. In considering job promotions, co-op/intern graduates did no better, nor worse than non-participants. Gender seems to be the main influence in this area. Males were significantly (p<.05) more likely than females to be promoted in their first job (54% to 37%) and in their current job (49% to 42%). For length of time before earning a promotion, there appears to be a tendency for co-op/intern participants and females to earn promotions more quickly, but these differences were not significant for the overall data.

Hypothesis five theorized that co-op/intern participants would feel more satisfied in regard to their first and current work positions. This thesis was not supported, and in fact, non-participants actually held a slight, though not significant advantage in regard to satisfaction level in their first job (3.67 to 3.53) and in their current job (3.98 to 3.88). Indirectly related, percent of related experience did provide significant outcomes for satisfaction with one's current job. Those with 100% related experience were significantly (p<.05) more
satisfied than those with 0% related experience (4.05 to 3.43). As stated previously, co-op/internship experiences are one means of gaining related experience and thus may contribute to this significant difference.

The sixth hypothesis proposed that co-op/intern graduates would have more responsibility in their initial and current work positions. Results for co-op/intern participation were mixed with non-participants holding slightly more responsible positions initially and co-op/intern participants holding the slight advantage in the current position. None of these results were significant in either direction. Gender also provided no significant results, though males typically held an advantage in responsibility level over females. With data considering percent of related experience, GPA proved significant as Multiple Regression Analysis indicated that it explained 26% of the variance for those with 0% related experience in their initial job.

The final hypothesis, number seven, theorized that co-op/intern participants would have had fewer employers since graduation and would have stayed with their initial employer longer. Evidence goes directly against both of these hypotheses. In regard to number of months with one's initial employer, co-op/intern participants stay significantly ($p<.01$) shorter periods of time than non-co-op/interns (29.25 months to 41.96 months). Co-op/intern
participants have also had more employers since graduation (1.80 to 1.59), though this difference is not at a significant level (p<.12). Gender, percent of related experience, SAT score, and GPA provided no significant differences. Only one pattern appeared and that was in regard to number of months with one's initial employer. With the data analyzed by graduation year, Multiple Regression Analysis indicated that age played a significant role (p<.0001) accounting for 29% of the variance for the graduation year 1986; 43% of the variance for 1988; 25% of the variance for 1990; and 37% of the variance for the overall data.

In addition to the hypotheses several other outcomes were analyzed. In regard to satisfaction with Mercyhurst College, co-op/intern participants were no more satisfied than non-participants, nor were there any significant differences between males and females. Percent of related experience appears to be the most important indicator of satisfaction with Mercyhurst College with those having 100% (4.28) related experience being significantly more satisfied than those with 0% (3.57) and 25% (3.78) related and those with 75% (4.11) related being significantly more satisfied than those with 0% (3.57) related (p<.05).

In regard to graduate school participation, there were no significant differences between co-op/internship participants and non-participants and graduate degrees
earned, however, co-op/intern graduates were significantly (p<.05) less likely than non-participants to be currently enrolled in a graduate program. As expected, graduation year also played a significant (p<.01) role with 1986 graduates being more likely than 1988 or 1990 graduates to have completed an advanced degree.

Informal analysis of respondent comments strongly indicated that the co-op/internship program is beneficial. Those who participated are generally happy that they did. Those who did not participate view co-op as a very positive option that they wish they could/would have taken advantage of as an undergraduate student.
V. SUMMARY AND CONCLUSIONS

This chapter reviews the results of the study, presents a discussion of the data, and makes recommendations for further study.

Summary

The purpose of this investigation was to determine the relative effectiveness of a cooperative education/internship program (at a small, private, non-engineering college) in facilitating/enhancing the career "progress" and satisfaction of graduates. Two groups of students were compared: graduates who participated in the college sponsored cooperative education/internship program and those who did not participate. Seven hypotheses were investigated dealing with:

a.) length of time to obtain a job following graduation;

b.) employment within or outside one's field of study;

c.) salary levels;

d.) merit pay increases and job promotions;

e.) job satisfaction;

f.) responsibility levels; and

g.) number of employers.

The hypotheses were designed to analyze outcomes for both the initial work position out of college as well as the
current work position. They were also designed to ascertain whether or not any or all of the proposed benefits of cooperative education participation exist at smaller educational institutions and last over time.

The data gathering technique used in the study was a mail questionnaire. Using Dillman's (1978) methodology, a usable response rate of 61% was achieved. Data were analyzed by gender; graduation year; percent of related work experience as an undergraduate; and co-op/intern participation using t-tests, Chi Square tests; Analysis of Variance; and Stepwise Multiple Regression Analysis.

In addition to the previously mentioned hypotheses, graduate school participation; satisfaction with Mercyhurst College; and respondent comments were also analyzed. The findings of the study are reported below.

Findings

1. Statistically significant differences did not exist for co-op/intern participation or gender and number of months taken to become employed following graduation. Significant differences (p<.05) were found for percent of related experience with those having 100% and 50% related experience, as asserted by respondents on question number three of the questionnaire, acquiring employment more quickly than those with 0% related experience.
2. Co-op/intern participation and gender also provided no significant differences in regard to employment within the field of study in both the currently held position and in the initial position after graduation. Again, percent of related experience as an undergraduate did indicate significant differences. In both the initial position after graduation and the current position, those with a higher percent of related work experience were more likely to be working within their field of study.

3. Although co-op/intern graduates typically earned higher salaries, differences were not significant in the initial position or in the current position. Percent of related experience also provided only non-significant differences. Significant differences were found in regard to gender as males earned more than females in both the initial position ($2,100; p<.01) and the current position ($3,400; p<.001).

4. Although co-op/intern participation approached significant levels (p<.20; p<.07) in regard to whether or not a merit pay increase was earned, no significant results actually occurred. In the initial job, the only significant result that did occur happened with the variable age for 1988 graduates with those earning merit pay increases in their first job being younger (27.78 to 31.50). The only significant result for current job merit increases was for 1990 graduates. Those with a higher percent of related work
experience were significantly (p<.05) more likely to have earned merit increases.

Co-op/internship participation was the only variable to provide significant differences in regard to amount of merit pay increase. For 1986, co-op/intern graduates earned a significantly higher percent of increase for their first year on the initial job (9.71% to 4.20%) and for average yearly increase in the current job (9.63% to 3.09%).

5. Gender provided the only significant differences for promotions earned in one's initial and current jobs. Males were significantly (p<.05) more likely to be promoted in both initial position (54% to 37%) and the current position (49% to 42%). Co-op/internship participation appeared to make little difference. The only other significant result was for 1988 graduates where those with higher GPAs (3.31 to 3.01) were more likely to earn a promotion in their initial position.

For length of time before earning a promotion, neither co-op/intern experience nor gender found significant results for the overall data. However, each proved significant for one graduation year. For 1988 graduates, co-op/intern participants earned promotions significantly (p<.05) more quickly than non-participants. Although for the overall data, females actually outperformed males at non-significant levels, for 1986 graduates, males earned promotions significantly (p<.05) more quickly (8.00 to 15.62 months).
6. No significant results existed for co-op/internship participation and satisfaction level with the first and current work position, though non-participants held a slight advantage for the overall data. Gender also offered no significant differences and no pattern at all appeared to exist. The factor providing the most significant results was percent of related experience and that was only in reference to the current work position and not the initial work position. Those with 100% of related work experience were significantly more satisfied (p<.05) than those with 0% related work experience (4.05 to 3.43).

7. Results were mixed, but no significant differences existed for co-op/intern participation and initial and current job responsibility levels. Although males typically held an advantage over females in terms of responsibility, all differences were at non-significant levels. Percent of related experience also indicated no differences. Only with the data sorted further, using Multiple Regression Analysis, were significant results found. For 1990 graduates, SAT score accounted for approximately 6% of the variance in responsibility levels in one's initial position. For those indicating they had 0% related work experience as an undergraduate, GPA was significant and accounted for approximately 26% of the variance for first job responsibility level. Finally, for 1986 graduates, GPA
explained about 18% of the variance for responsibility level in the current work position.

8. Co-op/intern graduates worked significantly (p<.01) shorter periods of time overall with their initial employer upon graduation (29.25 months to 41.96 months). No significant differences occurred in regard to gender or percent of related experience. One major pattern that appeared, did so with Multiple Regression Analysis where age proved to be significant explaining 37% of the variance in the overall data and 29%, 43%, and 25% for graduation years 1986, 1988, and 1990 respectively.

9. Neither co-op/intern participation nor gender provided significant results related to professed satisfaction with Mercyhurst College. Again, the main indicator appeared to be percent of related undergraduate work experience where those with 100% related were significantly (p<.05) more satisfied than those with 0% and 25% related experience. Also, those with 75% related experience were significantly (p<.05) more satisfied than those with 0% related.

10. No significant data exists for co-op/intern participation and completion of a graduate degree. However, significant data does exist for current graduate program enrollment. Co-op/intern participants are significantly (p<.05) less likely to be presently seeking graduate level degrees.
11. Comments in general were positive and supportive of the co-op/intern programs, regardless of whether or not the survey respondent had participated.

**Conclusions and Discussion**

This study tested seven hypotheses dealing with the significance of cooperative education/internship programs in contributing to a graduate's "career progress and satisfaction." In addition to considering co-op/intern participation, other independent variables were also studied including: age, gender, SAT score, GPA, and percent of related undergraduate work experience.

In general, the data of the present study did not directly support the hypotheses at significant levels of difference and the results offer evidence both in support of and contrary to outcomes reported in previous studies.

In support of the literature, the present study indicates a slight advantage for co-op graduates in terms of salary and responsibility level in the current work position.

Contrary to previously reported results which indicated a slight advantage to co-op graduates in regard to employment within the field of study and amount of time to secure employment following graduation, the present study indicated no differences. More notably, whereas the literature review indicated a slight co-op graduate
advantage in regard to satisfaction level and no differences in regard to number of months with the initial employer and the number of employers since graduation, the present study indicated that non-co-op graduates were slightly more satisfied and worked with their initial employer for a significantly longer period of time.

Although the data provided by the present study appears to offer little direct evidence as to the significance of the co-op/internship experience on student outcomes related to career progress and satisfaction, considering the significant outcomes provided by the other independent variables and the characteristics of the present study sample, indirect evidence supporting co-op does exist. Two studies, reviewed in the literature, Siedenberg (1990) and Jagacinski, LeBold, Linden, and Shell (1986) lay the groundwork for this statement.

Siedenberg (1990), in a study of salaries, determined that a wage disadvantage was held by co-op students while in school. In further analyzing the study sample, Siedenberg indicated that co-op students were typically four years younger and came from larger families than non-co-op students. By graduation, the wage disadvantage was eliminated leading Siedenberg (1990) to state that "the cooperative education program appeared to give students the 'worldly-wisdom' and experience they lacked; it oriented them to what was expected post-graduation" (p. 26). In
summary, it placed graduates in an even competition, bringing "inexperienced [co-op] students up to the level of their non-co-op counterparts" (Siedenberg, 1990, p. 28).

The present study also indicates that co-op/intern participants come to college at a significant (p<.05) disadvantage (see Table I), specifically in terms of SAT scores. Co-op/intern participants had a mean SAT score of 866 in comparison to non-participants with mean scores of 922. While in college, these students managed to "catch up" in terms of GPA, graduating with a mean GPA of 3.14/4.00 in comparison to non-participants with a mean GPA of 3.19. Following graduation, as the data reveals, "career progress" occurred at an equal rate for both groups with only one significant difference existing. Non-co-op/intern graduates worked longer for the initial employer following graduation. Since the only identifiable difference between the two groups while in college is co-op/intern participation, it is logical to assume, as Siedenberg (1990) did in regard to salary, that the co-op/intern program enabled "disadvantaged" students to catch up to their peers and compete on an even basis following graduation.

The second study from the literature review which, in conjunction with the present data, offers indirect support for the cooperative education/internship program was completed by Jagacinski, LeBold, Linden, and Shell (1986). This study assessed salary and responsibility levels
comparing four groups: those with co-op experience; those with related non-co-op experience; those with unrelated work experience; and those with no experience. Considering salary, no differences were found for the initial job, but significant \( (p<.01) \) differences existed for the present salary with co-op graduates and those with non-co-op, but related work experiences earning more than those with no experience. In regard to responsibility level, no differences existed for the present work position, but in the initial position following graduation, those with non-co-op, but related work experience had significantly \( (p<.05) \) higher levels of technical responsibility. Jagacinski, LeBold, Linden and Shell (1986) concluded that work experience was important, at least initially, but that it didn't necessarily have to be classified as "co-op" to be beneficial.

The present study relates to Jagacinski, LeBold, Linden and Shell's (1986) study in that experiences aside from co-op were also analyzed. Specifically, the study questionnaire asked respondents to indicate what percent of their work experience as an undergraduate was related to their major? In considering the hypotheses of the study, a number of those significant results which were found were in regard to percent of related experience and indicated an advantage for graduates who claimed a higher percent of related work experience. Those with 100% and 50% related
experience found work significantly more quickly than those with 0% related. Those with a higher percent of related experience were also significantly more likely to employed within their field of study both initially upon graduation and in the current work position. Finally, those with 100% related experience were significantly more satisfied with Mercyhurst College than those with 0% or 25% related and those with 75% related were significantly more satisfied than those with 0% related. If, as the data indicate, percent of related experience makes a significant impact on career progress, then it follows that the co-op/intern program at least indirectly enhances career outcomes because co-op/intern participants indicated that a significantly higher percent (63% to 36%) of their work experience was related to their academic major.

The question as to whether co-op/intern outcomes (advantages) remain over time is still unanswered. Since few significant differences existed, the question is mostly irrelevant for this study. However, in considering the slight differences that did exist, most remained from graduation to present. Co-op/intern graduates held a slight advantage in initial salary ($700) and maintained this advantage ($800) through the current work position. The slight advantage in merit pay increases and job promotions also continued from the initial to the present position. Finally, the initial disadvantage in job satisfaction level
also continued through the present job. The only change (insignificant) that appeared over time was in regard to responsibility level. Initially non-co-op students held a slight advantage (3.50/5.00 to 3.45), however for the current position, co-op/intern graduates turned things around and they held the advantage (3.90 to 3.70). Only additional study can determine whether this pattern will continue.

Although the main portion of the present study was concerned with the effects of cooperative education/internship participation, a few of the other independent variables provided significant results. Of specific interest are some outcomes related to gender. For length of time to obtain a job following graduation; obtaining a job within the field of study; responsibility level; satisfaction level; and number of employers, no differences were apparent between the sexes. However, for salary levels and promotions, significant differences did exist. Males earned more in both the initial job ($22,200 to $18,100) and the current job ($23,400 to $20,000) and were also more likely to have been promoted in the initial job (54% to 37%) and the current job (49% to 42%). This information, along with non-significant differences for responsibility levels, implies that males and females are doing the same jobs, but males are being promoted more often and earning more money continuing an existing pattern of
gender discrimination. This argument is enhanced by the fact that males and females are similar in regard to three of the other independent variables (age; SAT score; percent of related experience) considered in the study (see Tables I and II). In addition, females actually outperformed males in terms of GPA (3.21 to 3.04), further strengthening the gender discrimination argument. However, males did hold one advantage and that was in regard to co-op/intern involvement where they were significantly more likely (70% to 54%) than females to participate. Putting all this information together, it seems possible, considering Siedenberg's (1990) and Jagacinski, LeBold, Linden and Shell's (1986) conclusions, that females might be able to overcome their gender "disadvantage" and compete on a more even basis with males after graduation if they participate in cooperative education or a similar program which would increase their percent of related work experience.

Implications

The major finding of the present study indicates that percent of related work experience as an undergraduate is a key in enhancing the career progress and satisfaction of graduates. Since cooperative education/internship participants indicated a higher percent of related experience than non-participants, these programs should continue as one alternative, along with practicums, field
experiences, etc., for students seeking career related experience. In addition to percent of related experience, gender also played a key role in career progress as males appeared to progress faster than females, specifically in terms of salary and promotions. Co-op/intern programs may allow females to acquire a higher percent of related work experience and the needed edge to compete on an even basis with their male counterparts. To enhance the potential positive student outcomes, from cooperative education/internship participation, program coordinators must take necessary steps to ensure that co-op/intern work positions are as directly related to the student's major/career goal as possible. Appropriate steps may vary somewhat across academic majors; co-op/intern programs; and colleges, but logic would suggest that individual "counseling" with students, before placement, would be helpful in ensuring an appropriate co-op position from the beginning. Working more closely with employers in developing a "training plan" related to the purposes of the program would also be helpful. Finally, regular evaluation and monitoring of worksite placements would allow a co-op coordinator to supervise and assist employer and student participants in elevating the potentiality of a position.
Recommendations for Further Study

1. This study presented data in respect to seven hypotheses related to career outcomes and two additional questions taking into account the independent variables: co-op/intern experience; percent of related work experience as an undergraduate; age; gender; SAT score; and college GPA. Other studies may consider adding high school GPA as an additional independent variable. It may prove to be more significant than SAT score and might assist in more accurately determining whether or not co-op/intern participants enter college at an initial disadvantage.

2. A follow-up study of a larger university and/or several similar type smaller colleges might be completed in order to acquire the number of responses necessary to run valid statistical tests on specific majors or at least on specific groupings of related majors (i.e. Business). By not having the number of responses needed to sort and analyze by academic major, one may be comparing apples and bananas.

3. The independent variables in this study provided a mix of frequency and score data. Future studies may be designed to have only one type (preferably score) of data so that Multiple Regression Analysis, which considers only one type of data at a time, can be better utilized and more meaningful.
4. A longitudinal study, as opposed to cross-sectional, would enable one to make more valid assessments on the outcomes of cooperative education/internship experiences and would provide additional information on the durability of any documented benefits.

5. A study with a way of quantifying work experiences (perhaps by number of hours) could be very beneficial. It might answer the question of whether or not cooperative education experiences, internships, practicums, student teaching, field work, part-time jobs, and summer jobs are equivalent in the benefits they provide. If no differences exist, perhaps all experiential opportunities should be advocated. If differences do exist, the basis of these differences needs to be ascertained. Such a study might also provide data related to whether or not a point of diminishing returns exists. That is, after a certain number of work hours, quarters, terms, semesters, do benefits no longer accrue?
REFERENCES


Appendix 1:

Delphi Panel Letter 1
April 28, 1992  
P.O. Box 2793  
Statesboro, Georgia 30458

Dear XXXXXXX,

Thank you very much for agreeing to be on my "Delphi Panel of Experts" in regard to the questionnaire for my Cooperative Education Study. Your assistance is invaluable and is greatly appreciated.

As I mentioned on the telephone, I am doing a study comparing co-op graduates with regular graduates in terms of career progress (see attached hypotheses). Most previous follow-up studies of co-op students have been completed on graduates of larger co-op schools. As a result I chose Mercyhurst College for my study because it is a small college with a "small" co-op program. Once my survey instrument is completed, it will be mailed, with a cover letter, to a sample of 1986, 1988, and 1990 graduates of Mercyhurst. Hopefully this research will provide additional insight into the numerous relatively smaller "unknown" programs.

I have chosen to design my own survey instrument because there is no standardized instrument available that meets my needs. The enclosed survey (rough copy) however, attempts to take into account past research efforts. To further enhance this survey form, my dissertation research committee and I decided that an adapted Delphi Panel might be appropriate. For those of you unfamiliar with the Delphi Technique, it began in the 1950s with the RAND Corporation. The Delphi Technique is a method of structuring group communications leading a group of experts to a reliable consensus of opinion (Riggs, 1983). Often, Delphi Panels have been used to identify issues in a specific field of interest. For example what are the largest problems the U.S. will face economically in the next 10 years?

My Delphi will be adapted somewhat as I have already completed several of the steps that typically occur, though there is certainly flexibility for change. I have identified seven "experts" from various types of co-op programs (i.e. mandatory-optional; public-private; small-large; 2 year-4 year) and one co-op graduate to review my instrument, so in effect, steps one, two and three of the process are complete.
Overall, the Delphi process could be pictured as follows:

START
↓
Problem Definition
↓
Determine Expertise Required
↓
Select Experts
↓
Prepare Questionnaire
↓
Distribute Questionnaire
← ← ←
Analyze Questionnaire Responses
↓
YES
←
Has Consensus Been Reached
↓
NO
↓
Provide Requested Information and Tabulate Responses
↓
Prepare the Next Questionnaire
←
←
→
Compile Final Responses and Disseminate Results
← ← ←
(Riggs, 1983, p.90)

Basically what I am asking each of you to do is to look at my instrument taking into account several factors:

1. Is it easy to follow and understand?
2. Does it cover important issues in the field of co-op in relation to student outcomes?
3. Will a graduate be willing answer these questions? If not, how might we change it to increase response rate?
4. Will I get the information I need to assess the attached list of hypotheses (note the information already accessible without asking on the survey)?

Any additional input you wish to give is also welcome. As suggestions are returned to me, I will incorporate them into a new survey instrument and re-send them to you asking for feedback again. Please respond by May 13th.

Do not hesitate to call me if you should have questions. I can be reached at 912/681-5197 between the hours of 8am - 5pm. After 5pm I can be reached at 912/587-5079. Again, I greatly appreciate your help! Thank you.

Sincerely,

Darwin V. Kysor
Appendix 2:

Delphi Panel Letter 2
Dear XXXXXXXXXXXX,

For those of you on my "Delphi Panel" who returned the first copy of my Cooperative Education Survey, thank you very much for your valuable input. Your comments should make this a better evaluation instrument. Enclosed is the second copy of my survey form which attempts to incorporate the ideas I received. I had some difficulty doing this in some cases, so although I would like you to again review the entire instrument, please pay close attention to the following areas where my major concerns lie.

1.) Are the salary figures and merit pay increase amounts used in questions 10; 15; 21; 25; and 26 reasonable? Keep in mind that Mercyhurst College is a small, private school and that the students I will be surveying are mostly Liberal Arts and Business majors.

2.) Is the wording in question #3 okay? This is important because I would like to determine if any advantages found can be attributed to co-op, or is any experience within ones career field of equal value?

3.) The wording in question #6 and 6A, is it confusing? How may it be improved?

Thank you again for agreeing to review my survey. You will probably see it one more time. Please return this one in the enclosed business reply envelop by:


Sincerely,

Darwin V. Kysor
Appendix 3:

Questionnaire
College students often attend school as a means of obtaining a better job. Many academic programs today have a work experience component. The first few questions of this survey relate to your work experiences, if any, while you were an undergraduate student.

Q1. While you were an undergraduate student at Mercyhurst College did you have any type of work experience? (Circle number)

1. NO —————————— If NO, skip to Q4
2. YES

Q2. How many terms of each of the following types of work experience did you participate in while in college and what was the number of academic credits (if any) that you received for each? (Put appropriate number in all the blanks. Use "0" if you were not involved or if you received no credit)

<table>
<thead>
<tr>
<th>Type of Work Experience</th>
<th>TERMS</th>
<th>CREDITS EARNED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Part-time job</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Summer job</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Internship</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Cooperative education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Other (please explain)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q3. What percent of your work experience as an undergraduate was related to your major(s)? (Circle number)

1. 0%
2. 25%
3. 50%
4. 75%
5. 100%

Q4. How would you rate Mercyhurst College in regard to your preparation for full-time professional employment? (Circle number)

1. VERY POOR
2. POOR
3. FAIR
4. GOOD
5. VERY GOOD
The next group of questions relates to your first full-time job following your graduation from Mercyhurst.

Q5. Upon graduation did you seek employment? (Circle number)

1. NO ____________If NO, skip to Q18
2. YES

Q6. Listed below are types of employers for whom you might have worked during college (Circled in Q2 previously).

A. If you received a job offer(s) from any of them, circle "offer" for all that apply.

1. Part-time Employer
2. Summer Job Employer
3. Internship Employer
4. Co-op Employer
5. Other Employer

B. If you circled "offer" above, circle "accepted" if you took the job.

Q7. How long did it take you to obtain your first full-time job following your graduation from Mercyhurst? (Fill in the blank)

_______ MONTH(S)

Q8. Do you consider your first full-time position as related to your college major(s)? (Circle number)

1. NO
2. YES

Q9. How often did the following occur in your first position following your undergraduate graduation?

A.) Supervise the work of others. (Circle number)

1. NEVER
2. RARELY
3. SOMETIMES
4. REGULARLY
5. ALL THE TIME

B.) Responsible in several types of progressively more difficult work. (Circle number)

1. NEVER
2. RARELY
3. SOMETIMES
4. REGULARLY
5. ALL THE TIME
C.) Planned own work. (Circle number)

1 NEVER
2 RARELY
3 SOMETIMES
4 REGULARLY
5 ALL THE TIME

Q10. What was your entry level salary in your first position after graduation? (Circle number)

1 LESS THAN $15,000
2 $15,000 - $19,999
3 $20,000 - $24,999
4 $25,000 - $29,999
5 MORE THAN $30,000

Q11. How would you best describe your overall satisfaction with your initial position following graduation? (Circle number)

1 VERY DISSATISFIED
2 DISSATISFIED
3 INDIFFERENT
4 SATISFIED
5 VERY SATISFIED

Q12. While on your first job did you receive any promotions? (Circle number)

1 NO ————————— If NO, skip to Q14
2 YES

Q13. How long were you working before you received the first promotion? (Fill in the blank)

________ MONTHS

Q14. While on your first job did you receive any merit pay increase(s)? Do not include across the board cost of living increases. (Circle number)

1 NO ————————— If NO, skip to Q16
2 YES

Q15A. What percent of your salary was the merit pay increase during your first year on the job? (Fill in the Blank)

_______ %

B. What percent was the average yearly merit pay increase for the remaining years in your first position? (Fill in the blank)

_______ %

Q16. How long did (have) you work(ed) for your initial employer following graduation? (Fill in the blank)

________ YEAR(S) ________ MONTH(S)
Q17. How many employers have you worked full-time for since your undergraduate graduation? (Fill in the blank)

_______ EMPLOYER(S)

The next group of questions follow the same format as the previous group, but relate to your current work position.

Q18. Are you presently employed? (Circle number)

1 NO  2 YES

If NO, skip to Q29

Q19. Is your present job related to your college major(s)? (Circle number)

1 NO  2 YES

Q20. How often do the following occur in your present position?

A.) Supervise the work of others (Circle number)

1 NEVER  2 RARELY  3 SOMETIMES  4 REGULARLY  5 ALL THE TIME

B.) Responsible for several types of progressively more difficult work (Circle number)

1 NEVER  2 RARELY  3 SOMETIMES  4 REGULARLY  5 ALL THE TIME

C.) Plan own work (Circle number)

1 NEVER  2 RARELY  3 SOMETIMES  4 REGULARLY  5 ALL THE TIME

Q21. In your present position, what was your entry level salary? (Circle number)

1 LESS THAN $17,000  2 $17,000 - $21,999  3 $22,000 - $26,999  4 $27,000 - $31,999  5 MORE THAN $32,000
Q22. Have you earned a promotion while working for your present employer? (Circle number)

1 NO 2 YES

If NO, skip to Q24

Q23. How long were you working before receiving this promotion?

______ MONTHS

Q24. While at your present job have you received any merit pay increase(s)? Do not include across the board cost of living increases. (Circle number)

1 NO 2 YES

If NO, skip to Q26

Q25. What percent of your total salary is the average yearly merit pay increase in your present position? (Fill in the blank)

_______ %

Q26. In your job, what is your current salary range? (Circle number)(If only 1 Job, skip to Q29)

1 LESS THAN $22,000
2 $22,000 - $26,999
3 $27,000 - $31,999
4 $32,000 - $36,999
5 MORE THAN $37,000

Q27. How would you best describe your overall satisfaction with your current position? (Circle number)

1 VERY DISSATISFIED
2 DISSATISFIED
3 INDIFFERENT
4 SATISFIED
5 VERY SATISFIED

Q28. How long have you worked for your present employer? (Fill in the blanks)

__________ YEAR(S) ___________ MONTH(S)
Finally, we would like to ask you some questions about yourself for statistical purposes.

Q29. Are you currently enrolled in a graduate or professional degree program? (Circle number)

1 NO  If NO, skip to Q32
2 YES

Q30. What is your major? ________________________________

Q31. What degree will you earn? (Circle number)

1 MASTER’S DEGREE
2 DOCTORAL DEGREE
3 OTHER (please explain) ________________________________

Q32. Have you already completed one or more graduate degrees? (Circle number)

1 NO  If NO, you are done
2 YES

Q33. What degree(s) did you earn? (Circle number(s) and fill in the blanks)

1 MASTER’S DEGREE  MAJOR:__________________________
2 DOCTORAL DEGREE  MAJOR:__________________________
3 OTHER (please explain)  MAJOR:__________________________
Is there anything else you would like to tell us about in regard to your experiences at Mercyhurst College? If so, please use this space for that purpose.

Also, any comments you wish to make that you think may help us in future efforts to understand the effects of work experience upon the careers of Mercyhurst College graduates will be appreciated, either here or in a separate letter.

Your contribution to this effort is greatly appreciated. If you would like a summary of the results, please print "COPY OF THE RESULTS REQUESTED" and your name and address on the back of the return envelop (NOT on this questionnaire). We will see that you get it. Thank you.
Appendix 4:
Questionnaire Cover Letter 1
Ms. XXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXX

Dear Ms. XXXXXX:

As a Mercyhurst College alum your school is interested in how well you believe their experiential education program(s) met your needs in preparing for full-time professional employment and in earning a living as a graduate. The only way to find out this information is to ask you. Your responses will be used to help improve educational opportunities for future generations of Mercyhurst students.

You are one of a small number of alumni being asked to give your opinion on these matters. Your name was drawn in a random sample of 1988 graduates. In order that the results truly represent the thinking of Mercyhurst graduates, it is important that each questionnaire be completed and returned.

You may be assured of complete confidentiality. The questionnaire has an identification number on the front of it only for identification purposes. This allows us to check your name off the mailing list when your questionnaire is returned, so additional questionnaires are not forwarded to you. Your name will never be placed on the questionnaire.

The results of this research will be shared with Mercyhurst College officials and other interested individuals. You may receive a summary of the results by writing "copy of results requested" on the back of the return envelope, and printing your name and address below it. Please do not put this information on the questionnaire itself.

Should you have any questions, please feel free to write or call me at 912/587-5079. You may also call Mr. Tyrone B. Moore, the Director of Career Planning, Placement, Cooperative Education and Internship Programs at Mercyhurst College at 814/825-0426. Thank you for your assistance.

Sincerely

Darwin V. Kysor
Mercyhurst Project Coordinator
Appendix 5:

Postcard Reminder
Last week a questionnaire seeking your opinions about the experiential education (internship, co-op, etc.) programs at Mercyhurst College was mailed to you.

If you have already completed and returned it to me please accept my sincere thanks. If not, please do so today. Because it has only been sent to a small representative sample of Mercyhurst graduates it is extremely important that yours be included in the study if the results are to accurately represent the opinions of Mercyhurst alumni.

If by some chance you did not receive the questionnaire, or it got misplaced, please call me collect at 912/587-5079 and I will get another one in the mail to you.

Sincerely,

Darwin V. Kysor
Mercyhurst Project Director
Appendix 6:
Questionnaire Cover Letter 2
Dear Ms. XXXXXX:

About three weeks ago I wrote seeking your opinions on how well the Mercyhurst College experiential education programs (Internships, Co-ops, etc.) met your needs in preparing for full-time professional employment and in earning a living as a graduate. As of today, I have not yet received your completed questionnaire.

I am writing to you again because of the significance each questionnaire has to the usefulness of the study. This study has been undertaken to evaluate Mercyhurst College career related programs so that future efforts may be enhanced. Your name was drawn through a sampling process in which every 1986; 1988; and 1990 graduate had an equal chance of being selected. In order for the results of this study to be truly representative of the opinions of all Mercyhurst graduates it is essential that each person in the sample return their questionnaire.

As mentioned in my last letter, your responses will be confidential. The questionnaire has an identification number only for the purpose of allowing us to check your name of the mailing list so additional questionnaires are not forwarded to you. Your name will never be placed on the questionnaire. Finally, you may receive a summary of the results by writing "COPY OF THE RESULTS REQUESTED" on the back of the return envelope and printing your name and address below it. Please do not put this information on the questionnaire itself.

In the event that your questionnaire has been misplaced, a replacement is enclosed. Should you have any questions concerning this study, please feel free to call me at 912/587-5079. Your cooperation is greatly appreciated.

Sincerely,

Darwin V. Kysor
Mercyhurst Project Coordinator
Appendix 7:

Questionnaire Cover Letter 3
October 5, 1992

Dear Mr. XXXXXXXX:

I am writing to you about our study on the career progress of Mercyhurst College Graduates. We have not yet received your completed questionnaire.

The large number of questionnaires returned is very encouraging. But, whether we will be able to describe accurately how Mercyhurst alumni feel about and have progressed in their career fields depends upon you and others who have not yet responded. This is because our past experiences suggest that those of you who have not yet sent in your questionnaire may hold quite different viewpoints in comparison to those who have.

This is the only study of this type to be done at Mercyhurst. Therefore, the results are of particular importance to future developments within Mercyhurst College career related programs. The usefulness of the results depends on how accurately we are able to describe the progress of Mercyhurst Alumni.

It is for these reasons that I am sending you another copy of our questionnaire. May I urge you to complete and return it as quickly as possible.

I'll be happy to send you a copy of the results if you want one. Simply put your name, address, and "copy of the results requested" on the back of the return envelop. We expect to have them ready soon after the new year.

Your contribution to the success of this study will be appreciated greatly.

Most sincerely,

Darwin V. Kysor
Mercyhurst Project Coordinator