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ABSTRACT

A comparative study of the alumni of 12 cooperative and 12 noncooperative education programs examined the following facets of career development: Views toward undergraduate career preparation, characteristics of first full-time job, and characteristics of current employment situation. In addition, the mail questionnaire measured differences in views and experiences according to sex, race, year of graduation, and major of the alumni. The study also explored alumni attitude toward the alma mater and avocational activities of the alumni. The questionnaire was first field tested and revised. A random sample of 4,387 alumni was chosen, with a response rate of 33.6%. The "Statistical Package for the Social Sciences" was used to analyze the data. Findings indicated that student participation in an undergraduate program of cooperative education had an impact on their after-graduation career goals, expectations, and actual experiences; that there were differential effects of cooperative work experience for students in different curricula, for men and women students, and for minority students; and that aside from greater career choice stability, the impact of cooperative work experience appeared to diminish over time. Alumni of cooperative and noncooperative programs did not differ greatly in their attitudes toward their alma mater or in their avocational activities. (Tables of data appear throughout the report and the alumni questionnaire is appended.) (LMS)

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COOPERATIVE EDUCATION AND CAREER DEVELOPMENT:
A Comparative Study of Alumni

by

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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PREFACE

The purpose of this report is to explore the role of cooperative education in the career development of young adults. It is the hope of the Cooperative Education Research Center that these findings will be useful to the college personnel who work with or relate to cooperative education students.

This research was supported by a grant from the U.S. Office of Education (G 007602265). I am particularly grateful for this vital support, but wish to make it clear that the Office of Education is in no way responsible for the substance of this report.

Any large research project requires the efforts and expertise of many people. I am pleased to take this opportunity to thank some of those people for their contributions. First, I would like to express my appreciation to Northeastern University's Chancellor Asa S. Knowles for his active support of this research effort. I would also like to thank the Director of the Cooperative Education Research Center, Dr. James W. Wilson, for his encouragement and counsel, and the rest of the Center staff, G. Ruth Kukiela Bork, Etsuko Kumai, Cynthia J. Whitten, for their many constructive suggestions throughout this project. Without the organizational ability of Ms. Priscilla Wilfong and the patience of a number of Work-Study students and part-time employees, the data could never have been coded as quickly and accurately as it was. Special thanks are due Miss Diane M. Kemski who prepared this final manuscript and whose assistance in all phases of this research effort was invaluable.

Finally, I am grateful to the Directors of Alumni Affairs and, of course, the many alumni who took time from their busy schedules to help make this project possible. I sincerely hope this report will justify their cooperation.

Northeastern University
Boston, Massachusetts

Sylvia J. Brown
December, 1976

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CHAPTER ONE

INTRODUCTION TO THE RESEARCH

Research Problem

The growth of cooperative education during recent years has been remarkable. The 1976 estimated population of cooperative education programs is 1056, over five times as many programs as there were in 1970.[1] One impetus in recent years to the growth and expansion of cooperative education has been the claim that participation in cooperative education contributes to student career development.[2]

In order to examine this statement more carefully, one must first ask what is meant by the phrase "career development." A useful definition is that career development is the process of making a vocational choice.[3] Implicit in that statement is the continuing growth and development of one's career throughout one's lifetime. How do colleges help students in their career decision-making tasks? How can colleges smooth a student's transition from school to the world of work? How can colleges prepare their students for full-time employment? Cooperative educators claim that cooperative education can serve these and other functions and, therefore, can make an observable difference in the career development of college students.

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[1] Data taken from the Cooperative Education Research Center's computer file of cooperative education program information.

[2] Ralph W. Tyler, "Values and Objectives," in Handbook of Cooperative Education, by Asa S. Knowles and Associates, (San Francisco: Jossey-Bass, Inc., 1971), p. 20.

[3] Samuel H. Osipow, Theories of Career Development, (New Jersey: Prentice-Hall, Inc., 1973), p. 307.

Literature Review

A review of the literature was conducted to determine what evidence cooperative educators had to indicate that participation in cooperative education enhanced the career development of undergraduates. The literature review focussed specifically on studies of alumni of cooperative education programs for two reasons. First, an ongoing study which addressed particular aspects of undergraduate career growth was already in progress as a separate venture by the Cooperative Education Research Center staff. Second, in order to look at career development as a process which continued after graduation, one had to study alumni.

The most comprehensive study of alumni of cooperative education programs was conducted by James W. Wilson and Edward H. Lyons in 1959 as part of a national study of cooperative education which was supported by the Fund for the Advancement of Education of the Ford Foundation. This study compared the employment experiences of cooperative education and non-cooperative education graduates. It was specifically concerned with their feelings about how well they were prepared by their colleges for employment, the relationship between their college education and their employment, their feelings about the jobs they hold, and the income they have received from employment.[4]

The research sample consisted of 2476 alumni responses to a mailed questionnaire. Approximately 68 percent of these responses were from alumni of engineering programs, 17 percent were from graduates of business programs, and 15 percent were alumni of liberal arts programs. Ten percent of the responses were from female graduates, all of whom had been liberal arts majors.

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[4] James W. Wilson and Edward H. Lyons, Work-Study College Programs: Appraisal and Report of the Study of Cooperative Education, (New York: Harper and Brothers, 1961), p. 17.

Although this research effort was invaluable in pointing out the values and problems of cooperative education, it is obvious that the research sample, while representative of cooperative education alumni during that time, is not representative of the population of students in cooperative education today. The number of women participating in cooperative education has increased considerably, as have the number of non-engineering students. The study by Wilson and Lyons was very significant in the promotion and growth of cooperative education in the 1960's and provided the much needed research-based facts for this growth. However, in order to examine the role of cooperative education in the career development of today's population of students, a new study of alumni was necessary.

A review of literature on cooperative education produced no other comprehensive national study of cooperative education alumni. Studies by Epting, Gore and Rodes were all specifically related to alumni of one institution.[5] A doctoral dissertation by Yensco included input from eight colleges' alumni but was concerned only with engineering majors.[6] Mosbacker's studies on women in cooperative education provided some much needed research on this subject, but, again, did not meet the need for a current comprehensive study of the effects of cooperative education

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[5]Luther Epting, "Survey Analysis of Mississippi State University Cooperative Education Graduates From 1970-74," Journal of Cooperative Education, XI, 2 (May 1975); George J. Gore, "Co-op Versus Non-Co-op Revisited," Journal of Cooperative Education, IX, 1 (November 1972); Harold P. Rodes, "The After Effects of Cooperative Education," Journal of Cooperative Education, IV, 2 (May 1968).

[6]William R. Yensco, "A Comparative Analysis of Engineering Graduates From Cooperative and Regular Programs: Career Status and Attainment of 1962 and 1965 Baccalaureate Graduates," Unpublished doctoral dissertation (University of Michigan, 1970).

on the career development of alumni.[7] It was the intention of this author to conduct such a study.

Research Goals

More specifically, the primary goal of this study was to examine the following facets of career development: views toward undergraduate career preparation; characteristics of alumni's first full-time job; characteristics of current employment situation. There was a concern that these views and experiences might vary according to sex, race, year of graduation, and major of the alumni. The research was, therefore, designed so as to measure any differences that might occur within or among these groups. Any changes in the possible effects of cooperative education over a period of time, for example, could be measured by examining responses according to year of graduation. Similarly, particular attention could be paid to response patterns of female, minority, and liberal arts alumni when examining claims made by some cooperative educators that participation in cooperative education has unique benefits for these groups.[8]

In addition to this exploration of career development, the alumni study undertook to explore two other areas of interest. Do the attitudes of cooperative education alumni toward their alma mater differ from that of other alumni? There have been concerns expressed by some educators that participation in cooperative education, especially an alternating cooperative education program, tends to decrease a students enthusiasm

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[7] Wanda B. Mosbacker, "Women in Co-op," Journal of Cooperative Education, X, 1 (November 1973).

[8] Harriet P. Van Sickle, "Professional Development of Women," in Handbook of Cooperative Education, by Asa S. Knowles and Associates, (San Francisco: Jossey-Bass, Inc., 1970), pp. 267-268.

for and interest in their alma mater. Another and much more pragmatic reason for this line of inquiry was the desire to help the many Directors of Alumni Affairs, whose assistance in this study was invaluable, to learn more about their alumni's perceptions of their undergraduate experience.

The other area of interest referred to above was the avocational activities of the alumni. It was felt, especially if this study showed differences in the career development of cooperative education and non-cooperative education alumni, that it would be useful to know whether cooperative and non-cooperative alumni also pursued different avocational activities.

CHAPTER TWO

RESEARCH DESIGN

Once the research goals had been formulated, the next step was to design a plan to achieve those goals. It was decided that a comparative study of alumni of cooperative and non-cooperative programs, using a mailed questionnaire, would be the best method of obtaining the data. If the undergraduate institutions of these alumni were similar in most respects, then one could assume with some confidence that any significant differences in alumni responses to the questionnaire related to participation in cooperative education. Thus, the criteria for inclusion in the research sample was quite important and shall now be explained.

Sample Selection

There were a number of criteria used in the selection of the institutions whose alumni participated in this study. At this stage of the sampling, only cooperative education institutions were being selected.[9] Once these institutions had been selected and had agreed to participate in the study, the comparative non-cooperative institutions were chosen.

One of the goals of this research effort was to determine whether the effects of cooperative education lasted over a period of time. It was therefore decided to do a cross-sectional sample of alumni one, five, and ten years after their graduation from college. Since the study was begun in 1975, this meant sampling alumni from the classes of 1974, 1970, and 1965. Thus, the first criterion established was that the cooperative

[9] The term "cooperative education", for the purposes of this study, included field experience programs in which the field work is considered an integral part of all students' curriculum.

education program must have been functioning for at least 12 years for a two year institution and 14 of 15 years for a four or five year institution. This was necessary in order to have graduated alumni with cooperative education experience from the class of 1965. The computer file of data maintained by the Cooperative Education Research Center was utilized to obtain a listing of institutions with cooperative education programs implemented prior to 1965. A total of 90 institutions met this requirement.

In order to have an approximately equal sample of cooperative education and non-cooperative education graduates, only colleges with mandatory cooperative programs were included. The rationale for this decision was that optional programs would almost certainly have an unequal distribution of cooperative and non-cooperative graduates. Thus, if only mandatory programs were chosen, all alumni would have had cooperative education and a non-cooperative education sample of equal size could then be taken from comparable institutions which did not have a cooperative program. Using this second criterion, the number of cooperative education institutions eligible for participation in the alumni study was reduced to 21.

A few of these 21 colleges were eliminated because their programs were tied in with one particular industry and would not be representative of the majority of cooperative education programs in this country today. A few more were excluded because, although they have had viable programs for more than 12 years, their programs were so small that the number of alumni available to fill out questionnaires would be minimal. The final number of cooperative education institutions selected for participation in the alumni study was twelve.

The next stage of the research design was to ask the twelve institutions that had been selected if they would agree to participate in the

study. After consulting with an alumni officer at Northeastern University, it was agreed that the President of the twelve institutions should be contacted by letter by Northeastern University's President. (A copy of the letter sent to the colleges is attached as Appendix A). The intention of the letter was to explain the purpose of the study and the planned research design, and to suggest a liaison person, usually the Director of Alumni Affairs, to work with the Research Center on this project. The letters to the cooperative education institutions were sent out in the Spring and Summer of 1975. Only one of the institutions declined to participate. A substitute institution was chosen and agreed to participate.

Once the cooperative education institutions were designated, a comparable group of non-cooperative institutions were selected and contacted. Three declined to participate and three substitute samples were found. An attempt was made to find institutions comparable in size, location, control (either public or private), academic majors offered, characteristics of the student body, and competitiveness of admission. The chart, included as Appendix B, demonstrates that the sample institutions chosen were indeed comparable in almost all of these aspects.

The next stage of the research design was to contact the liaison person at each institution in order to make the specific arrangements for the study. Ideally, it was hoped that each institution could provide two sets of mailing labels, one for mailing the questionnaire and one for a follow-up postcard, for all alumni from the classes of 1965, 1970, and 1974. In some instances, however, the institutions could provide only typed lists.

In order to ensure a large enough sample, it was decided to take, wherever possible, a random sample of 60 alumni from each class, for a

total of 180 from each institution. This would have resulted in a sample of 4320 which, with an estimated response rate of 33%, would have provided data from 1426 alumni.

Actually, the sampling technique was somewhat more complex. For those institutions whose mandatory cooperative education programs existed in two or three curricula, such as in engineering and business, a stratified random sample was taken; that is, 30 alumni from each of the two programs were chosen rather than 60 alumni from both programs together. The reason for stratifying the sample in this fashion was to be sure that the various majors were as well represented as possible in the final sample. In choosing samples from liberal arts programs with students in many majors or from universities which offered cooperative education in more than three majors, a strictly random sample of 60 alumni from each class was selected.

Because the samples were randomly selected, it was important to determine whether the samples selected were, in fact, representative of the population from which they were drawn. Thus, for each sample chosen, the gender and major of each alumnus were recorded. The same information was recorded for the population from which the sample was drawn. As the table in Appendix C demonstrates, the stratification of the sample resulted in a sample which was not exactly representative of the population from which it was drawn. Females were over-represented as were liberal arts majors while males and all other majors were under-represented. In all cases, however, the difference between representation in the sample and population was less than ten percent. In addition, the over-representation resulted in a greater number of females and liberal arts majors, which were two groups this research was particularly interested in studying.

Design of Research Instrument

The intent of the Alumni Questionnaire was to obtain data, using a convenient and clear format, from a sample of alumni that was large enough to provide significant results. Potential questionnaire items were reviewed by all members of the Cooperative Education Research Center staff, and in April, 1975, a final draft of the questionnaire had been devised. In order to determine whether the format of the questionnaire was readable, whether the questions were clear, whether the time needed to complete the full questionnaire was reasonable, and whether the data being obtained was responsive to the research goals, a field-test of the Alumni Questionnaire was undertaken.

A sample of alumni who would not be included in the research study were sent questionnaires and were asked to complete them and comment on them. The majority of these people returning the completed questionnaires felt that both the length of the questionnaire and the time necessary to fill it out were reasonable. However, the suggestions of these alumni in other areas did lead to a number of constructive changes in both the format and the content of the questionnaire. The final version of the questionnaire may be found as Appendix D.

In deciding to use a mailed questionnaire as the technique for gathering data, it was understood that the results would be biased by the fact that only certain types of people would complete and return the questionnaires.[9] However, it was felt that this factor would not

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[9] David J. Fox, The Research Process in Education, (New York: Holt, Rinehart and Winston, Inc., 1969), p. 337.

signficantly influence the comparison between cooperative and non-cooperative alumni because both groups would be subject to the same bias.

There is the possibility, whenever a cross-sectional design is used, that any changes found over time could be attributed to factors other than ones being examined.[10] For example, the rise of a particular social movement during one of the three time periods being sampled could have an effect on the responses of alumni of that period. It is believed, however, that the fact that cooperative and non-cooperative alumni were exposed to the same social factors permits the conclusion that any differences between the two groups were due to other types of influences.

Mailing of the Questionnaires

The questionnaires were mailed in September, 1975. Due to the fact that two colleges were over sampled in order to adequately represent particular majors, 4387 questionnaires were sent out, 67 more than originally projected. The majority of these questionnaires were returned within one month of the original mailing. One follow-up reminder, a postcard, was sent out which resulted in a small surge in the number of returns. The number of returns had almost diminished to zero by the end of November, two months after the original mailing.

Of the 4387 questionnaires mailed to alumni, 6.5 percent were returned "addressee unknown" and 4.6 percent were returned with address corrections. In all instances where address changes were received, the questionnaires were forwarded. In those cases where the number of envelopes returned "addressee unknown" exceeded five percent for an institution, an additional sample of alumni was chosen in order to compensate

[10] Ibid., p. 442.

for this decrease in the original sample. There were five institutions where this additional sampling procedure was necessary. For the remaining 18 institutions that were not re-sampled, a total of 138 envelopes were returned "addressee unknown."

To determine the response rate, the base figure of 4249 questionnaires was used to represent the number of questionnaires received by alumni. (This figure is obtained by subtracting the number of questionnaires that did not reach their destination from the number of questionnaires originally mailed out). The number of returned useable questionnaires was 1427: a response rate of 33.6 percent. An additional .9 percent of the questionnaires received were not useable for various reasons, such as the alumni never actually graduated from college or attended on a part-time basis only. The response rate for co-op and non-co-op was 31.8 percent and 33.2 percent respectively.

Method of Data Analysis

Design of Coding System

The most appropriate measure of relationship between the nominal-level variables being measured by the Alumni Questionnaire was the chi square analysis. The most efficient method for producing the many varied chi square analyses desired was to use the programs available in the Statistical Package for the Social Sciences.[11]

In order to make use of this package, it was necessary to devise a coding system for as many of the items from the Alumni Questionnaire as feasible. In some instances, the codes were already provided on the Alumni Questionnaires. For example, question number six, "Do you have any children?" is coded "1" if the person responded "yes" and "2" if the

[11] Norman H. Nie et.al., Statistical Package for the Social Sciences, Second Edition, (New York: McGraw-Hill Book Company, 1975).

person responded "no". In cases of open-ended questions, however, the codes were devised after the questionnaires were returned. Responses were reviewed and the most frequent responses became response categories. An example of this is the coding scheme developed for question number 21 which asked alumni to describe the most beneficial aspect of their cooperative education, field term, or internship program. There were 13 different response categories created for this item, such as "financial assistance" or "relating theory to practice" and the responses were coded accordingly.

The coding system was revised and refined a number of times. The final scheme resulted in approximately 180 columns, or two keypunched IBM cards, being produced for each questionnaire. Hence, a total of 2854 cards had to be correctly coded and keypunched. In order to control for coding and keypunching errors, a random sample of cards, approximately one out of four, were checked for their accuracy, and, where necessary, c cted. As an additional check on the accuracy of the coding and key- p ning, a frequency listing was run for each school. A manual tabulation w done for one key question and compared with the results of the computer- o ined frequency listing. In each comparison case, the results were the s . The final check for accuracy was the frequency listing of all the alumni responses. The few keypunch errors which appeared were correcred.

Treatment of Missing Data

There were, for almost any question on the alumni questionnaire, a number of alumni who did not respond to that question. The possible reasons for not answering a particular question varied. Some alumni chose not to answer certain questions such as "What is your race?" Others did not answer questions because the item was not applicable to their situation. For example, a question on current job satisfaction was irrelevant if the

person was not working. The coding system did not differentiate among the various reasons for not responding to an item: all missing responses were coded zero and were not included in any of the data analyses. Thus, the total number of alumni responses to each item on the questionnaire varied considerably. For instance, of the 1427 alumni who were participants in the study, 1426 answered the question on marital status, 1378 responded to the question on sources of career information, and 1241 responded to questions on the first full-time job after graduation. The percentages cited in each table were computed using only those alumni who responded to that item.

Use of Statistical Analyses

In order to analyze the data as completely as possible, a number of statistical analyses were done. Initially, a comparison was made, using the chi square statistic, between the responses of all cooperative education and all non-cooperative education alumni. From this point on, it will be more convenient to call this group the total alumni sample. Thus, a comparison of alumni in the total alumni sample is a comparison of all cooperative alumni with all non-cooperative alumni.

One of the concerns of this research is the possible effects of participation in cooperative education on particular groups of people, such as women or minorities. Therefore, separate analyses of the responses of these groups, or subsamples as they shall now be called, were conducted. The four subsample types that were examined were sex (male and female subsamples), race (white and minority subsamples), year of graduation (class of 1965, 1970, and 1974 subsamples), and major (liberal arts, business, and engineering subsamples). Cooperative and non-cooperative alumni were compared within each of these subsamples. In these comparisons, the chi square statistic was again employed.

One other type of statistical analysis was used. When comparing across the subsample membership, for example a comparison of all cooperative education female responses with all cooperative education male responses, a *t* test was used to determine whether or not the responses of the males and the females were statistically alike.[12] This is in contrast to the chi square analysis, which can be used to compare responses within a subsample, such as cooperative education and non-cooperative education female responses to a questionnaire item.

All data and statistical analyses from the total alumni sample will be presented in tables included in the body of the report. In addition, any data that is particularly relevant regarding the responses of subsample members will also be included within the main body of the report. All other significant data will be included as Appendices. This will hopefully make this report easier to read while still including, either in the report or in an Appendix, all the raw data upon which the analyses were based.

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[12] J.P. Guilford, Fundamental Statistics In Psychology and Education, Third Edition, (New York: McGraw-Hill Book Company, 1965).

CHAPTER THREE

DESCRIPTION OF ALUMNI SAMPLE

Sample Representativeness

As mentioned earlier in this report, this research sought, in part, to update the national study of graduates conducted by Wilson and Lyons in 1961. Of particular importance in this effort was the desire to have an alumni sample which would be more representative of today's population of cooperative education participants. As the data in Table 1 show, Wilson and Lyons' research sample consisted largely of male engineering students.

TABLE 1
Characteristics of Alumni Sampled In Wilson and Lyons' Cooperative Education Programs[13]

Major			Sex		
Liberal Arts	188	(16%)	Male	1079	(90%)
Engineering	789	(66)	Female	120	(10)
Business	222	(18)			

Today's population of cooperative education programs, as shown in Table 2, includes a much more even distribution of cooperative education students in the areas of liberal arts, engineering, business, and to a lesser extent, the vocational arts and technologies. It also includes a higher percentage of female participants than in the past.

[13] James W. Wilson and Edward H. Lyons, Work-Study College Programs: Appraisal and Report of the Study of Cooperative Education, (New York: Harper and Brothers, 1961), p. 24.

TABLE 2
Characteristics of Current Undergraduates in Cooperative Education[14]

Major			Sex		
Liberal Arts	27885	(25%)	Male	83564	(62%)
Engineering	21635	(19)	Female	51217	(38)
Business	28166	(25)			
Education	5574	(5)			
Vocational Arts and Technologies	15499	(14)			
Others	36022	(13)			

An examination of the data in Table 3 shows that the sample of alumni chosen to participate in the alumni study, within the parameters of the sampling procedures, was more representative of the current population of cooperative education programs than the Wilson and Lyons sample. The fact that most two-year institutions' cooperative education programs were too new to be included in the research sample did result in an underrepresentation of vocational arts and technology programs. However, the sample does adequately represent alumni of engineering, business, and liberal arts curricula. The percentage of males and females who were chosen for participation in the alumni study is almost exactly the same as the percentage of males and females who actually participate in cooperative education today.

TABLE 3
Characteristics of Cooperative Education Alumni Sampled for this Research

Major			Sex		
Liberal Arts	2175	(49.6%)	Male	2748	(63%)
Engineering	675	(15.4)	Female	1615	(37)
Business	1015	(23.1)			
Other	523	(11.9)			

[14] Data taken from the Cooperative Education Research Center's computer file of cooperative education program information.

Characteristics of the Total Alumni Sample

The previous analysis showed that the selected research sample was fairly representative of the current population of cooperative education students with regard to major and sex. The following discussion will focus on the characteristics of those alumni who were sampled and who actually returned the questionnaire. The purpose of this discussion is two-fold: to provide more detailed information about the sample of respondents and to compare the characteristics of cooperative and non-cooperative respondents. Such knowledge is necessary to interpret subsequent analyses. It is further needed in order to characterize the generalizability of the research findings.

The characteristics that will be discussed are age, sex, race, marital status, age at marriage, number of children, location, year of graduation, and undergraduate major of all alumni respondents. Most respondents were between the ages of 21 and 33. As Table 4 shows, slightly more than half of the total alumni sample were males and most were white. Of those alumni who were married, most got married between the ages of 21 and 26. The majority of the married alumni reported they did not have children. Most alumni were found to reside in urban or suburban areas. The one characteristic in which cooperative education and non-cooperative education alumni differed significantly was in their undergraduate major. The cooperative sample contained a higher percentage of engineering majors and the non-cooperative sample included a higher percentage of liberal arts majors.

Although there was only minimal variation between cooperative and non-cooperative alumni within the total alumni sample, it was hypothesized that cooperative and non-cooperative characteristics might well vary within the subsamples of undergraduate curriculum, year of graduation, sex, and

TABLE 4
Characteristics of Total Alumni Sample

	Co-op		Non-Co-op		Total	
Sex						
Male	356	(54.7%)	441	(65.9%)	797	(56.0%)
Female	295	(45.3)	334	(43.1)	629	(44.0)
	X^2 = .619		p > .05			
Race						
White	587	(92.2%)	717	(94.1%)	1304	(93.2%)
Minority (Black, Asian, and Spanish surnamed)	50	(7.8)	45	(5.9)	95	(6.8)
	X^2 = 1.775		p > .05			
Marital Status						
Single	283	(43.5%)	309	(39.9%)	592	(41.5%)
Married	368	(56.5)	466	(60.1)	834	(58.5)
	X^2 = 1.744		p > .05			
Age at Marriage						
20 or less	36	(9.4%)	54	(11.2%)	90	(10.4%)
21 to 22	133	(34.6)	171	(35.6)	304	(35.2)
23 to 24	106	(27.6)	132	(27.5)	238	(27.5)
25 to 26	67	(17.4)	73	(15.2)	140	(16.2)
27 to 28	25	(6.5)	32	(6.7)	57	(6.6)
29 and above	17	(4.5)	18	(3.7)	35	(4.1)
	X^2 = 2.238		p > .05			
Children						
Yes	231	(36.7%)	297	(39.6%)	528	(38.3%)
No	399	(63.3)	453	(60.4)	852	(61.7)
	X^2 = 1.126		p > .05			
Number of Children						
One	78	(33.8%)	107	(36.1%)	185	(39.6%)
Two	118	(51.1)	123	(41.6)	241	(51.6)
Three and above	35	(15.2)	66	(22.3)	41	(8.8)
	X^2 = 6.242		p < .05			
Location						
Urban	257	(39.9%)	324	(41.9%)	581	(41.0%)
Suburban	274	(42.5)	342	(44.2)	616	(43.5)
Rural	113	(17.5)	107	(13.8)	220	(15.5)
	X^2 = 3.683		p > .05			
Major						
Business	113	(17.3%)	139	(18.0%)	252	(17.7%)
Engineering	149	(22.9)	77	(10.0)	226	(15.9)
Liberal Arts	290	(44.5)	423	(54.9)	713	(50.1)
Other majors	100	(15.3)	132	(17.1)	232	(16.3)
	X^2 = 45.208		p < .001			

race. A separate analysis was, therefore, completed for each of these subsamples.

An examination of the responses of the three major undergraduate curricula, as shown in Table 5, does point out some differences from the general pattern of alumni characteristics just described. The engineering alumni who responded to the questionnaire were almost exclusively white males. Respondents from the business alumni group also included a higher percentage of males than did the total alumni sample. Within these two subsamples, cooperative and non-cooperative alumni did not differ significantly. Cooperative and non-cooperative alumni in the liberal arts group, however did differ. The cooperative liberal arts group included a significantly higher percentage of minorities and females than either the business or engineering subsamples, both cooperative and non-cooperative, or the non-cooperative liberal arts sample.

In order to better appreciate the subsequent discussion of the research findings, one should first understand the influence of the uneven distribution of particular characteristics. To be specific, the fact that there was a higher percentage of engineering majors, which is a largely white male group, in the cooperative education sample must be considered in each analysis where cooperative and non-cooperative compared. Similarly, it is useful when considering the data analyses to remember that the non-cooperative sample included a larger percentage of liberal arts majors than the cooperative sample. In order to be sure that the data presented for the total alumni sample is representative, in fact, of all of the alumni, each analysis will also consider the responses of the subsamples. Thus, the data analysis and discussion will take into account any biases that might have been introduced by the sample of alumni respondents. However, it is still useful to realize at the outset that such biases could exsist.

TABLE 5

Characteristics of Alumni Subsamples - Curricula

	Business		Engineering		Liberal Arts	
	Co-op	Non-Co-op	Co-op	Non-Co-op	Co-op	Non-Co-op
Sex						
Male	95 (84.1%)	116 (83.5%)	143 (96.0%)	76 (98.7%)	99 (34.1%)	219 (51.7%)
Female	18 (15.9)	23 (16.5)	6 (4.0)	1 (1.3)	191 (65.9)	205 (48.3)
	X^2 = .002	p > .05	X^2 = .514	p > .05	X^2 = 20.680	p < .001
Race						
White	103 (93.6%)	130 (95.6%)	145 (99.3%)	73 (96.1%)	251 (88.4%)	392 (93.8%)
Minority	7 (6.3)	6 (4.4)	1 (.7)	3 (3.9)	33 (11.8)	26 (6.1)
	X^2 = .155	p > .05	X^2 = 1.445	p > .05	X^2 = 5.722	p < .02
Marital Status						
Single	39 (34.6%)	46 (33.1%)	44 (29.5%)	23 (29.9%)	157 (54.1%)	184 (43.4%)
Married	74 (65.5)	93 (66.9)	105 (70.5)	54 (70.1)	133 (45.9)	240 (56.6)
	X^2 = .011	p > .05	X^2 = .010	p > .05	X^2 = 7.539	p < .01
Children						
Yes	52 (48.6%)	63 (47.0%)	73 (51.0%)	36 (49.3%)	67 (23.8%)	139 (33.7%)
No	55 (51.4)	71 (53.0)	70 (49.0)	37 (50.7)	214 (76.2)	274 (66.3)
	X^2 = .013	p > .05	X^2 = .009	p > .05	X^2 = 7.252	p < .01
Number of Children						
One	16 (31.4%)	20 (31.7%)	20 (27.8%)	16 (44.0%)	30 (44.1%)	47 (34.3%)
Two	29 (56.9)	29 (46.0)	39 (54.2)	13 (36.1)	33 (48.5)	58 (42.3)
Three and above	6 (11.7)	12 (19.1)	13 (18.1)	7 (19.5)	5 (6.4)	32 (23.3)
	X^2 = 1.564	p > .05	X^2 = 3.649	p > .05	X^2 = 8.007	p < .02
Location						
Urban	49 (43.4%)	65 (46.8%)	41 (27.5%)	28 (36.4%)	143 (49.8%)	196 (46.3%)
Suburban	57 (50.4)	62 (44.6)	79 (53.0)	41 (53.2)	93 (32.4)	165 (39.0)
Rural	7 (6.2)	12 (8.6)	29 (19.5)	8 (10.4)	51 (17.8)	62 (14.7)
	X^2 = 1.101	p > .05	X^2 = 3.855	p .05	X^2 = 3.529	p > .05

CHAPTER 4

ALUMNI PERCEPTIONS OF UNDERGRADUATE EXPERIENCE

Change of Major as Undergraduate

The first broad topic to be explored via the Alumni Questionnaire was the effect, if any, of participation in cooperative education on the undergraduate experience, particularly student career development. One index of the persistence of vocational choice is whether or not a student has changed majors as an undergraduate. It was found that approximately one-third of the total alumni sample, both co-op and non-co-op had changed majors as undergraduates. One could assume, therefore, that one-third of all undergraduates had changed their career direction to some extent.

It has been claimed by many cooperative educators that participation in co-op helps students to explore and test their career choice.[15] If this is true, then one would expect that at least some alumni would list co-op as the agent of change in their decision to change majors. In fact, the most common reason cited by co-ops and non-co-ops for changing one's major was that their "interests changed." A comment as general as "interests changed" does not give any information regarding what specifically caused the change of interest. Thus, even though co-op may have resulted in a changed of interest, there is no way to determine whether this was the case. There were, however, some co-op students who did respond specifically that they changed majors because of their co-op experience. An examination of Table 6 shows this to be a small percentage (6.8%) of the reasons given

[15] Ralph W. Tyler, "Values and Objectives," in Handbook of Cooperative Education, by Asa S. Knowles and Associates, (San Francisco: Jossey-Bass, Inc., 1971), pp. 19-20.

for change of major. Further analysis of subsample responses does show that more co-op engineering alumni (18.5%) reported that their co-op experience was the reason they changed majors than any of the other curriculum subsamples.

In summary, the value of co-op with regard to changing majors seems to vary according to undergraduate major. A more accurate determination of the amount of this variance could be found if, in future research, the causes of "interests changed" could be explained further. It is reasonable to infer from the research findings, however, that participation in co-op does act, for some alumni, as an agent of change in the decision to change majors and, concomitantly, career direction.

TABLE 6
Change of Major: Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Was there change of major as undergraduate?				
Yes	212	(32.6%)	269	(35.0%)
No	439	(67.4)	500	(65.0)
	X^2 = .814		p > .05	
Reasons for change of major				
Co-op work experience	14	(6.8%)	0	(0.0%)
Learned more about major	13	(6.3)	31	(11.9)
To prepare better for job market	21	(10.2)	37	(14.2)
Disliked the courses	12	(5.8)	29	(11.1)
Interests changed	101	(49.0)	102	(39.1)
Poor grades	23	(11.2)	29	(11.1)
Other reasons	22	(10.7)	33	(12.6)
	X^2 = 29.657		p < .001	

Types of Undergraduate Work Experiences

In order to determine whether co-op alumni did, in fact, have a unique kind of undergraduate work experience, the types of non-co-op work experiences that both co-op and non-co-op students had were compared. An examination of Table 7 shows that more non-co-ops held a part-time job, a summer job, and/or an internship job than did the co-op students. On the other hand, twice as many co-ops had a College Work-Study job as undergraduates than did the non-co-ops. It is apparent that, although almost all the alumni had some type of work experience as an undergraduate, co-op and non-co-op alumni did have substantially different kinds of work experiences.

TABLE 7
Types of Undergraduate Work Experiences - Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Part-time Job				
Yes	387	(60.4%)	447	(66.8%)
No	254	(39.6)	222	(33.2)
	$X^2 = 5.597$		$p < .02$	
Work-Study Job				
Yes	323	(50.6%)	155	(23.5%)
No	315	(49.4)	504	(76.5)
	$X^2 = 101.187$		$p < .001$	
Summer Job				
Yes	422	(66.6%)	650	(95.7%)
No	212	(33.4)	29	(4.3)
	$X^2 = 184.186$		$p < .001$	
Internship Job				
Yes	96	(15.3%)	136	(20.8%)
No	532	(84.7)	518	(79.2)
	$X^2 = 6.192$		$p < .02$	

These trends varied somewhat for particular subsamples. Fewer engineering co-op majors worked on College Work-Study, summer, or internship jobs than other co-op majors. The major which had the highest percentage of students working on internships or College Work-Study jobs, regardless of whether students were co-op or non-co-op, was liberal arts. In the minority subsample, co-op students were less apt to work on part-time jobs. Significantly more minorities, both co-op and non-co-op, were likely to work on College Work-Study jobs than members of the white subsample. The male and female subsamples were much the same in their response pattern except for the fact that more females, both co-op and non-co-op, participated in internships. This latter fact is not surprising considering the number of females in such fields as nursing, education, and the social sciences, which often have internship components.

One of the interesting outcomes of the analysis of the types of work experiences that undergraduates had was the discovery that a higher percentage of co-ops had College Work-Study experiences as well. This occurrence might be explained by the fact that some co-op jobs are supported by College Work-Study funds. In such instances, jobs that qualify for both the institution's requirements for a co-op position and for participation in the government's Work-Study Program, can be filled by qualified co-op students. This points out the possibility that at least some students who are eligible for Work-Study funds, and therefore have some financial problems, are attracted to cooperative education by the potential to earn money.

Relationship of Undergraduate Work Experience to Academic Major

All alumni were asked to indicate how well their undergraduate work experience was related to their academic major. As the data in Table 8

shows, co-op and non-co-op alumni differed significantly in this regard. Approximately twice as many co-op alumni as non-co-op alumni said that all or most of their work assignments were related to their major.

TABLE 8
Relationship of Undergraduate Work to Academic Major:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
All work related	121	(18.6%)	54	(7.8%)
Most work related	241	(37.0)	102	(14.7)
Some work related	166	(25.5)	153	(22.0)
Little work related	68	(10.4)	125	(18.0)
No work related	55	(8.4)	261	(37.6)

$X^2 = 232.446$ $p < .001$

An examination of the responses of alumni in the curriculum subsamples showed the same overall pattern. There were, however, clear differences among business, engineering, and liberal arts majors with respect to the percent of related jobs. Over twice as many engineering co-op majors stated "all or most" of their jobs were related to their academic majors as did liberal arts majors. The fact that twice as many engineering co-ops reported that their jobs were relevant to their major as compared to liberal arts majors is probably an outgrowth of both the different philosophies held by each program type and the job opportunities available to each major. According to the 1974 Cooperative Education Research Center study of cooperative education programs across the country, the objectives of a cooperative education program in liberal arts are more often concerned with students' personal growth.[16] Engineering programs in cooperative education have traditionally been more concerned with career development. It is thus

[16] James W. Wilson et al., Implementation of Cooperative Education Programs, (Boston: Cooperative Education Research Center, 1975).

consistent with these research findings to discover that the engineering majors were more apt to have co-op jobs closely related to their field of study. It is most important here to remember that significantly more of the co-op alumni, no matter what their major, had at least some related jobs when compared to alumni who had non-co-op types of work experience.

Salaries for Undergraduate Work Experience

Another significant difference was found in the responses of alumni to the question which asked whether the undergraduate work experiences were paid or not. The data showed that more co-ops held volunteer positions than did non-co-ops although the vast majority of both groups were in paid positions. A subsample analysis showed that more males than females were paid for their undergraduate work experience. The fact that more co-ops in general, and more females in particular, received no pay for their work is undoubtedly accounted for by the higher number of volunteer internships or field placements that these two groups participate in.

TABLE 9
Undergraduate Salaries:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Usually paid	574	(88.2%)	642	(93.3%)
Usually volunteer	62	(9.5)	35	(5.1)
Some paid, some volunteer	15	(2.3)	11	(1.6)

$X^2 = 10.919$ $p < .01$

Effect of Undergraduate Work Experience on Choice of Job After Graduation

To continue the exploration of undergraduate work experience, alumni were asked in an open-ended question to explain "to what extent . . . did

your work experience in college affect your choice of job after graduation." An analysis of the responses to the question shows that twice as many non-co-ops as co-ops felt their work experience had little or no effect on their choice of job. On the other hand, as an examination of Table 10 demonstrates, more former co-op students than non-co-ops said their work experiences confirmed their career choice, taught them more about job situations, changed their career choice, became their full-time jobs after graduation, helped them find a job after graduation, increased their skills or increased their self-knowledge. These data indicate clearly that over 75 percent of the former cooperative education students felt their work experiences had some impact on their choice of job after graduation. Less than 50 percent of the former non-co-ops expressed similar feelings.

TABLE 10
Effect of Undergraduate Work Experience on Choice of Job After Graduation: Responses of Total Alumni Sample

Effects Cited	Co-op			Non-Co-op		
Little or no effect	147	(23.9%)		357	(56.0%)	
Confirmed career choice	105	(17.1)		90	(14.1)	
Learned more about jobs	94	(15.3)		44	(6.9)	
Changed career choice	73	(11.9)		34	(5.3)	
Became job after graduation	91	(14.8)		30	(4.7)	
Helpful in finding job after graduation	32	(5.2)	76.1%	28	(4.4)	44.0%
Increased skills	37	(6.0)		28	(4.4)	
Increased self-knowledge	13	(2.1)		12	(1.9)	
Other effects	22	(3.6)		14	(2.2)	

$X^2 = 154.697$ $p < .001$

Subsample analysis showed that a higher percentage of non-co-op males claimed their undergraduate work experience had little or no effect on their job choice than did the non-co-op females. It is reasonable to assume that this difference was a result of the greater participation, by

non-co-op females, in internship experiences. This affirms the findings from the total alumni sample: participation in major-related work experience, as an undergraduate, does affect one's choice of job after graduation.

Completeness of Career Information

A significantly higher percentage of the co-op alumni stated they had received adequate career information in college than did the non-co-op alumni. This assessment, however, seems to have changed over time. The differences between co-op and non-co-op alumni's assessment of career information were significant beyond the .01 level for the years of 1965 and 1970, but fell short of the .05 level of significance for the year 1974. This could be a sign that recent efforts toward improving career education, for all college students, are beginning to have an effect.

TABLE 11
Completeness of Undergraduate Career Information: Total Alumni Sample Response

	Co-op		Non-Co-op	
Adequate	299	(46.1%)	254	(33.5%)
Somewhat adequate	206	(31.7)	242	(31.9)
Inadequate	144	(22.2)	262	(34.6)
	$X^2 = 32.602$		$p < .0001$	

A comparison of curriculum subsamples shows that overall, liberal arts majors felt they received less adequate career information than did engineering or business majors. Within the group of liberal arts respondents, co-op males expressed greater satisfaction with the career information they have received than did either the non-co-op males or the co-op and non-co-op females. This finding suggests the possibility that participation in cooperative education may have special benefits for male liberal

arts students. This possibility will be re-examined in later sections of the report.

Information Available About Job Opportunities

As with the previous item, more co-op alumni felt they were very or fairly well informed upon graduation about job opportunities than did the non-co-ops. Again, significantly more engineering and business majors than liberal arts majors indicated they were very or fairly well informed. In addition, more liberal arts co-op males were very or fairly well informed than co-op females. This is consistent with the finding, discussed in the previous section, that cooperative education may play a particular role in the career development of liberal arts males.

TABLE 12
Information Available About Job Opportunities:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Very well informed	142	(22.3%)	108	(14.2%)
Fairly well informed	266	(41.7)	309	(40.7)
Not too well informed	143	(22.4)	216	(28.5)
Very poorly informed	87	(13.6)	126	(16.6)

$X^2 = 19.490$ $p < .001$

Sources of Career Information

A possible explanation for the differences in degree of career preparation reported by co-op and non-co-op alumni may be found by examining the sources of career information cited by each group. Almost half of the co-op graduates reported that either their co-op coordinator or the people they met on their jobs were their prime source of career information as an undergraduate. The non-co-op sample, however, received career information

largely from the teaching faculty or, to a lesser extent, from the Senior Placement Office. In addition, twice as many non-co-ops indicated they had not received career information at all.

TABLE 13
Sources of Undergraduate Career Information:
Responses of Total Alumni Sample

	Co-op			Non-Co-op	
Faculty	178	(28.3%)		306	(40.9%)
Senior Placement Office	64	(10.2)		138	(18.4)
Counselling Office	24	(3.8)		40	(5.3)
Co-op, field, or internship coordinator	143	(22.7)	44.2%	16	(2.1)
People on job	135	(21.5)		85	(11.3)
No one	36	(5.7)		83	(11.1)
Other	49	(7.8)		81	(10.8)
	$\chi^2 = 204.598$			$p < .001$	

Although subsample analysis showed that the engineering and liberal arts co-op responses were not statistically different, the sources of career information cited by the two groups were different enough to indicate certain trends. For example, almost twice as many liberal arts co-op alumni as engineering co-op alumni reported that the teaching faculty was their primary source of career information. On the other hand, the Senior Placement Office and the co-op placement coordinators were a stronger influence for the engineering co-ops. This finding is consistent with the fact that greater emphasis is placed, in liberal arts co-op programs, on faculty participation in cooperative education.[17]

Co-op Alumni Perceptions of Their Co-op Experiences

Alumni of co-op programs were asked what they felt was the most beneficial aspect of participation in cooperative education. The most

[17] James W. Wilson et al., Implementation of Cooperative Education Programs, (Boston: Cooperative Education Research Center, 1975).

frequent response by far was that the actual work experience was of greatest benefit to them; that is, learning about the work environment, administrative structure, and job responsibilities in specific career areas. Actual responses may be found in Appendix E. Data analysis revealed some interesting differences between the responses of liberal arts and non-liberal arts institutions regarding other benefits. Of secondary importance to the alumni of the seven non-liberal arts co-op institutions was the ability to earn money to help defray costs of tuition. On the other hand, the alumni of the five basically liberal arts co-op colleges in the study responded that the development of feelings of independence and exposure to the "real world" were of secondary importance. None of the liberal arts majors mentioned the ability to earn money as a benefit.

In order to discover some of the problems encountered by co-op students, alumni were asked to indicate what they felt was the least beneficial aspect of participation in cooperative education. Approximately one fifth of the alumni said that their experiences were totally beneficial and did not comment further. Of those alumni who did mention problems, the complaint most commonly reported was that the work was "too boring" or was "not relevant enough." The alumni of the non-liberal arts institutions were also concerned with the extra year of school required of all co-op students. The liberal arts alumni, on the other hand, expressed concern about the problems involved in relocating for their jobs. These findings are consistent with the data on co-op program types and their relationship to program objectives which is reported in Implementation of Cooperative Education Programs.[18]

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[18] James W. Wilson et al., Implementation of Cooperative Education Programs, (Boston: Cooperative Education Research Center, 1975).

These perceptions of the co-op alumni concerning their co-op experiences are consistent with the findings presented on the effects of undergraduate work experiences. Data show that participation in co-op experiences, overall, results in more advanced career development than participation in other forms of undergraduate work experience.

Alumni Attitudes Toward Their Alma Mater

Another issue this research sought to explore was whether participation in co-op would affect one's satisfaction with the undergraduate experience as a whole. Co-op and non-co-op alumni responded similarly: over half of both groups indicated they were fully satisfied with their undergraduate education. An analysis of subsample responses showed similar reactions for all but the minority subsample. In the minority subsample, the minority co-ops showed more satisfaction than the minority non-co-ops and the co-ops and non-co-ops in the total alumni sample. While this difference was not quite statistically significant, due to the small size of the minority subsample, it is large enough to suggest a decided trend.

As a somewhat more indirect measure of satisfaction with undergraduate education, alumni were asked whether they would like a member of their family to attend their alma mater (assuming the institution offered the appropriate field of study). The majority of both co-op and non-co-op alumni responded they would. Alumni responses to this and the previous item indicate that participation in cooperative education does not seem to have an effect on the overall satisfaction with their alma mater.

In spite of this professed satisfaction with their alma mater, approximately half of the total alumni sample had not maintained any relationship at all with their undergraduate institutions. Of the

approximately 35 percent that did remain in contact, only a small percentage actively participated in alumni activities; the rest donated money. Not unexpectedly, significantly more alumni from the class of 1965 donated money than those from the class of 1974. An improvement in one's financial status has a direct relationship to alumni donations.

TABLE 14
Alumni Attitudes Toward Alma Mater:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Satisfaction with alma mater				
Fully satisfied	339	(53.0%)	407	(53.4%)
Partially satisfied	278	(43.4)	328	(43.0)
Dissatisfied	23	(3.6)	27	(3.5)
	X^2 = .028		p > .05.	
Would like family member to attend alma mater				
Yes	508	(82.2%)	617	(83.0%)
No	110	(17.8)	126	(17.0)
	X^2 = .113		p > .05	
Participation in alumni activities				
Active participation	57	(8.9%)	81	(10.6%)
Give money only	200	(31.1)	310	(40.7)
No participation	386	(60.0)	370	(48.6)
	X^2 = 18.451		p < .01	

A comparison of co-op and non-co-op alumni responses in the total alumni sample showed statistically significant differences in the level of participation in alumni activities. Fewer co-op alumni participated in alumni activities or donated money than did the non-co-op alumni. One

explanation for this result is that participation in cooperative education, which requires students to leave campus for periods of time, does loosen the students' ties to the college.

The data presented in this section showed that co-op and non-co-op alumni do not differ greatly in their basic attitudes toward their alma mater. Thus, although participation in cooperative education seems to affect alumni's perceptions of their undergraduate career development, it does not seem to affect the view of their overall educational experience.

CHAPTER FIVE

POST-GRADUATION EXPERIENCES OF ALUMNI

Types of Activities Pursued

The next series of questions examine which types of activities co-op and non-co-op alumni were most apt to engage in after graduation from their undergraduate institution: full-time employment; graduate school; part-time employment; travel; homemaking; military service. As an examination of Table 15 shows, alumni of co-op and non-co-op programs had significantly different post-graduation activities. Most noteworthy was the finding that more co-op alumni secured full-time employment than did the non-co-op alumni. A corollary of this statement is that more non-co-op alumni engaged in the other activities listed. The following sections will describe, where applicable, any pertinent variations in the responses of subsample members to this series of questions.

TABLE 15
Post-Graduation Activities:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Full-time employment	547	(85.2%)	603	(80.5%)
	$X^2 = 4.997$		$p < .05$	
Graduate School	286	(45.5%)	376	(51.8%)
	$X^2 = 5.015$		$p < .05$	
Part-time employment	171	(27.1%)	238	(33.4%)
	$X^2 = 5.487$		$p < .02$	

TABLE 15 (continued)

	Co-op		Non-Co-op	
Travel	212	(34.0%)	272	(38.2%)
	$X^2 = 2.326$		$p > .05$	
Homemaker	126	(20.4%)	194	(27.5%)
	$X^2 = 8.751$		$p < .01$	
Military	52	(8.4%)	85	(12.1%)
	$X^2 = 4.507$		$p < .05$	

Full-Time Employment

Although it is evident that there were differences in the proportions of co-op and non-co-op alumni who worked full-time after graduation, upon closer examination it becomes apparent that particular subsamples displayed these differences more clearly than others. For instance, female co-op and non-co-op alumni did not differ with regard to the percentage of alumni working full-time after graduation. In contrast, significantly fewer male non-co-ops report they were employed full-time after graduation than either male co-ops or co-op and non-co-op females. Of particular interest, however, is the fact that more co-op males in liberal arts (70.1%) reported they were employed than did non-co-op males (61.7%). This is an additional piece of evidence to support the notion that co-op may have special benefits for liberal arts males.

Graduate School

The total alumni sample results indicated that more non-co-op alumni attended graduate school after college than co-op alumni. Again, an

examination of subsample results presents a clearer picture. Looking at the curriculum subsamples one can see that while this difference between co-op and non-co-op alumni is true for members of the liberal arts subsample, it is not true for either business or engineering alumni. Although the sample size was too small to produce a reliable difference, a comparison of the race subsamples showed a distinctly higher percentage of minority alumni pursuing graduate education after college than white alumni. This is largely due to the fact that there were more liberal arts majors in the minority subsample than in the white subsample.

Part-Time Employment

As with the post-graduation activity of full-time employment, the respondents in the sex and curriculum subsamples differed most regarding part-time employment. More females reported they worked part-time after graduation than did males. A higher percentage of liberal arts majors reported they worked part-time after graduation than either business or engineering majors. In addition, significantly more non-co-op males reported they worked part-time after graduation when compared to co-op males.

Homemaker

Significantly fewer co-op alumnae (20.4%) reported they became homemakers after graduation from college than did the non-co-op alumnae (25.5%). Because the statistical probability that this difference would occur by chance is low (.01) and because this research project is concerned with possible effects of participation in cooperative education upon females, additional analyses of data were undertaken. In particular,

an analysis was made of the responses of alumnae in the classes of 1965, 1970, and 1974 with regard to their marital status and number of children.

Although not quite reaching a level of statistical significance, there were decidedly more single female co-ops in the classes of 1970 and 1974 than there were single female non-co-ops. Of those alumnae in the classes of 1970 and 1974 who were married, a higher percentage of non-co-ops got married prior to the age of 25. In addition, a significantly higher percentage of non-co-op alumnae in the class of 1970 reported having children as compared to the co-op females in the same class. Interestingly, co-op and non-co-op alumnae from the class of 1965 did not differ significantly in these characteristics.

When the marital status of alumnae was compared to that of male alumni, it became apparent that while there was no difference between the male and female non-co-op alumni, there was a difference between male and female co-op alumni. Significantly more female co-ops reported they were single than either non-co-op females or co-op and non-co-op males. Similarly, significantly fewer female co-ops reported they had children than did the non-co-op females or the co-op and non-co-op males.

These data suggest that co-op alumnae who participated in this study marry and have children later in life than do females who have not participated in cooperative education. In addition, fewer co-op women became homemakers after college. The data further showed that by the time a woman had been out of college for ten years, approximately equal proportions of co-op and non-co-op women were married and had children. Thus, the differences noted between co-op and non-co-op alumnae disappeared over time. An explanation of these data may well be the fact that as a result of participation in cooperative education, women may perceive pursuing a career as a viable alternative to the more traditional post-graduation pattern of marriage and homemaking.

TABLE 16

Characteristics of Female Respondents

	Class of 1965		Class of 1970		Class of 1974	
	Co-op	Non-Co-op	Co-op	Non-Co-op	Co-op	Non-Co-op
Marital Status						
Single	21 (31.8%)	18 (39.2%)	40 (43.0%)	34 (35.5%)	84 (72.4%)	65 (60.2%)
Married	45 (68.2)	71 (69.8)	53 (57.0)	62 (64.5)	32 (27.6)	43 (39.8)
	X^2 = 1.600	p > .10	X^2 = .846	p > .05	X^2 = 3.226	p > .05
Age at marriage						
20 or less	5 (9.8%)	6 (7.8%)	5 (9.1%)	4 (6.5%)	6 (18.2%)	11 (25.0%)
21 to 22	20 (39.2)	27 (35.1)	20 (36.4)	34 (54.8)	18 (54.5)	28 (63.6)
23 to 24	14 (27.5)	25 (32.5)	10 (18.2)	18 (29.0)	7 (21.2)	5 (11.4)
25 to 26	7 (13.7)	13 (16.9)	16 (29.1)	4 (6.5)	1 (3.0)	-- ---
27 to 28	2 (3.9)	4 (5.2)	4 (7.3)	1 (1.6)	1 (3.0)	-- ---
28 and up	3 (5.9)	2 (2.6)	-- ---	1 (1.6)	-- ---	-- ---
	X^2 = 2.525	p > .05	X^2 = 15.663	p < .05	X^2 = 4.498	p > .05
Children						
Yes	40 (61.5%)	63 (72.4%)	23 (25.0%)	38 (40.4%)	7 (6.4%)	8 (7.8%)
No	25 (38.5)	24 (27.6)	69 (75.0)	56 (59.6)	103 (93.6)	94 (92.2)
	X^2 = 1.547	p > .05	X^2 = 4.341	p < .05	X^2 = .023	p > .05

Extent Alumni Felt Prepared for First Job

A chi square analysis showed significantly different responses from co-op and non-co-op alumni, with more former co-ops stating that their preparation for their first job was excellent than did the non-co-ops. This is consistent with the findings, cited earlier in this report, which demonstrated that co-op alumni felt better informed about post-graduation job opportunities, in addition to other types of career information, than did the non-co-op alumni.

TABLE 17
Extent of Preparation for First Full-Time Job:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Excellent	210	(36.0%)	156	(23.4%)
Adequate	302	(51.8)	402	(60.2)
Inadequate	71	(12.2)	110	(16.5)

$X^2 = 24.914$ $p < .001$

An examination of subsample responses revealed some interesting variations from the total alumni sample response pattern. Co-op and non-co-op engineering majors did not differ significantly with regard to the extent they felt prepared for their first job. Co-ops and non-co-ops in liberal arts did differ significantly but their response patterns followed the same trend set by the total alumni sample. A comparison of co-op and non-co-op business majors, on the other hand, revealed a marked difference between the numbers who felt they received excellent preparation for their first full-time job: twice as many co-ops as non-co-ops reported excellent career preparation.

Relationship Between First Job and Undergraduate Major

Once again, statistically significant differences were found between the responses of co-op and non-co-op alumni. As the data in Table 18 demonstrate, the co-op alumni were more concerned with finding jobs which would utilize the knowledge and skills gained in college and, in fact, were more successful in finding relevant jobs.

TABLE 18
Relationship of First Job to Undergraduate Major: Responses of Total Alumni Sample

Extent Job Related to Major	Co-op		Non-Co-op	
Much	232	(39.6%)	230	(34.1%)
Some	249	(42.5)	262	(38.9)
Very little	105	(17.9)	182	(27.0)
	$X^2 = 14.924$		$p < .001$	

Extent Wanted Job to Relate to Major	Co-op		Non-Co-op	
Very important	273	(46.8%)	270	(40.3%)
Hoped it was related	227	(38.9)	236	(35.2)
Did not care	83	(14.2)	164	(24.5)
	$X^2 = 20.813$		$p < .001$	

Of particular interest is the observation that non-co-op males, once again, responded quite differently from co-op males and all females. Non-co-op males indicated significantly less concern with finding a related job after college and, in fact, fewer found relevant jobs. This finding was consistent for males in all three curriculum subsamples. Another result, which is compatible with previous research findings, is that co-op business majors expressed greater interest in and success in finding a related job after graduation than their non-co-op counterparts

or members of other curriculum subsamples. Overall, liberal arts majors were least likely to want or to secure a related first job.

Time of First Job

The majority of alumni in the total alumni sample found their first job within six months after graduation from their undergraduate institution. It is interesting to note, however, that a higher percentage of the co-op alumni sample (76.3%) got their first job within six months after graduation than the non-co-op alumni sample (69.4%).

Characteristics of First Job

The next series of items on the Alumni Questionnaire explored various characteristics of the alumni's first job: job title; job location; type of employer; starting salary; method of finding job; satisfaction with job; number (if any) of raises and promotions received. With the exception of the alumni's first job title, co-op and non-co-op graduates differed with regard to these characteristics. The following sections will describe these differences.

Relocated for First Job

Over one-third of all alumni in the total alumni sample relocated in order to get their first job. An examination of the subsample responses, however, did reveal a number of differences between co-op and non-co-op alumni. Although there was only a minimal difference between the percentage of co-op males and females who relocated, 18 percent more of the non-co-op males relocated when compared to the non-co-op females. One interpretation of these findings is that the co-op experience encourages females to be as receptive as males to the idea of relocating for a job. Another explanation is that fewer non-co-op females relocated because for some

unknown reason this group was more successful in finding employment locally and, therefore, felt no need to relocate. Obviously the data cannot substantiate either of these interpretations, which suggests the need for further research.

TABLE 19
Relocated for Job:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Yes	215	(37.1%)	247	(36.5%)
No	364	(62.9)	429	(63.5)

$X^2 = .025$ $p < .05$

Inspection of the data in the other subsamples shows that alumni of the Class of 1965 were considerably more likely to relocate for their first job than alumni of the Class of 1974. Of the three curriculum subsamples, business majors were least likely to relocate and engineering majors, especially the non-co-ops, were most likely to relocate.

Type of Employer

The question asking alumni to identify the type of employer they worked for revealed minimal differences between co-op and non-co-op graduates. The majority of the members of the total alumni sample worked for either a large private company (100 or more employees) or a social agency. More co-op alumni worked for the larger private companies while more non-co-op alumni worked at social agencies. These tendencies were undoubtedly due to the fact that there were more engineering majors in the co-op sample and there were more liberal arts majors in the non-co-op sample. Approximately three times as many of the engineering alumni worked in larger private companies as did the liberal arts alumni, many of whom worked in social agencies.

TABLE 20
Type of Employer
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Private company - 100 or more employees	236	(41.0%)	236	(34.9%)
Private company - fewer than 100 employees	78	(13.6)	87	(12.9)
Self employed	5	(.9)	11	(1.6)
Government	81	(14.1)	112	(16.6)
Social agencies (i.e., schools, hospitals)	148	(25.7)	205	(30.3)
Military	11	(1.9)	11	(1.6)
Other	16	(2.7)	14	(2.1)
	$X^2 = 8.961$		$p > .05$	

Method of Locating First Job

Responses show that one-fourth of the total co-op alumni sample worked for a former co-op employer. A review of the responses of the subsample, however, showed that significantly more co-op males worked for former co-op employers than did co-op females. This result is related to the fact that there were fewer females in business or engineering curricula, where almost 40 percent of the first jobs were with former co-op employers. These data substantiate a report published by the Detroit Institute of Technology's Cooperative Education Research Center[19] which shows a 49 percent retention rate of co-ops at graduation. This somewhat higher retention rate is undoubtedly a reflection of the fact that the majority of the participants in the Detroit study were males and engineering majors. The Detroit Institute of Technology's findings also help to substantiate

[19] Richard A. Hayes and Jill H. Travis, Employer Experience With Cooperative Education: Analysis of Costs and Benefits, (Detroit: Detroit Institute of Technology, 1976), p.7.

the statements made by alumni participating in this research who reported that cooperative education is valuable in finding job opportunities after graduation.

TABLE 21
How Located First Job
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Graduate Placement	102	(17.6%)	129	(19.1%)
Employment Agency	42	(7.3)	42	(6.2)
Former co-op or internship job	146	(25.3)	53	(7.8)
Via contact person	108	(18.7)	187	(27.7)
Ad in newspaper, journal, etc.	58	(10.0)	62	(9.2)
Faculty	31	(5.4)	35	(5.2)
Former part-time or summer employer	9	(1.6)	20	(3.0)
Contacted company	55	(9.5)	92	(13.6)
Other methods	27	(4.7)	56	(8.3)
	$X^2 = 84.625$		$p < .001$	

The method of finding a job which was selected most often by the non-co-op alumni, and second most often by the co-op alumni, was "through a friend, relative, or other contact person." Utilization of the college's Senior Placement Office ranked second or third as a method of finding a job. Whereas the co-op and non-co-op alumni of the Class of 1965 cited the Senior Placement Office services as the most common method of finding a job, the Class of 1974 non-co-op alumni ranked this method second and the co-op alumni gave it third place. Perhaps it is a reflection of the current job market that more alumni, especially non-co-ops, turn to personal contacts instead of to the Senior Placement Office.

Salary Levels on First Job

In order to provide data that would address the claim that graduates of co-op programs receive higher starting salaries than do graduates of

other undergraduate programs, all alumni were asked to indicate their starting salary on their first job. While about three fourths of the total alumni sample reported their starting salaries to be less than $10,000/year, a statistically significant proportion of the co-op alumni earned more than $10,000. This difference is particularly noticeable in the $10,000 to $11,000 bracket which includes seven percent more co-op alumni than non-co-op alumni.

TABLE 22
Salary Levels on First Job:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
$ 5,999 or below	125	(22.3%)	160	(24.9%)
6,000 - 7,999	158	(28.2)	204	(31.6)
8,000 - 9,999	129	(23.0)	145	(22.6)
10,000 - 11,999	96	(17.1)	66	(10.2)
12,000 - 13,999	35	(6.2)	50	(7.8)
14,000 and above	17	(3.3)	19	(3.0)
	$X^2 = 13.597$		$p < .05$	

Analysis of subsample responses yielded the following additional salary data: females earned significantly less than males, even in comparisons of males and females in the same majors; liberal arts alumni earned the least and engineers earned the most; starting salary levels have increased from 1965 to 1974.

Because of the attention given to this purported benefit of cooperative education, an additional analysis of the data was done. It was hypothesized that those alumni who were co-op students and who remained with their first full-time jobs might earn higher starting salaries than those who did not stay at their undergraduate co-op jobs. Due to the limitations of the sample size and thus, the available data, the analysis is based only upon the responses of business and engineering alumni. For these two

groups of alumni, data analysis showed that the hypothesis was correct. Of those co-op alumni who remained with their former co-op employer, 45 percent were earning $11,000 a year or more. On the other hand, of those co-op alumni who did not remain at their former co-op jobs, only 23 percent were earning $11,000 per year or more. This difference is statistically significant and points out that the starting salary of a graduate of a co-op program is highest if that graduate remains with his undergraduate employer. Nevertheless, even if a co-op does not stay with his former co-op employer, the data from the total alumni sample indicate that the starting salary level of all co-ops is somewhat higher than that of the non-co-ops.

It is interesting to compare the data obtained in this study on the subject of starting salary levels with some of the findings of other research studies. In the national study of alumni conducted by Wilson and Lyons, the salary differences between co-ops and non-co-ops were found to be statistically negligible one year and three years after their graduation. A study conducted by Gore, summarized in the November of 1972 Journal of Cooperative Education, showed no difference in the starting salary levels of co-op and non-co-op students. That study only included alumni from one institution and the results, therefore, cannot be generalized. Data supporting the findings of this study can be found in the doctoral dissertation by William Yensco. He compared engineering alumni from eight engineering programs and found the starting salary of the co-op alumni to be higher than that of the non-co-op alumni.

Considering both the findings of this research study and the results of other research projects, it can be said that participation in co-op generally leads to a higher starting salary for at least engineering and business majors. The advantage gained by co-op participants is further

enhanced when the co-op student remains with his former undergraduate co-op employer on a full-time basis after graduation. Thus, one could conclude that co-op contributes to this particular aspect of career development.

Satisfaction With First Job

Approximately 85 percent of the total alumni sample, both co-op and non-co-op, indicated that they were fully or partially satisfied with their first full-time jobs. Subsample responses showed that liberal arts majors and minorities, many of whom are liberal arts majors, were noticeably less satisfied with their first jobs than were the other alumni. The dissatisfaction, particularly of liberal arts majors, may well be a reflection of a poor job market, which has led to an irrelevant or unchallenging job. Participation in cooperative education does not seem to have any effect on alumni's feelings of satisfaction with their first jobs, either in the total alumni sample or in particular subsamples.

TABLE 23
Satisfaction With First Job:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Fully satisfied	240	(41.2%)	301	(44.7%)
Partially satisfied	256	(44.0)	274	(40.7)
Dissatisfied	86	(14.8)	99	(14.7)

$X^2 = 1.672$ $p > .05$

Promotions and Raises on First Job

In order to determine whether participation in cooperative education had an effect on the number of promotions or merit pay increases, alumni were asked if they had received either promotions or merit pay increases,

the number of each, the dates they were received, and the reasons for the change. Unfortunately, many alumni, especially those from the class of 1965, were not able to recall much of this information. Those responses that were recorded, as summarized in Table 24, show no appreciable difference between co-op and non-co-op alumni in the number of promotions or merit pay raises on their first jobs. Of those respondents who did not receive raises, significantly more non-co-op alumni indicated that their employers were unable to give increases than did the co-op alumni, a reflection of the fact that more non-co-op alumni were working in social agencies.

TABLE 24
Promotions and Raises on First Job:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Any promotions on job				
Yes	250	(43.6%)	281	(42.3%)
No	323	(56.4)	384	(57.7)
	X^2 = .184		p > .05	
Number of promotions				
One	135	(58.2%)	150	(59.1%)
Two	52	(22.4)	61	(24.0)
Three	31	(13.4)	26	(10.2)
Four or more	14	(6.0)	17	(6.7)
	X^2 = 1.241		p > .05	
Any raises on job				
Yes	316	(54.9%)	338	(50.7%)
No	260	(45.1)	329	(49.3)
	X^2 = 2.008		p > .05	
Number of raises				
One	142	(57.0%)	128	(54.2%)
Two	43	(17.3)	43	(18.2)
Three	26	(10.4)	31	(13.1)
Four or more	38	(15.2)	34	(14.4)
	X^2 = 1.039		p > .05	
Is employer able to give raises				
Yes	89	(42.4%)	88	(31.3%)
No	121	(57.6)	193	(68.7)
	X^2 = 5.910		p < .05	

Although there were only minimal differences between co-op and non-co-op alumni regarding the number of raises or promotions received, there were significant differences between subsamples. Once again, females and liberal arts majors received fewer raises or promotions. This is consistent with the data which show that many of the employers of females and liberal arts majors were not as able to give raises or promotions. Of those alumni who said that they did receive raises and/or promotions, both sexes and all majors were quite similar in the actual numbers of raises or promotions received.

The findings of the Detroit Institute of Technology study, discussed previously, do reveal differences between co-op and non-co-op employees in their salary and promotion histories. However, their data are based on a select group composed primarily of male engineers who are working for former co-op employers. For other co-op graduates, who may not remain with a former co-op employer, participation in co-op does not seem to affect the number of raises or promotions received on the first job.

Employment Patterns

Of the 1235 members of the total alumni sample who indicated they had worked on a full-time job after graduation, almost two-thirds were no longer working at their first place of employment. This proportion varied significantly among the subsamples. Liberal arts majors and females, many of whom were liberal arts majors, were least likely to have remained at their first place of employment. Fewer non-co-op males in liberal arts remained at their first place of employment, when compared with co-op male liberal arts alumni. This latter finding adds to the evidence which indicates that participation in co-op may have special effects for male liberal arts students.

TABLE 25
Employment Patterns:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Still at first place of employment				
Yes	231	(40.6%)	242	(36.3%)
No	338	(59.4)	424	(63.7)
	$X^2 = 2.181$	$p > .05$		
Now at other job				
Yes	226	(66.7%)	258	(60.7%)
No	113	(33.3)	167	(39.3)
	$X^2 = 2.635$	$p > .05$		
Reason stopped working				
Laid off	10	(8.3%)	14	(8.1%)
Relocation	11	(9.2)	22	(12.8)
Marriage	10	(8.3)	16	(9.3)
Have baby	20	(16.7)	49	(28.5)
Go to graduate school	34	(28.3)	30	(17.4)
Other	35	(29.2)	41	(23.9)
	$X^2 = 13.092$	$p < .05$		
Number of jobs since first				
One	131	(42.8%)	151	(37.2%)
Two	65	(21.2)	91	(22.4)
Three	40	(13.1)	56	(13.8)
Four or more	27	(8.8)	27	(6.5)
None	43	(14.1)	81	(20.0)
	$X^2 = 10.633$	$p < .05$		

There were 762 alumni who indicated that they were no longer working at their first place of employment. Whereas most of the males reported that they were now working full-time at another job, only half of the female alumnae indicated the same. Reasons for leaving work were also different for males and females. More males were not working due to being

laid off or returning to graduate school, and more females left the working world to get married, to relocate, to have babies, or to return to graduate school.

Of special interest is the fact that more of the co-op females (50.8%) than the non-co-op females (40.8%) who were no longer at their first place of employment were still employed, although in different jobs. In contrast, significantly more non-co-op females were no longer employed because they had left their job to have a baby. Thus, a significant proportion of the female co-op alumni pursued different paths after college when compared to the non-co-op females. This is consistent with the findings reported earlier which indicated that co-op women might choose less traditional post-graduation activities.

One other finding concerning the decision to leave a first place of employment is noteworthy: fewer liberal arts alumni, when compared with other majors, continued working full-time and more returned to graduate school.

The next question on the Alumni Questionnaire asked alumni to record the number of jobs they had held since their first full-time job. The majority of the alumni in both co-op and non-co-op had worked at one or two jobs since the first one.

Approximately two-thirds of the alumni who indicated that they were no longer at their first place of employment, reported that they had experienced at least some change in their career direction. The most stable subsample in this regard was the co-op engineering alumni.

Promotions and Raises Since First Job

Alumni were asked to record the number of raises and promotions they had received since their first job. In the total alumni sample, about half of the alumni indicated that they had received either raises or

promotions. Consistent with previous subsample analyses, fewer females and liberal arts majors received merit raises or promotions. Those females who did, generally received fewer raises or promotions than did members of the male subsample or the business and engineering subsamples. Although the minority subsample was too small to produce statistically significant data on this question, almost twice as many co-ops in the minority subsample, when compared to the non-co-ops in that subsample, indicated that they had received merit raises and/or promotions. It would be useful to study, using a larger sample size, patterns of minorities' responses in order to determine whether or not this outcome was part of a larger career development pattern for co-op and non-co-op minorities.

TABLE 26
Promotions and Raises Since First Job:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Raises since first job				
Yes	179	(55.2%)	207	(62.0%)
No	145	(44.8)	191	(48.0)
	X^2 = .628		p > .05	
Number of raises received				
One	45	(33.8%)	57	(40.7%)
Two	32	(24.1)	28	(20.0)
Three	17	(12.8)	19	(13.6)
Four	16	(12.0)	13	(9.3)
Five or more	23	(17.3)	23	(16.4)
	X^2 = 3.923		p > .05	
Promotions since first job				
Yes	157	(49.7%)	169	(43.7%)
No	159	(50.3)	218	(56.3)
	X^2 = 2.294		p > .05	
Number of promotions received				
One	59	(47.6%)	78	(57.8%)
Two	38	(30.6)	26	(19.3)
Three	19	(15.3)	16	(11.9)
Four and up	8	(6.4)	15	(11.1)
	X^2 = 13.700		p < .05	

There was also a significant difference between the percentage of male and female non-co-ops who received merit raises, whereas there was no such difference between male and female co-ops. Perhaps participation in co-op served as an equalizing effect for women in aspects of their career development.

CHAPTER SIX

CURRENT ACTIVITIES OF ALUMNI SAMPLE

Current Employment Situation

Job Title

In contrast to the data presented earlier regarding alumni's first job, noticeably more alumni in the total sample are currently working in managerial positions. Although generally there are only minimal differences between co-ops and non-co-ops with regard to the types of jobs they hold, there are a couple of exceptions which should be explained. Co-op and non-co-op males differed significantly according to a chi-square analysis of the data. A higher percentage of male co-ops worked as professional employees, whereas more male non-co-ops worked as managerial, clerical, and sales personnel. This pattern exists for males in all three curriculum subsamples.

TABLE 27
Current Job Titles:[20]
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Professionals	328	(67.0%)	326	(59.9%)
Managers	87	(17.8)	118	(21.7)
Clerical workers	32	(6.5)	49	(9.0)
Sales workers	19	(3.9)	30	(5.5)
Craftspeople, operatives, laborers, service workers	23	(4.7)	21	(3.9)
	$\chi^2 = 7.916$		$p > .10$	

[20] Classification scheme taken from the 1974 Omnibus Occupation Code.

There were also some noteworthy differences between the responses of co-op and non-co-op females. Because some cooperative educators have claimed that participation in cooperative education may encourage females to pursue non-traditional careers,[21] a special analysis was conducted on the types of jobs held by co-op and non-co-op females. Jobs were classified either as jobs traditionally held by women, such as teacher, nurse, librarian, social worker, or secretary, or jobs non-traditionally held by women, such as doctor, manager, engineer, lawyer, or technician.[22] Co-op and non-co-op females were then compared to determine whether there were differences in the numbers working in non-traditional jobs.

Although there were no real differences between co-op and non-co-op females in the classes of 1974 and 1970, there was a noteable difference for the class of 1965 females. Due to the small sample size, the difference was not quite statistically significant. However, an examination of Table 28 clearly shows that many more of the class of 1965 co-ops are currently working in non-traditional jobs than are the non-co-ops. This provides additional evidence that a significant proportion of the females who participated in cooperative education followed different, more career-oriented paths than the non-co-op females. Further study, however, is needed to determine whether the generally still low numbers of females in these fields is due to a lack of interest on the part of females in pursuing non-traditional careers, to a lack of effectiveness on the part of educators in encouraging women to pursue new types of careers, or to both.

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[21] Harriet P. Van Sickle, "Professional Development of Women," in Handbook of Cooperative Education, by Asa S. Knowles and Associates, (San Francisco: Jossey-Bass, Inc., 1971), p. 267.

[22] Dixie Sommers, "Occupational Rankings for Men and Women by Earnings," in Monthly Labor Review, (reprint 2988 from August 1974).

TABLE 28
Traditional and Non-Traditional Job Titles:
Responses of Females

	Female Co-op		Female Non-Co-op	
Class of 1965	(1)		(2)	
Traditional jobs	20	(57.1%)	68	(80.9%)
Non-traditional jobs	15	(42.9)	9	(19.1)
t test of (1) versus (2) = 1.823		$p > .05$		
Class of 1970	(3)		(4)	
Traditional jobs	66	(83.5%)	81	(90.0%)
Non-traditional jobs	13	(16.5)	9	(10.0)
t test of (3) versus (4) = 1.141		$p > .05$		
Class of 1974	(5)		(6)	
Traditional jobs	66	(79.5%)	66	(75.9%)
Non-traditional jobs	17	(20.5)	21	(24.1)
t test of (5) versus (6) = .494		$p > .05$		

A corresponding analysis was done [redacted] co-op and non-co-op males and a difference was found between them. More co-op males (81.7%) were found to be working in jobs traditionally held by males, (jobs that were previously labeled as non-traditional for females), than the non-co-ops (69.0%). This outcome may be associated with the fact that there were more engineering majors in the co-op sample. Overall, however, three times as many males were working in types of jobs traditionally held by males as compared to female respondents.

There is one other result from the analysis of the alumni's current job titles which, though not conclusive, should be mentioned. There was an appreciably higher percentage of minority alumni working in clerical positions than white alumni. Also, there were fewer minority co-ops in managerial positions than minority non-co-ops or white co-ops and non-

co-ops. Whether these data are reflections of variations due to a very small size or actual differences within the minority subsample can only be verified by future study.

Type of Employer

The only and most obvious difference in the kinds of first job employers which were previously discussed, is that many more alumni, both co-op and non-co-op, are now self-employed. Otherwise, those trends that were recorded earlier regarding types of first job employers still hold true for the current employment situation.

TABLE 29
Type of Current Employer:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Private company - 100 or more employees	103	(34.3%)	95	(28.4%)
Private company - fewer than 100 employees	32	(10.7)	48	(14.4)
Self-employed	34	(11.3)	25	(7.5)
Government	40	(13.3)	60	(18.0)
Social agencies (i.e., schools)	56	(18.7)	89	(26.6)
Military	5	(1.7)	8	(2.4)
Other	30	(10.0)	9	(2.7)

$X^2 = 26.659$ $p < .01$

Salary Level

An analysis of the data for the total alumni sample shows no significant differences between the current salary levels of co-op alumni versus non-co-op alumni. The starting salary differential has disappeared over the period of time considered in this research. In fact, the only subsample where there is still a significant difference between co-ops and

non-co-ops in the male subsample. In this group, a higher percentage of co-op males earn over $16,000 a year than the non-co-op males. This finding is consistent with Gore's conclusion that University of Cincinnati business co-op alumni who have been out of college for about eight years earn significantly higher salaries than non-co-op alumni.[23] As with the salary levels for alumni's first job, males earn more than females, and business and engineering majors earn more than liberal arts majors.

TABLE 30
Current Salary:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
$ 5,999 or below	44	(9.2%)	36	(6.7%)
6,000 - 7,999	26	(5.4)	37	(6.9)
8,000 - 9,999	64	(13.3)	65	(12.2)
10,000 - 11,999	55	(11.5)	78	(14.6)
12,000 - 13,999	78	(16.3)	89	(16.7)
14,000 - 15,999	55	(11.5)	83	(15.5)
16,000 - 17,999	32	(6.7)	38	(7.1)
18,000 - 19,999	40	(8.3)	26	(4.9)
20,000 and above	86	(17.9)	82	(15.4)

$X^2 = 13.854$ $p > .10$

Perceptions Regarding Discrimination

In order to learn whether particular groups of alumni felt that they had been subjected to discrimination, alumni were asked "To what extent do you feel that you have not been given promotions or salary increases because of sex, age, race, or other non-ability related factors?" There were virtually no differences between co-op and non-co-op responses in the total alumni sample, with approximately 70 percent stating that they had

[23] George J. Gore, "Co-op Versus Non-Co-op Revisited," in Journal of Cooperative Education, IX, 1 (November, 1972).

minority subsample and the female subsample did show significantly greater feelings of being discriminated against than the white subsample and the male subsample. Participation in cooperative education did not seem to alleviate these feelings of the minorities and females; to the contrary, there is a slight tendency for the non-co-ops in both of these subsamples to register fewer complaints of discrimination than the co-ops. This may be because the non-co-ops had less exposure to the world of work and, therefore, less opportunity to experience discrimination.

TABLE 31
Feelings of Being Discriminated Against:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
To a great extent	28	(5.1%)	27	(4.4%)
Somewhat	75	(13.7)	79	(13.0)
Hardly at all	62	(11.3)	60	(9.9)
Not at all	384	(69.9)	441	(72.7)

$X^2 = 1.186$ p. > .10

Satisfaction With Job

Over three-fourths of the total alumni sample expressed at least some satisfaction with their current jobs. The business subsample was the only one where co-ops and non-co-ops differed significantly. In the business subsample, more co-ops (55.7%) indicated that they were "very satisfied" with their jobs than non-co-ops (39.0%). This is consistent with some of the data presented earlier in this report, which revealed especially favorable comments from co-op business majors.

Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Very satisfied	236	(45.3%)	257	(44.1%)
Some satisfaction	172	(33.0)	224	(38.4)
Indifferent	25	(4.8)	28	(4.8)
Some dissatisfaction	67	(12.9)	47	(8.1)
Very dissatisfied	21	(4.0)	27	(4.6)
	$X^2 = 8.69693$		$p > .05$	

Reasons For Working

An examination of the reasons which alumni gave for working shows that almost all alumni work to earn money and to gain personal satisfaction. Significantly more non-co-ops work "to help people" than do co-ops, but this is a reflection of the higher percentage of liberal arts majors in the non-co-op sample.

TABLE 33
Reasons For Working:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
To earn money				
Yes	519	(93.9%)	578	(93.7%)
No	34	(6.1)	39	(6.3)
	$X^2 = .000$		$p > .05$	
To gain personal satisfaction				
Yes	503	(91.8%)	[illegible]	(92.1%)
No	44	(8.0)	[illegible]	(7.9)
	$X^2 = 1.140$		$p > .05$	
To help people				
Yes	312	(59.2%)	400	(66.3%)
No	213	(40.4)	202	(33.5)
	$X^2 = 5.637$		$p < .05$	

The next series of questions focused on specific job characteristics. Alumni were asked to indicate the frequency with which they experienced the following in their current jobs: supervise work of others; responsibility in several phases of work; plan own work; opportunity for advancement; usefulness to society; social standing and prestige.[24]

The only statistically significant difference regarding the extent to which alumni supervised the work of others was found between co-ops in liberal arts as compared to co-ops in engineering: the liberal arts co-ops were less likely to supervise others than the engineering co-ops. Otherwise, responses of co-ops and non-co-ops were basically alike. An analysis of the data also revealed, as one might expect, that alumni of the class of 1965 supervised others more regularly than members of the classes of 1970 and 1974.

The next characteristic that was examined was "responsibility in several phases of work." Although generally the alumni responses to this item were much the same, there were a couple of differences between co-ops and non-co-ops that should be mentioned. Significantly more co-op business majors reported that they regularly had responsibility in several phases of work than did the non-co-op business majors. In the minority subsample, the reverse trend seemed to occur: fewer co-ops reported that they regularly had responsibility in several phases of their work than did the non-co-ops. Due to the small size of the minority subsample, the difference is not statistically significant but it is large enough, however, to deserve further study.

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[24] These characteristics were adopted from College Work-Study Programs by Wilson and Lyons.

Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Supervise others				
Regularly	248	(42.4%)	317	(48.2%)
Occasionally	217	(37.1)	222	(33.8)
Never	120	(20.5)	118	(18.0)
	$X^2 = 4.341$		$p > .05$	
Responsibility in several phases of work				
Regularly	489	(83.4%)	545	(83.0%)
Occasionally	83	(14.2)	99	(15.1)
Never	14	(2.4)	13	(2.0)
	$X^2 = .422$		$p > .05$	
Plan own work				
Regularly	469	(80.2%)	529	(80.4%)
Occasionally	98	(16.8)	103	(15.7)
Never	18	(3.1)	26	(4.0)
	$X^2 = .902$		$p > .05$	
Opportunities for advancement				
Regularly	201	(35.4%)	231	(35.9%)
Occasionally	266	(46.8)	300	(46.6)
Never	101	(17.8)	113	(17.5)
	$X^2 = .033$		$p > .05$	
Usefulness to society				
Regularly	366	(63.4%)	460	(71.2%)
Occasionally	181	(31.4)	147	(22.8)
Never	30	(5.2)	39	(6.0)
	$X^2 = 11.539$		$p < .02$	
Social standing and prestige				
Regularly	243	(42.9%)	290	(45.5%)
Occasionally	240	(42.4)	278	(43.6)
Never	83	(14.7)	69	(10.8)
	$X^2 = 4.045$		$p > .05$	

apparent between several subsamples. Significantly fewer co-op liberal arts majors regularly planned their own work as compared to co-op business majors. Also, the percentage of alumni regularly planning their own work increased significantly from the class of 1974 to the classes of 1970 and 1965.

Basically there were no differences between co-op and non-co-op assessments of the opportunities to advance in their current job. More alumni in the business subsample, however, especially the co-ops, indicated they regularly saw opportunities for advancement than alumni in other majors.

The alumni evaluations of the extent to which they felt useful to society in their current jobs provided some interesting data. Those subsamples which had the highest percentage of alumni who regularly felt useful to society were members of the liberal arts subsample, or the female and minority subsample, both of which include a large number of liberal arts majors. In addition, the non-co-ops in both the liberal arts and female subsamples felt useful to society more regularly than did the non-co-ops. This finding is consistent with Wilson's finding that co-op students in liberal arts become less interested in service careers than non-co-ops.[25] The decreased orientation toward service careers cited by Wilson could very well lead to decreased feelings of usefulness to society.

The final job characteristic that was studied was the social standing and prestige connected with the alumni's current job. More business majors felt that their jobs regularly had social standing and prestige than did

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[25] James W. Wilson, Impact of Cooperative Education Upon Personal Development and Growth of Values: Final Report to The Braitmayer Foundation, (Boston: Cooperative Education Research Center, 1974).

least frequently of the three curriculum subsamples. Feelings of job prestige increased from the class of 1965 to the classes of 1970 and 1974. The only subsample where co-ops and non-co-ops differed significantly was the liberal arts subsample. A higher percentage of non-co-ops felt that their jobs either regularly or occasionally offered them social standing and prestige than did the co-ops.

The conclusion that is reached after studying the findings just presented is that jobs currently held by co-op and non-co-op alumni generally do not differ with respect to these specific job characteristics. These findings are similar to those reported by Wilson and Lyons. Their data suggested that certain characteristics, namely, supervision of others and planning one's own work, are related to age and experience. This research found the exact same relationship to be true. Aside from this particular finding, however, it is apparent that participation in cooperative education does not seem to have a long term effect on these particular aspects of career development.

Future Work Plans

Most alumni said that their future plans were to either continue in the same type of work or to work in the same field but in a more advanced position. A smaller percentage said they would be working in a new career area; some were not sure what they would be doing.

The data from the classes of 1965, 1970, and 1974 show that reliably more of the non-co-op alumni changed over time regarding their future career plans, whereas the co-op alumni displayed greater stability in this regard. Significantly more non-co-ops from the class of 1974 said they

1965. Although the co-op alumni did show a similar response pattern, the change over time was considerably smaller. Thus, one could conclude that although participation in co-op did not affect the types of jobs held by alumni or the job's characteristics, it may well be related to stability of career choice.

TABLE 35
Future Work Plans:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Same type of work	217	(35.9%)	284	(39.6%)
Same career but more advanced job	209	(34.6)	206	(28.7)
New career field	104	(17.2)	134	(18.7)
Unsure	65	(10.8)	76	(10.6)
Don't plan to work	9	(1.5)	18	(2.5)

$X^2 = 6.842$ $p > .05$

Avocational Activities

The purpose of asking questions about avocational activities was to determine whether the co-op and non-co-op alumni were similar in this non-work aspect of their lives. All alumni were asked to indicate how frequently they participated in the following: church-related activities; community activities; political activities; travel; reading; social activities; cultural activities; athletics.

The least frequent activity was found to be participation in politics, with over two-thirds of the total alumni sample indicating they never participated in political activities. Although there were no significant differences between co-op and non-co-op alumni in this regard, there were differences among the subsamples. More liberal arts majors participated

engaged in political activities than engineering majors. A higher percentage of females and minorities reported at least occasional political activity than did males or whites.

Community activities were pursued somewhat more often than political activities. Again, co-ops and non-co-ops did not differ in their degree of participation, engineering majors showed the least amount of participation, and females and minorities reported greater levels of participation than did males and whites. The data also showed that participation in community activities increased significantly from the class of 1974 to the class of 1965.

Approximately one-half of all respondents participated in church-related activities; 86 percent engaged in cultural activities, and 82 percent participated in athletics at least occasionally. Non-co-ops participated in athletics more frequently than co-ops but the two groups responded quite similarly otherwise. The response patterns of subsample members were like those of the total sample and, hence, are not discussed further.

The most frequently cited avocations were reading (98%), travelling (92%), and socializing (95%). Non-co-op alumni engaged in social activities more often than the co-op alumni. Otherwise, co-op and non-co-op responses were the same. Response patterns of subsamples were similar to those of the total alumni sample.

A number of alumni listed other non-work activities they participated in: fraternity and sorority activities; social clubs; artistic endeavors; outdoor activities; and household activities. It is generally true that co-op and non-co-op avocations were the same.

Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Political activities				
Often	28	(4.4%)	33	(4.3%)
Occasionally	167	(26.3)	217	(28.4)
Never or rarely	441	(69.3)	515	(67.3)
	X^2 = .777		p > .05	
Community activities				
Often	77	(12.1%)	79	(10.3%)
Occasionally	278	(43.7)	345	(45.1)
Never or rarely	281	(44.2)	341	(44.6)
	X^2 = 1.151		p > .05	
Church activities or attendance				
Often	182	(28.6%)	203	(26.5%)
Occasionally	140	(22.0)	185	(24.2)
Never or rarely	315	(49.5)	377	(49.3)
	X^2 = 1.255		p > .05	
Cultural activities				
Often	179	(27.9%)	214	(28.0%)
Occasionally	376	(58.7)	438	(57.3)
Never or rarely	86	(13.4)	113	(14.8)
	X^2 = .571		p > .05	
Athletics				
Often	220	(34.6%)	322	(42.0%)
Occasionally	294	(46.3)	310	(40.4)
Never or rarely	121	(19.1)	135	(17.6)
	X^2 = 8.028		p < .05	
Travel				
Often	221	(34.4%)	281	(36.7%)
Occasionally	371	(57.7)	426	(55.6)
Never or rarely	51	(7.9)	59	(7.7)
	X^2 = .817		p > .05	

	Co-op		Non-Co-op	
Social activities				
Often	259	(40.5%)	344	(44.9%)
Occasionally	354	(55.3)	377	(49.2)
Never or rarely	27	(4.2)	46	(6.0)
	$X^2 = 6.238$		$p < .05$	
Reading				
Often	437	(68.1%)	543	(70.8%)
Occasionally	191	(29.8)	206	(26.9)
Never or rarely	14	(2.2)	18	(2.3)
	$X^2 = 1.454$		$p > .05$	

Other Significant College Experiences

The final question on the Alumni Questionnaire asked respondents to list "other significant college experiences which influenced your career decisions and which were not covered in the questionnaire." Very few alumni chose to complete this section. Of those who did, experiences with faculty, the benefits of meeting new people on campus, and participation in college clubs were those experiences most frequently cited. Co-op and non-co-op alumni did not differ in their responses to this question.

CONCLUSIONS

The purpose of this research was to examine the career development patterns of cooperative and non-cooperative alumni. It was particularly directed to career development at the undergraduate level, the first job situation, and the current employment position. Analyses were therefore conducted to determine if and how cooperative and non-cooperative alumni differed at these stages of career development.

In order to more fully understand the impact of cooperative education and work experience upon the career patterns of college graduates, analyses were also made of several cooperative and non-cooperative subsamples. The variables which determined the subsamples were sex, race, year of graduation, and college major. These analyses provided insights not only into the impact of cooperative education on the career development of students in general, but into the differential impacts it has for men and women, for graduates of different undergraduate programs, and for minority members. It also gave information on the effects of time on these outcomes.

The following conclusions were drawn from the findings of the national study of alumni:

1. Both cooperative and non-cooperative alumni viewed their overall undergraduate experience very favorably. Less than five percent indicated dissatisfaction with their alma mater and most alumni would encourage a member of their family to attend their undergraduate institution. Fewer cooperative alumni, however, participated in alumni activities.

2. In the non-professional aspects of their lives, such as participation in political or church activities, there were no differences between the activities of cooperative and non-cooperative alumni.

graduate's perception of career preparedness. Alumni of cooperative education programs reported more complete career information and more adequate information about job opportunities after college than alumni of non-cooperative education programs.

4. Those cooperative alumni who remained with their former cooperative employer after college received higher starting salaries than did those cooperative education graduates who worked for a different employer. In addition, cooperative education alumni generally earned higher starting salaries than alumni of non-cooperative programs.

5. Generally, the impact of participation in cooperative education upon student career development diminished over time. Although cooperative alumni showed greater stability in their overall career choice than non-cooperative alumni, these two groups were otherwise virtually the same with respect to their current employment situation.

6. There were some indications that participation in cooperative education did have differential effects on the career development of minorities. A considerably larger sample size is needed, however, to draw any definitive conclusions.

7. There were specific outcomes associated with a significant proportion of the women who participated in cooperative education: they married later; they had children later; they pursued careers for longer periods of time prior to starting a family; and they were employed ten years after graduation in more non-traditional jobs than the non-cooperative education alumnae.

8. Cooperative education students who majored in business accrued particular benefits from their participation in cooperative education when compared with non-cooperative business majors. A higher percentage of cooperative business majors reported: excellent preparation for their

responsibility in their work, regular planning of their work, and regular opportunities to advance with current employer.

9. Participation in cooperative education was associated with the following effects for liberal arts cooperative education males: greater satisfaction with undergraduate career information; more alumni employed full-time after graduation; more alumni remaining at first place of employment. In contrast to these generally positive effects, fewer liberal arts cooperative males perceived their current jobs as being useful to society when compared to non-cooperative liberal arts alumni.

In summary, the findings of this research make clear that student participation in an undergraduate program of cooperative education has an impact upon their after-graduation career goals, expectations, and actual experiences. They further suggest that there are differential effects of cooperative work experience for students in different curricula, for men and women students, and for minority students. Finally, aside from greater career choice stability, the impact of cooperative work experience appears to diminish over time.

APPENDICES

APPENDIX A

LETTER SENT TO COLLEGE PRESIDENTS REQUESTING PARTICIPATION IN ALUMNI STUDY

NORTHEASTERN UNIVERSITY
360 HUNTINGTON AVENUE
BOSTON, MASSACHUSETTS 02115

OFFICE OF THE PRESIDENT

Date

Name of President
Name of Institution
Address of Institution

Dear President:

The Cooperative Education Research Center at Northeastern University has received funds from the federal government (Title IV-D, Cooperative Education) to conduct a comparative study of alumni of institutions having cooperative education or field experience programs and alumni of institutions who do not have such programs. The purpose of the study is to determine the effects, if any, that participation in cooperative education and field experience programs has on the career development, choice of avocation, and attitudes toward the alma mater of the alumni. They also wish to determine if these effects last over a period of time. I am writing to ask if your institution would agree to participate in this study.

The Research Center hopes to obtain from each participating college a list of alumni from the classes of 1974, 1970, and 1965. The Project Director at the Research Center will then write to a random sample of alumni from each school. Each alumnus selected will receive an explanatory letter, a questionnaire, and a return stamped envelope. I have enclosed a sample of the letter and the questionnaire with this letter. Please note that the Center is interested in general trends and not in individual responses. Therefore, they are not asking the respondents to write their name on the questionnaire form. Furthermore, the name of the individual participants in the study will not be retained once the mailings are completed.

I do hope you will agree to participate in this important research project. If you do choose to participate, please notify the Project Director, Ms. Sylvia J. Brown, 408 Churchill Hall, Northeastern University, Boston, MA. 02115, as soon as possible. On the assumption that she would be working with the Director of Alumni Affairs, _____, Ms Brown will contact him/her in order to make more specific arrangements. Of course, the Research Center will be delighted to share the final report with your institution. We look forward to hearing from you shortly.

Sincerely,

Asa S. Knowles
President

ASK:dmk
Enclosures

APPENDIX B

COMPARISON OF CHARACTERISTICS OF COOPERATIVE AND NON-COOPERATIVE INSTITUTIONS INCLUDED IN RESEARCH SAMPLE

TABLE B-1

Characteristics of Co-op and Non-Co-op Institutions

Institution No.	Co-op / Non-Co-op	Size	Location	Control	Curriculum: Engineering	Business	Liberal Art General	Teacher Preparation	Vocational Technology	Other
1	Co-op	Small	Rural	Private			X	X		
2	Non-Co-op	Small	Rural	Private			X			
3	Co-op	Small	Rural	Private			X	X		
4	Non-Co-op	Small	Rural	Private			X	X		
5	Co-op	Small	Rural	Private			X			
6	Non-Co-op	Small	Rural	Private			X	X		
7	Co-op	Large	Urban	Public	X	X				Design Archit.
8	Non-Co-op	Large	Urban	Public	X	X				
9	Co-op	Large	Urban	Private	X	X	X			Home Economics, Applied Sci.
10	Non-Co-op	Large	Urban	Private	X	X	X	X		
11	Co-op	Small	Rural	Private			X	X		Nursing
12	Non-Co-op	Small	Rural	Private			X	X		Nursing

TABLE B-1 (continued) Curriculum

Institution No.	Co-op / Non-Co-op	Size	Location	Control	Engineering	Business	Liberal / General	Teacher Preparation	Vocational / Technology	Other
13	Co-op	Small	Semi-Urban	Public					X	
14	Non-Co-op	Small	Semi-Urban	Public					X	
15	Co-op	Large	Urban	Private	X	X		X		
16	Non-Co-op	Large	Urban	Private	X	X	X	X		
17	Co-op	Large	Urban	Private	X	X				Sciences, DP
18	Non-Co-op	Large	Urban	Public	X	X	X	X		Others
19	Co-op	Small	Rural	Private			X	X		
20	Non-Co-op	Small	Rural	Private			X			
21	Co-op	Small	Semi-Rural	Public	X	X	X			
22	Non-Co-op	Large	Urban	Private	X	X	X	X		
23	Co-op	Small	Urban	Public		X				

*Large (over 5,000)
Medium (1,000 - 4,999)
Small (under 1,000)

TABLE B-1 (continued)

Institution No.	Admissions Criteria*	Geographic Background of Student Body
1	Very competitive	Many out of state
2	Very competitive	65% out of state
3	Very competitive	90%
4	Competitive +	Represents 40 states and 20 countries - 50% midwest
5	Highly competitive +	90% out of state
6	Highly competitive	Majority from Northeast
7	Competitive	47% from Cincinnati, Ohio
8	Non-competitive	All over country and world
9	Very competitive	61% from Pennsylvania
10	Highly competitive	61% out of state 37% Pennsylvania
11	Competitive	50% New York, out of state, Foreign
12	Competitive	80% New York
13	None listed	1% out of state
14	None listed	
15	Competitive +	Northeast, 46% residents, 54% commute
16	Very competitive	Majority New York City
17	Competitive +	75% New York State, 22 Foreign Countries 42 other states
18	Very competitive	5% local or, residents of New York, Majority comute
19	Less competitive	from Middle Atlantic states
20	Less competitive	½ from Pennsylvania 13% fo[illegible]
21	Competitive	Michigan
22	Very competitive	50% Massachusetts
23	None listed	Ohio

*Barron's Profiles of American Colleges, Ninth Edition

APPENDIX C
REPRESENTATIVENESS OF ALUMNI SAMPLE

TABLE C-1
Sample Representativeness

	Number and Percent in Sample		Number and Percent in Population	
Sex				
Male	2748	(63.0%)	24651	(71.3%)
Female	1615	(37.0)	9908	(28.7)
Major				
Business	1015	(23.1%)	9879	(28.8%)
Engineering	675	(15.4)	6[illegible]0	(17.7)
Liberal Arts	2175	(4[illegible]6)	14322	(41.4)
Other	523	(1[illegible].9)	4165	(12.0)

APPENDIX D

ALUMNI QUESTIONNAIRE

NORTHEASTERN UNIVERSITY
Cooperative Education Research Center
Boston, MA 02115

ALUMNI QUESTIONNAIRE

INSTRUCTIONS

Some of the following questions may be responded to by writing in the answer on the line provided; for example, question number one, which asks your age. Other questions, such as number three, will be answered by selecting a single response from among those provided. You should answer these by selecting the one response which best answers the question for you. Write the number or letter of that response in the box located at the right of the question.

1. What is your age? _____

2. What is your race? _____

3. What is your sex?

   (1) Male
   (2) Female

4. What is your marital status?

   (1) Single
   (2) Married
   (3) Other (please specify) _____

5. If you are married, at what age did you get married? _____

6. Do you have any children?

   (1) Yes
   (2) No

7. If you do have children, what is the year of birth of each? _____

8. How would you classify the area you now live in?

   (1) Urban (over 100,000 people)
   (2) Suburban (between 10,000 and 100,000 people)
   (3) Rural (less than 10,000 people)

9. Please name the city and state in which you live: _____

10. What is the name of the undergraduate institution from which you graduated? _____

11. In what year did you graduate from this school? _____

12. What was your major as a graduating senior? _____

13. Did you change your major during your college years?

(1) Yes
(2) No

14. If you did change majors as an undergraduate, what was your original major, what did you change to, and why did you make this change? (If you changed majors more than once, please explain the reason for each of these major changes).

_____

_____

_____

15. As an undergraduate, did you have any type of work experience?

(1) Yes
(2) No

IF YES, PLEASE ANSWER THE FOLLOWING SERIES OF QUESTIONS (16-22).

IF NO, PLEASE SKIP TO QUESTION 23.

16. If you did have work experience as an undergraduate, which of the following types of work experience have you had? (For each type of work experience listed below, select the response, "yes" or "no," which indicates whether you have participated in that type of work experience and write the number of that response in the box at the right of the item).

(1) Yes
(2) No

(a) Part-time job (not College Work-Study)
(b) College Work-Study job
(c) Summer job, either full-time or part-time
(d) Cooperative education assignment (Cooperative education is an educational plan consisting of alternating periods of full-time school and full-time work)
(e) Field period assignment (Field period is an educational plan whereby students leave the campus for work assignments as a group for a specified period of time, not more than once a year in a given academic year).
(f) Internship (An internship is a non-paid work experience which usually receives academic credit and is taken to fulfill course requirements).
(g) Other (please explain) _____

17. Was your work experience as an undergraduate related to your academic major?

(1) All of my work experiences were related to my major.
(2) Most of my work experiences were related to my major.
(3) Some of my work experiences were related to my major.
(4) A few of my work experiences were related to my major.
(5) None of my work experiences were related to my major.

18. If any of your work experiences were related to your academic major, briefly explain the nature of your work experience(s) and how the work related to your major. _____

19. Were your work experiences as an undergraduate generally:

(1) Paid
(2) Voluntary

20. To what extent and in what ways, if any, did your work experience in college affect your choice of job after graduation? _____

21. If you did participate in a cooperative education, field term, or internship program, what would you say was the most beneficial aspect for you? _____

22. If you did participate in a cooperative education, field term, or internship program, what would you say was the least beneficial aspect for you? _____

23. How would you rate the completeness of career information that you have received in college?

(1) Adequate
(2) Somewhat inadequate
(3) Inadequate

24. From what source did you receive most of your career information while in college?

(1) From the teaching faculty
(2) From the senior placement office
(3) From the counseling office
(4) From a cooperative education, field placement, or internship coordinator at my college
(5) From co-workers or supervisors on a job
(6) Other (please explain) _____

25. How well-informed were you as a graduate about the available employment opportunities?

(1) Very well informed
(2) Fairly well informed
(3) Not too well informed
(4) Very poorly informed

26. To what extent do you feel your alma mater prepared you for life after graduation in areas other than career development, such as personal and social growth?

(1) To a great extent
(2) Somewhat
(3) Hardly at all

27. Please explain your reasons for your response to the previous question:

_____

_____

28. How satisfied are you with the overall education received at your alma mater?

(1) Fully satisfied
(2) Partially satisfied
(3) Dissatisfied

29. Please explain the reasons for your response to the previous question:

_____

_____

30. Which of the following phrases best describes your degree of participation in alumni activities?

(1) Active participation
(2) Inactive, but donate money to alumni fund
(3) Do not participate in any alumni matters, including donations of money

31. Would you like a member of your family to consider attending your alma mater, assuming the institution offered the appropriate field of study?

(1) Yes
(2) No

32. Please explain the reason for your response to the previous question:

_____

_____

33. Are you currently enrolled in a graduate or professional degree program?

(1) Yes
(2) No

34. If you are currently enrolled in a graduate or professional degree program, please answer the following questions:

(1) What is your major? _____
(2) What degree are you working toward? _____
(3) What is the name and location of your college? _____

(4) In what year do you expect to graduate? _____
(5) Are you a full-time or part-time student? _____
(6) In what month and year did you begin your degree program? _____

35. Have you already completed one (or more) graduate degrees?

(1) Yes
(2) No

36. If you have already completed one (or more) graduate degrees, please answer the following questions for each degree earned:

(1) What was your major? _____
(2) What type of degree (i.e., M.Ed., D.D.S.) did you earn? _____

(3) What is the name and location of the college? _____

(4) In what year did you earn this degree? _____
(5) Did you attend on a full-time or part-time basis? _____
(6) In what month and year did you begin your degree program? _____

37. Have you had any other education since you graduated?

(1) Yes
(2) No

38. If you have had other education since you graduated, did you participate in:

(1) Adult (continuing) education
(2) Other specialized training (please explain) _____

_____

39. Which of the following activities did you pursue after you graduated from your undergraduate institution? (For each activity, select the response "yes" or "no", which indicates whether or not you have pursued that activity, and write the number of that response in the box at the right of the item).

(1) Yes
(2) No

(a) Full-time employment
(b) Graduate or professional school
(c) Part-time employment
(d) Travel
(e) Homemaker
(f) Military service
(g) Other (please specify) _____

IF YOU HAVE NOT WORKED ON A FULL-TIME JOB SINCE GRADUATION, PLEASE SKIP THIS SECTION AND TURN TO QUESTION 78.

40. To what extent did college prepare you for your first full-time job?

(1) Excellently
(2) Adequately
(3) Inadequately

41. To what extent was your first full-time job related to your college major?

(1) I applied much of the knowledge and skill gained in college
(2) I applied some of the knowledge and skill gained in college
(3) I applied very little of the knowledge and skill gained in college

42. To what extent did you want your first full-time job to relate to your college major?

(1) It was very important that my first job be related to my major
(2) I hoped my first job would be related to my major, but was willing to compromise
(3) I did not care whether my first job was related to my major

43. In what month and year did you get your first full-time job after college?

_____

44. If you did not begin your first full-time job within a few months after graduation, what did you do prior to accepting your first full-time job?

_____

45. What was the specific title of your job? _____

46. What was the location of this job? (Please indicate town or city and state):

_____

47. Did you relocate in order to accept this position?

(1) Yes
(2) No

48. For what type of employer did you work?

(1) Private company with 100 or more employees
(2) Private company with fewer than 100 employees
(3) Self-employed (please explain) _____
(4) Federal, state, or local government
(5) Social agencies, including hospitals and educational institutions
(6) Other (please explain) _____

49. What was your starting salary? (Please give figure in annual amount) _____

50. How did you locate this first job?

(1) Through graduate placement office at college
(2) Through outside employment agency
(3) It was the same place I had worked as a cooperative education, field term, or internship student
(4) Through a friend, relative, or other contact person
(5) Through an ad in a newspaper, professional journal, etc.
(6) Other (please explain) _____

51. Why did you take this job? _____

52. How satisfied were you with this position?

(1) Fully satisfied
(2) Partially satisfied
(3) Dissatisfied

53. While on this job, did you receive any promotions?

(1) Yes
(2) No

54. If you did receive any promotions, how many promotions did you receive, and what were the dates, reasons, and nature of these promotions? _____

55. While on this first job, did you receive any merit pay increases?

(1) Yes
(2) No

56. If you did receive merit pay increases, please indicate the date and amount of increases received: _____

_____

57. If you did not receive merit pay increases, is your employer able to give merit increases? _____

58. Are you still working at your first place of employment?

(1) Yes
(2) No

IF YES -- THAT IS, IF YOU ARE STILL WORKING AT YOUR FIRST FULL-TIME PLACE OF EMPLOYMENT -- THEN PLEASE SKIP TO QUESTION 72.

IF NO -- THAT IS, YOU ARE NO LONGER WORKING AT YOUR FIRST FULL-TIME PLACE OF EMPLOYMENT -- THEN PLEASE CONTINUE WITH THE FOLLOWING QUESTIONS.

59. If you are no longer working at your first place of employment, are you now working full-time at another job?

(1) Yes
(2) No

IF YES, PLEASE SKIP TO QUESTION 62.

IF NO, PLEASE CONTINUE WITH THE FOLLOWING QUESTIONS.

60. Why did you stop working? _____

_____

61. In what year did you stop working? _____

62. How many full-time jobs have you had since (but not including) your first job? _____

63. Have you had any merit salary increments since your first job?

(1) Yes
(2) No

64. If you have had any merit salary increases, please list the salary (in annual amount), year, and reason for each merit increment? _____

_____

65. Have you received any job promotions since you left your first place of employment?

(1) Yes
(2) No

66. If you have received any job promotions since you left your first place of employment, please list the date of promotion, change in responsibilities for each promotion: _____

_____

_____

_____

67. In addition to changing jobs, have you also changed your career direction?

(1) Yes
(2) Somewhat
(3) Not at all

68. If you have changed your career direction, please indicate what your new career direction is: _____

69. If you have changed your career direction, what caused this change? _____

_____

70. Have you relocated for any of the jobs you have had since your first full-time job?

(1) Yes
(2) No

71. For what type of employer are you working?

(1) Private company with 100 or more employees
(2) Private company with fewer than 100 employees
(3) Self-employed (please explain) _____
(4) Federal, state, or local government
(5) Social agencies, including hospitals, and educational institutions
(6) Other (please explain) _____

72. What is your current job title? (Please be specific) _____

_____

73. What is your current salary? (In annual amount) _____

74. To what extent do you feel that you have not been given promotions or salary increases because of sex, age, race, or other non-ability related factors?

(1) To a great extent
(2) Somewhat
(3) Hardly at all
(4) Not at all

75. How would you rate your current level of job satisfaction?

(1) Very satisfied with the job
(2) Somewhat satisfied with the job
(3) Indifferent
(4) Somewhat dissatisfied with the job
(5) Very dissatisfied with the job

76. What are the principal reasons for the degree of job satisfaction expressed above? _____

_____

77. Which of the following reasons for working best describes your reason for working? (For each reason listed below, select the response "yes" or "no," which indicates whether that reason for working is applicable for you, and write the number of that response in the box at the right of the item).

(1) Yes
(2) No

(a) To earn money
(b) To gain personal satisfaction
(c) To help other people
(d) Other (please explain) _____

78. If you are not now working full-time, are you working part-time?

(1) Yes
(2) No

79. If you are working part-time, please answer the following:

(1) What is your specific job title? _____
(2) What is your salary? _____

80. Are you now doing volunteer work?

(1) Yes
(2) No

81. If you are now doing volunteer work, what are you doing? _____

_____

82. If you are now doing volunteer work, how long have you been doing this type of volunteer work? _____

83. If you are not currently working on a full-time job, are you:

(1) Currently looking for full-time employment
(2) Hope to look for a job next year
(3) Have no plans to find a full-time job

84. Why are you not working, working part-time, or working on a volunteer basis rather than working full-time? _____

_____

85. PLEASE ANSWER THE FOLLOWING QUESTION, WHETHER YOU ARE WORKING FULL-TIME, PART-TIME, OR ON A VOLUNTEER BASIS. What is the extent to which the following job characteristics occur in your present position:

Supervise the work of others:

(1) Regularly
(2) Occasionally
(3) Never

Responsibility in several phases of work

(1) Regularly
(2) Occasionally
(3) Never

Plan own work

(1) Regularly
(2) Occasionally
(3) Never

Opportunity for advancement

(1) Regularly
(2) Occasionally
(3) Never

Usefulness to society

(1) Regularly
(2) Occasionally
(3) Never

Social standing and prestige

(1) Regularly
(2) Occasionally
(3) Never

86. What type of work do you expect to be doing in the future? _____

_____

87. Which of the following activities do you participate in? (For each activity, select the response which most accurately describes the degree to which you have participated, and write the number of that response in the box at the right of the item).

(1) Often
(2) Occasionally
(3) Never or almost never

(a) Church attendance and/or church-related activities
(b) Community activities
(c) Political activities
(d) Travel
(e) Reading
(f) Social activities, parties, etc.
(g) Cultural activities, such as museums, plays, lectures
(h) Athletics
(i) Other (please explain) ______

88. If there were other significant college experiences which influenced your career decisions and which were not covered in the questionnaire, would you please list them here:

______
______
______
______
______

THANK YOU FOR YOUR PARTICIPATION IN THIS STUDY. IF YOU WOULD LIKE A COPY OF THE RESULTS OF THE STUDY, PLEASE WRITE YOUR NAME AND ADDRESS BELOW. THIS FORM WILL BE DETACHED FROM THE QUESTIONNAIRE IN ORDER TO ENSURE YOUR CONFIDENTIALITY.

- -

NAME ______

ADDRESS ______
Street

______
City or Town State Zip Code

ERIC

APPENDIX E

TABULAR DATA DISCUSSED IN CHAPTER 3, "DESCRIPTION OF ALUMNI SAMPLE"

TABLE E-1

Characteristics of Alumni Subsample - Sex

	Male		Female	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Race				
White	327 (94.5%)	409 (94.5%)	260 (89.3%)	309 (93.6%)
Minority	19 (5.5)	24 (5.5)	31 (10.7)	21 (6.4)
	X^2 = .016	p > .05	X^2 = 3.170	p > .05
Marital status				
Single	125 (35.1%)	174 (39.4%)	158 (53.6%)	135 (40.4%)
Married	231 (64.9)	268 (60.6)	137 (46.4)	199 (59.6)
	X^2 = 1.347	p > .05	X^2 = 10.348	p < .05
Children				
Yes	156 (45.6%)	173 (40.3%)	75 (26.1%)	134 (38.5%)
No	186 (54.4)	256 (59.7)	212 (73.9)	198 (61.5)
	X^2 = 1.964	p > .05	X^2 = 10.012	p < .05
Number of children				
One	45 (29.2%)	67 (38.7%)	33 (42.9%)	40 (32.5%)
Two	85 (55.2)	64 (37.0)	33 (42.9)	59 (48.0)
Three and above	24 (15.6)	42 (24.3)	11 (14.3)	24 (19.5)
	X^2 = 11.124	p < .05	X^2 = 2.394	p > .05
Location				
Urban	131 (36.9%)	204 (46.2%)	126 (43.6%)	121 (36.4%)
Suburban	167 (47.0)	178 (40.3)	107 (37.0)	164 (49.4)
Rural	57 (16.1)	60 (13.6)	56 (19.4)	47 (14.2)
	X^2 = 6.921	p < .05	X^2 = 9.947	p < .05
Major				
Business	95 (26.7%)	116 (26.5%)	18 (6.1)	23 (6.9)
Engineering	143 (40.2)	76 (17.4)	6 (2.0)	1 (.3)
Liberal Arts	99 (27.8)	219 (50.0)	191 (64.7)	205 (61.4)
Other majors	19 (5.3)	27 (6.1)	80 (27.2)	105 (31.5)
	X^2 = 61.449	p < .01	X^2 = 5.658	p > .05

TABLE E-2
Characteristics of Alumni Subsample - Race

	White		Minority	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Sex				
Male	327 (55.7%)	409 (57.0%)	19 (38.0%)	24 (53.3%)
Female	260 (44.3)	309 (43.0)	31 (62.0)	21 (46.7)
	X^2 = .159	p > .05	X^2 = 1.671	p > .05
Marital status				
Single	249 (27.5%)	275 (38.3%)	28 (56.0%)	28 (62.2%)
Married	338 (57.6)	443 (61.7)	22 (44.0)	17 (37.8)
	X^2 = 2.111	p > .05	X^2 = .165	p > .05
Children				
Yes	216 (38.2%)	277 (39.7%)	12 (24.0%)	16 (38.1%)
No	350 (61.8)	420 (60.3)	38 (76.0)	26 (61.9)
	X^2 = .264	p > .05	X^2 = 1.528	p > .05
Number of children				
One	69 (31.9%)	96 (34.9%)	8 (66.7%)	9 (52.9%)
Two	114 (52.8)	118 (42.9)	2 (16.7)	4 (23.5)
Three	33 (15.4)	61 (22.3)	2 (16.7)	4 (23.5)
	X^2 = 5.822	p > .05	X^2 = 6.043	p < .05
Location				
Urban	225 (38.8%)	289 (40.3%)	26 (52.0%)	31 (70.5%)
Suburban	254 (43.8)	326 (45.5)	16 (32.0)	9 (20.5)
Rural	101 (17.4)	102 (14.2)	8 (16.0)	4 (9.1)
	X^2 = 2.468	p > .05	X^2 = 3.362	p > .05
Major				
Business	103 (17.5%)	130 (18.2%)	7 (14.0%)	6 (13.3%)
Engineering	145 (24.7)	73 (10.2)	1 (2.0)	3 (6.7)
Liberal Arts	251 (42.7)	392 (54.9)	33 (66.0)	26 (57.8)
Other majors	88 (15.0)	119 (16.7)	9 (18.0)	10 (22.2)
	X^2 = 50.554	p < .05	X^2 = 1.702	p > .05

TABLE E-5

Characteristics of Alumni Subsample - Curriculum

	1965		1970		1974	
	Co-op	Non-Co-op	Co-op	Non-Co-op	Co-op	Non-Co-op
Sex						
Male	95 (59.4%)	115 (56.4%)	120 (56.3%)	141 (59.5%)	111 (48.9%)	145 (57.3%)
Female	65 (40.6)	89 (43.6)	93 (43.7)	96 (40.5)	116 (51.1)	108 (42.7)
	X^2 = .220	p > .05	X^2 = .338	p > .05	X^2 = 3.073	p > .05
Race						
White	149 (93.1%)	195 (94.7%)	191 (91.0%)	227 (97.0%)	201 (91.0%)	225 (90.4%)
Minority	11 (6.9)	11 (5.3)	19 (9.0)	7 (3.0)	20 (9.0)	24 (9.6)
	X^2 = .153	p > .05	X^2 = 6.306	p < .02	X^2 = .004	p > .05
Marital status						
Single	32 (20.0%)	39 (19.1%)	73 (34.3%)	78 (32.9%)	155 (68.3%)	163 (64.4%)
Married	128 (80.0)	165 (80.9)	140 (65.7)	159 (67.1)	72 (31.7)	90 (35.6)
	X^2 = .006	p > .05	X^2 = .042	p > .05	X^2 = .632	p > .05
Children						
Yes	118 (73.3%)	149 (72.7%)	78 (37.5%)	87 (38.0%)	17 (8.0%)	26 (10.7%)
No	43 (26.7)	56 (27.3)	130 (62.5)	142 (62.0)	195 (92.0)	217 (89.3)
	X^2 = .0001	p > .05	X^2 = .00005	p > .05	X^2 = .663	p > .05
Number of children						
One	23 (20.0%)	33 (22.3%)	42 (53.8%)	48 (56.5%)	8 (50.0%)	14 (56.0%)
Two	66 (57.4)	72 (48.6)	33 (42.3)	26 (30.6)	7 (43.8)	8 (32.0)
Three	26 (22.6)	43 (29.1)	3 (3.8)	11 (12.9)	1 (6.3)	3 (12.0)
	X^2 = 2.128	p > .05	X^2 = 5.511	p > .05	X^2 = .764	p > .05
Location						
Urban	62 (39.0%)	72 (35.1%)	87 (41.0%)	105 (44.3%)	92 (40.7%)	117 (46.2%)
Suburban	62 (39.0)	99 (48.3)	90 (42.5)	109 (46.0)	101 (44.7)	95 (37.5)
Rural	35 (22.0)	34 (16.6)	35 (16.5)	23 (9.7)	33 (14.6)	41 (16.2)
	X^2 = 3.507	p > .05	X^2 = 4.607	p > .05	X^2 = 2.525	p > .05

APPENDIX F

TABULAR DATA DISCUSSED IN CHAPTER 4, "ALUMNI PERCEPTIONS OF UNDERGRADUATE EXPERIENCE"

TABLE F-1

Reasons For Change of Major As Undergraduate:
Responses of Curriculum Subsample

	Business		Engineering		Liberal Arts	
	Co-op	Non-Co-op	Co-op	Non-Co-op	Co-op	Non-Co-op
Co-op work experience	2 (5.0%)	0 (0.0%)	5 (18.5%)	0 (0.0%)	6 (5.6%)	0 (0.0%)
Learned more about major	0 (0.0)	9 (17.6)	2 (7.4)	2 (12.5)	9 (8.3)	16 (9.5)
To prepare better for job market	7 (17. 5)	6 (11.8)	3 (11.1)	3 (18.8)	7 (6.5)	24 (14.3)
Disliked courses	2 (5.0)	5 (9.8)	1 (3.7)	2 (12.5)	5 (4.6)	22 (13.1)
Interests changed	19 (47.5)	20 (39.2)	9 (33.3)	5 (31.3)	61 (56.5)	67 (39.9)
Poor grades	5 (12.5)	5 (9.8)	5 (18.5)	2 (12.5)	8 (7.4)	20 (11.9)
Other reasons	5 (12.5)	6 (11.8)	2 (7.4)	2 (12.5)	12 (11.1)	19 (11.3)
	X^2 = [illegible]	p > .05	X^2 = 5.294	p > .05	X^2 = 23.036	p < .001

TABLE F-2
Types of Undergraduate Work Experiences:
Responses of Curriculum Subsamples

	Business		Engineering		Liberal Arts	
	Co-op	Non-Co-op	Co-op	Non-Co-op	Co-op	Non-Co-op
Part-time job						
Yes	79 (71.8%)	92 (80.0%)	79 (53.0%)	50 (72.5%)	172 (60.6%)	241 (64.1%)
No	31 (28.2)	23 (20.0)	70 (47.0)	19 (27.5)	112 (39.4)	135 (35.9)
	X^2 = 1.639	p > .05	X^2 = 6,597	p < .05	X^2 = 2.18	p > .05
Work-Study job						
Yes	47 (43.1%)	8 (7.1%)	54 (36.7%)	9 (13.0%)	159 (55.6%)	107 (28.8%)
No	62 (56.9)	104 (92.9)	93 (63.3)	60 (87.0)	127 (44.4)	264 (71.2)
	X^2 = 36.347	p < .001	X^2 = 11.636	p < .01	X^2 = 46.870	p < .001
Summer job						
Yes	76 (69.1%)	105 (92.1%)	73 (50.0%)	67 (95.7%)	195 (69.9%)	371 (96.4%)
No	34 (30.9)	9 (7.9)	73 (50.0)	3 (4.3)	84 (30.1)	14 (3.6)
	X^2 = 37.661	p < .001	X^2 = 41.376	p < .001	X^2 = 88.010	p < .001
Internship job						
Yes	5 (4.7%)	9 (8.0%)	3 (2.0%)	2 (2.9%)	46 (16.5%)	78 (21.2%)
No	101 (95.3)	104 (92.0)	144 (98.0)	66 (97.1)	232 (83.5)	290 (78.8)
	X^2 = .498	p > .05	X^2 = .006	p > .05	X^2 = 1.917	p > .05

TABLE F-3
Types of Undergraduate Work Experiences:
Responses of Race Subsample

	White		Minority	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Part-time job				
Yes	355 (61.4%)	416 (66.6%)	23 (47.9%)	23 (67.6%)
No	223 (38.6)	209 (33.4)	25 (52.1)	11 (32.4)
	X^2 = 3.229	p > .05	X^2 = 2.396	p > .05
Work-Study job				
Yes	277 (48.2%)	134 (21.8%)	39 (81.3%)	20 (57.1%)
No	298 (51.8)	480 (78.2)	9 (18.8)	15 (42.9)
	X^2 = 89.988	p < .001	X^2 = 4.610	p < .05
Summer job				
Yes	381 (66.4%)	607 (95.9%)	31 (68.9%)	33 (91.7%)
No	193 (33.6)	26 (4.1)	14 (31.1)	3 (8.3)
	X^2 = 174.600	p < .001	X^2 = 4.957	p < .05
Internship job				
Yes	88 (15.5%)	122 (20.0%)	8 (17.0)	10 (29.4)
No	478 (84.5)	488 (80.0)	39 (83.0)	24 (70.6)
	X^2 = 3.670	p > .05	X^2 = 1.109	p > .05

TABLE F-4
Types of Undergraduate Work Experiences:
Responses of Sex Subsample

	Male		Female	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Part-time job				
Yes	221 (63.1%)	268 (71.1%)	165 (56.9%)	179 (61.1%)
No	129 (36.9)	109 (28.9)	125 (43.1)	114 (38.9)
	X^2 = 4.848	p < .05	X^2 = .894	p > .05
Work-Study job				
Yes	158 (45.5%)	67 (17.9%)	164 (56.6%)	89 (31.1%)
No	189 (54.5)	307 (82.1)	126 (43.4)	197 (68.9)
	X^2 = 62.676	p < .001	X^2 = 36.789	p < .001

TABLE F-4 (continued)

	Male		Female	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Summer job				
Yes	204 (59.3)	363 (94.8)	218 (75.4)	288 (97.0)
No	140 (40.7)	20 (5.2)	71 (24.6)	9 (3.0)
	X^2 = 130.819	p < .001	X^2 = 55.823	p < .001
Internship job				
Yes	23 (6.7%)	28 (7.5%)	73 (25.6%)	108 (38.3%)
No	319 (93.3)	345 (92.5)	212 (74.4)	174 (61.7)
	X^2 = .068	p > .05	X^2 = 9.918	p < .02

TABLE F-5
Relationship of Undergraduate Work to Academic Major: Responses of Curriculum Subsample

	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
All or most work related	73 (65.2%)	22 (18.4%)	124 (83.2%)	29 (40.8%)
Some or little work related	34 (30.4)	55 (45.8)	24 (16.1)	26 (36.6)
No work related	5 (4.5)	43 (35.8)	1 (.7)	16 (22.5)
	X^2 = 62.215	p < .001	X^2 = 51.067	p < .001

TABLE F-5 (continued)

	Liberal Arts	
	Co-op	Non-Co-op
All or most work related	115 (39.7%)	58 (14.9%)
Some or little work related	132 (45.6)	153 (38.4)
No work related	43 (14.8)	178 (45.8)
	X^2 = 90.279	p < .001

TABLE F-6
Undergraduate Salaries:
Responses of Sex Subsample

	Male		Female	
	(1) Co-op	(2) Non-Co-op	(3) Co-op	(4) Non-Co-op
Usually paid	348 (98.0%)	377 (96.2%)	225 (76.3%)	266 (89.6%)
Usually volunteer	4 (1.1)	10 (2.6)	58 (19.7)	25 (8.4)
Some paid, some volunteer	3 (.8)	5 (1.3)	12 (4.1)	6 (2.0)
	X^2 = 2.405,	$p > .05$	X^2 = 18.538	$p < .001$

t (1) versus (3) = 7.384 $p < .05$
t (2) versus (4) = 3.115 $p < .05$

TABLE F-7
Effect of Undergraduate Work Experience on Choice of Job After Graduation: Responses of Sex Subsamples

	Male		Female	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Little or no effect	81 (24.0%)	232 (64.1%)	66 (23.9%)	126 (45.7%)
Confirmed career choice	46 (13.6)	33 (9.1)	59 (21.4)	57 (20.7)
Learned more about job	57 (16.9)	23 (6.4)	37 (13.4)	21 (7.6)
Changed career choice	39 (11.6)	15 (4.1)	34 (12.3)	19 (6.9)
Became job after graduation	61 (18.1)	16 (4.4)	29 (10.5)	14 (5.1)
Helpful in finding job after graduation	15 (4.5)	16 (4.4)	17 (6.2)	12 (4.3)
Increased skills	17 (5.0)	9 (2.5)	20 (7.2)	19 (6.9)
Increased self-knowledge	7 (2.1)	6 (1.7)	6 (2.2)	6 (2.2)
Other effects	14 (4.2)	12 (3.3)	8 (2.9)	2 (.7)
	X^2 = 128.396	$p < .001$	X^2 = 37.164	$p < .001$

TABLE F-8

Completeness of Career Information:
Responses From Classes of 1965, 1970, and 1974

	1965		1970		1974	
	Co-op	Non-Co-op	Co-op	Non-Co-op	Co-op	Non-Co-op
Adequate	81 (50.0%)	61 (30.5%)	96 (45.3%)	68 (29.3%)	101 (44.7%)	104 (41.3%)
Somewhat adequate	53 (32.7)	61 (30.5)	65 (30.7)	87 (37.5)	77 (34.1)	74 (29.4)
Inadequate	28 (17.3)	78 (39.0)	51 (24.1)	77 (33.2)	48 (21.2)	74 (29.4)
	$X^2 = 23.230$	$p < .01$	$X^2 = 12.370$	$p < .01$	$X^2 = 4.243$	$p > .05$

TABLE F-9

Completeness of Career Information
Responses of Curriculum Subsamples

	Business		Engineering		Liberal Arts	
	Co-op	Non-Co-op	Co-op	Non-Co-op	Co-op	Non-Co-op
Adequate	61 (54.0%)	51 (37.2%)	86 (58.1%)	35 (45.5%)	91 (31.6%)	98 (23.7%)
Somewhat adequate	31 (27.4)	50 (36.5)	49 (33.1)	26 (33.8)	99 (34.4)	127 (30.8)
Inadequate	21 (18.6)	36 (26.3)	13 (8.8)	16 (20.8)	98 (34.0)	188 (45.5)
	$X^2 = 7.058$	$p < .05$	$X^2 = 7.169$	$p < .05$	$X^2 = 10.081$	$p < .01$

TABLE F-10
Completeness of Career Information:
Responses of Males and Females in Liberal Arts

	Male Liberal Arts		Female Liberal Arts	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Adequate	34 (34.7%)	50 (23.5%)	57 (30.0%)	48 (24.0%)
Somewhat adequate	42 (42.9)	71 (33.3)	57 (30.0)	56 (28.0)
Inadequate	22 (22.4)	92 (43.2)	76 (40.0)	96 (48.0)
	X^2 = 10.682	p < .02	X^2 = 2.851	p > .05

TABLE F-11
Information Available About Job Opportunities:
Responses of Curriculum Subsamples

	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Very well informed	31 (27.7%)	23 (16.8%)	40 (27.0%)	17 (22.7%)
Fairly well informed	57 (50.9)	58 (42.3)	79 (53.4)	43 (57.3)
Not too well informed	15 (13.4)	32 (23.4)	27 (18.2)	12 (16.0)
Very poorly informed	9 (8.0)	24 (17.5)	2 (1.4)	3 (4.0)
	X^2 = 11.769	p < .05	X^2 = 2.213	p > .05

TABLE F-11 (continued)

	Liberal Arts			
	Co-op		Non-Co-op	
Very well informed	42	(14.8%)	44	(10.7%)
Fairly well informed	91	(32.2)	138	(33.4)
Not too well informed	83	(29.3)	143	(34.6)
Very poorly informed	67	(23.7)	88	(21.3)
	X^2 = 4.337		p > .05	

TABLE F-12
Information Available About Job Opportunities
Responses of Males of Females in Liberal Arts

	Liberal Arts Males		Liberal Arts Females	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Very well informed	19 (19.8%)	23 (10.6%)	23 (12.3%)	21 (10.7%)
Fairly well informed	36 (37.5)	83 (38.2)	55 (29.4)	55 (28.1)
Not too well informed	25 (26.0)	76 (35.0)	58 (31.0)	67 (34.2)
Very poorly informed	16 (16.7)	35 (16.1)	51 (27.3)	53 (27.0)
	$X^2 = 5.877$	$p > .05$	$X^2 = .566$	$p > .05$

TABLE F-13
Co-op Alumni Perceptions of
Benefits of Participation In Cooperative Education

	Liberal Arts	Non-Liberal Arts	Total
1. Work experience - (i.e., learn about work environment about job characteristics and structure	94 (33%)	136 (43%)	230 (38%)
2. Money	0 (0%)	35 (11%)	35 (67%)
3. Exposure to "real world"	34 (12%)	23 (7%)	57 (10%)
4. Relating theory to practice	14 (5%)	28 (9%)	42 (7%)
5. Fosters growth of independence	45 (16%)	5 (2%)	50 (8%)
6. Test career choices	21 (7%)	12 (4%)	33 (6%)
7. Better awareness of own interests	18 (6%)	6 (2%)	24 (4%)
8. To meet different types of people	20 (7%)	13 (4)	33 (6%)
9. Other reasons (i.e., to travel, to increase appreciation of school)	38 (13%)	55 (18%)	93 (16%)

TABLE F-14
Co-op Alumni Perceptions of Least Beneficial Aspects of Participation in Cooperative Education

	Liberal Arts	Non-Liberal Arts	Total
1. It was all beneficial	50 (19.8%)	54 (21.3%)	104 (20.6%)
2. "Boring" work	26 (10.3)	39 (15.4)	65 (12.8)
3. Irrelevant work	16 (6.3)	21 (8.3)	37 (7.3)
4. Relocating for co-op job	29 (11.5)	7 (2.8)	36 (7.1)
5. Salary level	18 (7.1)	13 (5.1)	31 (6.1)
6. Extra year to complete degree	0 (0.0)	30 (11.8)	30 (5.9)
7. Disrupts classroom learning	10 (4.0)	6 (2.4)	16 (3.2)
8. Disrupts friendships	14 (5.6)	12 (4.7)	26 (5.1)
9. Required report	14 (5.6)	6 (2.4)	20 (4.0)
10. Work periods too short	13 (5.2)	10 (3.9)	23 (4.5)
11. Other reasons (i.e., scheduling problems, disagreements with supervisors or coordinators, or personnel reasons)	62 (24.6)	56 (21.9)	118 (23.4)

TABLE F-15
Satisfaction With Undergraduate Education: Responses of Race Subsamples

	White		Minority	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Fully satisfied	299 (52.0%)	376 (53.1%)	34 (68.0%)	26 (60.5%)
Partially satisfied	255 (44.3)	306 (43.2)	16 (32.0)	16 (37.2)
Dissatisfied	21 (3.7)	26 (3.7)	0 (0.0)	1 (2.3)
	X^2 = .167	p > .05	X^2 = 1.549	p > .05

APPENDIX G

TABULAR DATA DISCUSSED IN CHAPTER 5, "POST-GRADUATION EXPERIENCES OF ALUMNI"

TABLE G-1
Proportion of Males and Females Working Full-Time After Graduation From College

	Male		Female	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Full-time employment	302 (85.8%)	318 (74.6%)	244 (84.4%)	285 (88.0%)
No full-time employment	50 (14.2)	108 (25.4)	45 (15.6)	39 (12.0)
	X^2 = 14.119	p < .001	X^2 = 1.328	p > .05

TABLE G-2
Graduate School After Graduation From College: Responses of Curriculum Subsample

	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Graduate school	41 (38.7%)	49 (37.7%)	49 (33.3%)	27 (37.0%)
No graduate school	65 (61.3)	81 (62.3)	98 (66.7)	46 (63.0)
	X^2 = .000	p > .05	X^2 = .149	p > .05

TABLE G-2 (continued)

	Liberal Arts			
	Co-op		Non-Co-op	
Graduate school	150	(54.2%)	253	(62.9%)
No graduate school	127	(45.8)	149	(37.1)
	X^2 = 4.887		p < .05	

TABLE G-3
Graduate School After Graduation From College:
Responses of Race Subsamples

	White		Minority	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Graduate school	249 (44.0%)	345 (51.1%)	28 (59.6%)	24 (61.5%)
No graduate school	317 (56.0)	330 (48.9)	19 (40.4)	15 (38.5)
	X^2 = 5.969	p < .05	X^2 = .001	p > .05

TABLE G-4
Part-Time Employment After Graduation From College:
Responses of Sex Subsample

	Male		Female	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Part-time employment	57 (16.7%)	111 (27.7%)	114 (40.3%)	127 (40.7%)
No part-time employment	284 (83.3)	290 (72.3)	169 (59.7)	185 (59.3)
	X^2 = 12.033	p < .001	X^2 = .001	p > .05

TABLE G-5
Part-Time Employment After Graduation From College:
Responses of Curriculum Subsamples

	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Part-time employment	18 (17.0%)	33 (26.4%)	13 (8.9%)	9 (12.5%)
No part-time employment	88 (83.0)	92 (73.6)	133 (91.1)	63 (87.5)
	X^2 = 2.436	p > .05	X^2 = .348	p > .05

TABLE G-5 (continued)

	Liberal Arts			
	Co-op		Non-Co-op	
Part-time employment	108	(39.1%)	153	(39.0%)
No part-time employment	168	(60.9)	239	(61.0)
	X^2 = .003		p > .05	

TABLE G-6
Extent of Preparation for First Full-Time Job:
Responses of Curriculum Subsample

	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Excellent	52 (51.5%)	30 (23.8%)	43 (30.7%)	15 (21.7%)
Adequate	40 (39.6)	76 (60.3)	90 (64.3)	48 (69.6)
Inadequate	9 (8.9)	20 (15.9)	7 (5.0)	6 (8.7)
	X^2 = 18.721	p < .01	X^2 = 2.552	p > .05

TABLE G-6 (continued)

	Liberal Arts			
	Co-op		Non-Co-op	
Excellent	78	(31.3%)	72	(20.5%)
Adequate	127	(51.0)	209	(59.5)
Inadequate	44	(17.7)	70	(19.9)
	X^2 = 9.105		p < .05	

TABLE G-7
Relationship of First Job to Undergraduate Major:
Responses of Sex Subsamples

Extent Job Related To Major	Male		Female	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Much	127 (38.8%)	102 (27.2%)	105 (40.7%)	128 (42.7%)
Some	152 (46.5)	156 (41.6)	96 (37.2)	106 (35.3)
Very little	48 (14.7)	117 (31.2)	57 (22.1)	66 (22.0)
	$X^2 = 28.487$	$p < .01$	$X^2 = .264$	$p > .05$
Extent Wanted Job To Relate To Major	Male		Female	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Very important	162 (49.8%)	125 (33.5%)	110 (42.8%)	145 (48.7%)
Hoped it was related	123 (37.8)	138 (37.2)	104 (40.5)	98 (32.9)
Did not care	40 (12.3)	110 (29.5)	43 (16.7)	55 (18.5)
	$X^2 = 35.164$	$p < .01$	$X^2 = 3.441$	$p > .05$

TABLE G-8
Relationship of First Job to Undergraduate Major:
Responses of Curriculum Subsamples

Extent Job Related To Major	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Much	47 (46.5%)	34 (27.0%)	43 (30.7%)	15 (21.7%)
Some	39 (38.6)	59 (46.8)	90 (64.3)	48 (69.6)
Very Little	15 (14.9)	33 (26.2)	7 (5.0)	6 (8.7)
	$X^2 = 10.290$	$p < .01$	$X^2 = 2.552$	$p > .05$
Extent Wanted Job to Relate To Major	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Very important	58 (58.4%)	52 (41.6%)	52 (36.9%)	26 (37.1%)
Hoped it was related	35 (34.7)	53 (42.4)	76 (53.9)	29 (41.4)
Did not care	8 (7.9)	20 (16.0)	13 (9.2)	15 (21.4)
	$X^2 = 6.679$	$p < .05$	$X^2 = 13.147$	$p < .01$

TABLE G-8 (continued)

Extent Job Related To Major	Liberal Arts Co-op		Liberal Arts Non-Co-op	
Much	72	(28.7%)	91	(25.6%)
Some	111	(44.2)	149	(42.0)
Very little	68	(27.1)	115	(32.4)
	X^2 = 2.052		p > .05	

Extent Wanted Job to Relate to Major	Liberal Arts Co-op		Liberal Arts Non-Co-op	
Very important	77	(31.0%)	97	(27.5%)
Hoped it would relate	109	(44.0)	131	(37.1)
Did not care	62	(25.0)	125	(35.4)
	X^2 = 7.422		p < .05	

TABLE G-9
Time of First Job:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Within six months after graduation	440	(76.3%)	460	(69.6%)
Between six months and one year	55	(9.5)	67	(10.1)
More than one year	82	(14.2)	136	(20.5)
	X^2 = 9.080		p < .01	

TABLE G-10
Job Title* of First Job:
Responses of Total Alumni Sample

	Co-op		Non-Co-op	
Professional, Technical and Kindred Workers	401	(71.2%)	415	(64.5%)
Managers, Officials and Proprietors	44	(7.8)	66	(10.3)
Clerical and Kindred Workers	70	(12.4)	90	(14.0)
Sales Workers	20	(3.6)	29	(4.5)
Craftsmen, Foremen and Kindred Workers	9	(1.6)	12	(1.9)
Operatives and Kindred Workers	2	(.4)	3	(.5)
Laborers	10	(1.8)	15	(2.3)
Service Workers	7	(1.2)	13	(2.0)

$X^2 = 6.684$ $p > .05$

TABLE G-11
Relocating For First Job:
Responses of Sex Subsample

	Male (1)		Female (2)	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Yes	126 (39.1%)	168 (44.4%)	88 (34.4%)	79 (26.4%)
No	196 (60.9)	210 (55.6)	168 (65.6)	220 (73.6)

t of (1) versus (2) = 2.857 $p < .01$

TABLE G-12
Relocating For First Job:
Responses of Classes of 1965, 1970, and 1974

	1965		1970	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Yes	71 (46.1%)	91 (46.2%)	74 (37.0%)	87 (39.7%)
No	83 (53.9)	106 (53.8)	126 (63.0)	132 (60.3)

$X^2 = .008$ $p > .05$ $X^2 = .223$ $p > .05$

*Classification scheme taken from 1974 Omnibus Occupation Code.

TABLE G-12 (continued)

	1974			
	Co-op		Non-Co-op	
Yes	55	(30.4%)	52	(26.9%)
No	126	(69.6)	141	(73.1)
	X^2 = .387		p > .05	

TABLE G-13
Relocating For First Job:
Responses of Curriculum Subsamples:

	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Yes	27 (27.0)	40 (31.5%)	59 (42.4%)	37 (52.9%)
No	73 (73.0)	87 (68.5)	80 (57.6)	33 (47.1)
	X^2 = .349	p > .05	X^2 = 1.634	p > .05

TABLE G-13 (continued)

	Liberal Arts			
	Co-op		Non-Co-op	
Yes	99	(39.9%)	141	(39.7%)
No	149	(60.1)	214	(60.3)
	X^2 = .001		p > .05	

TABLE G-14
Proportions of Males and Females Working
For A Former Co-op Employer

	(1) Co-op Males		(2) Co-op Females	
Working for former co-op employer	104	(32.3%)	42	(16.5%)
No working for former co-op employer	218	(67.7)	209	(83.5)
	t (1) versus (2) = 2.134		$p < .05$	

TABLE G-15
Proportion of Business, Engineering, and Liberal Arts Majors
Working For A Former Co-op Employer

	Co-op Business		Co-op Engineering		Co-op Liberal Arts	
Working for former co-op employer	39	(39.4%)	54	(38.8%)	36	(14.6%)
Not working for former co-op employer	60	(60.6)	85	(61.2)	211	(85.4)

TABLE G-16
How Located First Job:
Responses of Classes of 1965, 1970, and 1974

	1965		1970	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Graduate placement	43 (27.4%)	46 (23.2%)	20 (10.1%)	39 (17.8%)
Employment agency	14 (8.9)	13 (6.6)	15 (7.6)	17 (7.8)
Former co-op or internship job	37 (23.6)	17 (8.6)	47 (23.7)	15 (6.8)
Via contact person	21 (13.4)	38 (19.2)	37 (18.7)	59 (26.9)
Ad in newspaper, journal, etc.	13 (8.3)	15 (7.6)	26 (13.1)	20 (9.1)
Faculty	6 (3.8)	14 (7.1)	15 (7.6)	15 (6.8)
Former part-time or summer employer	1 (.6)	5 (2.5)	3 (1.5)	8 (3.7)
Contacted company	15 (9.6)	27 (13.6)	21 (10.6)	31 (14.2)
Other methods	7 (4.5)	23 (11.6)	14 (7.1)	15 (6.8)
	X^2 = 26.027	p < .001	X^2 = 31.838	p < .001

TABLE G-16 (continued)

	1974			
	Co-op		Non-Co-op	
Graduate placement	32	(17.6%)	34	(17.7%)
Employment agency	10	(5.5)	8	(4.2)
Former co-op or internship job	51	(28.0)	20	(10.4)
Via contact person	39	(21.4)	73	(38.0)
Ad in newspaper, journal, etc.	16	(8.8)	21	(10.9)
Faculty	7	(3.8)	4	(2.1)
Former part-time or summer employer	4	(2.2)	3	(1.6)
Contacted company	17	(9.3)	17	(8.9)
Other methods	6	(3.3)	12	(6.3)
	X^2 = 27.528		p < .001	

TABLE G-17
Salary Levels on First Job:
Responses of Sex Subsample

	Male		Female	
	Co-op	Non-Co-op	Co-op	Non-Co-op
	(1)	(2)	(3)	(4)
5,999 or below	33 (10.4%)	50 (13.8%)	92 (38.1%)	110 (39.0%)
6,000 - 7,999	76 (23.9)	97 (26.8)	81 (33.6)	107 (38.3)
8,000 - 9,999	80 (25.2)	96 (26.4)	49 (20.3)	49 (17.4)
10,000 - 11,999	81 (25.5)	59 (16.2)	15 (6.2)	7 (2.5)
12,000 - 13,999	33 (10.4)	46 (12.7)	2 (.8)	4 (1.5)
14,000 and above	13 (4.6)	15 (4.3)	2 (.8)	4 (1.5)
	$X^2 = 2.620$	$p > .05$	$X^2 = 6.415$	$p > .05$
	t (1) versus (3) = 3. 734		$p < .05$	
	t (2) versus (4) = 3.711		$p < .05$	

TABLE G-18
Salary Levels on First Jobs:
Responses of Curriculum Subsamples

	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
5,999 or below	5 (5.1%)	16 (13.3%)	7 (5.0%)	1 (1.4%)
6,000 - 7,999	25 (25.8)	34 (28.3)	29 (23.7)	15 (21.5)
8,000 - 9,999	29 (29.9)	34 (28.4)	31 (22.5)	20 (28.6)
10,000 - 11,999	23 (23.7)	17 (14.2)	44 (31.9)	31 (30.0)
12,000 - 13,999	11 (11.4)	14 (11.7)	20 (14.5)	11 (15.7)
14,000 and above	4 (4.0)	5 (4.1)	7 (3.5)	2 (2.8)
	$X^2 = 6.538$	$p > .05$	$X^2 = 3.810$	$p > .05$

TABLE G-18 (continued)

	Liberal Arts			
	Co-op		Non-Co-op	
5,999 or below	80	(33.9%)	107	(31.4%)
6,000 - 7,999	79	(33.5)	116	(34.0)
8,000 - 9,999	46	(19.5)	67	(19.6)
10,000 - 11,999	22	(9.3)	21	(6.2)
12,000 - 13,999	4	(1.7)	20	(5.9)
14,000 and above	5	(2.1)	10	(3.0)
	$X^2 = 8.347$		$p > .05$	

TABLE G-19
Salary Levels on First Job:
Responses of Classes of 1965, 1970, and 1974

	1965		1970	
	Co-op	Non-Co-op	Co-op	Non-Co-op
5,999 or below	53 (34.2%)	77 (40.1%)	33 (17.2%)	33 (15.5%)
6,000 - 7,999	63 (40.6)	64 (33.3)	52 (27.1)	70 (32.8)
8,000 - 9,999	25 (16.2)	29 (15.1)	47 (24.5)	61 (28.6)
10,000 - 11,999	6 (3.9)	8 (4.2)	44 (22.9)	27 (12.7)
12,000 - 13,999	2 (1.2)	8 (4.2)	9 (4.7)	14 (6.6)
14,000 and above	6 (3.6)	6 (3.0)	7 (3.6)	8 (3.7)
	X^2 = 4.729	p > .05	X^2 = 8.629	p > .05

TABLE G-19 (continued)

	1974	
	Co-op	Non-Co-op
5,999 or below	30 (17.2%)	22 (12.5%)
6,000 - 7,999	35 (20.1)	53 (30.1)
8,000 - 9,999	44 (25.3)	45 (25.6)
10,000 - 11,999	38 (21.8)	25 (14.2)
12,000 - 13,999	24 (13.7)	23 (13.0)
14,000 and above	3 (1.8)	8 (4.6)
	X^2 = 9.889	p > .05

TABLE G-20
Satisfaction With First Full-Time Job:
Responses of Race Subsample

	White		Minority	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Fully satisfied	218 (41.2%)	280 (44.7%)	17 (40.5%)	18 (45.0%)
Partially satisfied	235 (44.4)	259 (41.4)	18 (42.9)	12 (30.0)
Dissatisfied	76 (14.4)	87 (13.9)	7 (16.7)	10 (25.0)
	X^2 = 1.491	p > .05	X^2 = 1.710	p > .05

TABLE G-21
Satisfaction With First Full-Time Job:
Responses of Curriculum Subsamples

	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Fully satisfied	40 (40.0%)	49 (38.9%)	72 (51.4%)	36 (52.2%)
Partially satisfied	46 (46.0)	56 (44.4)	59 (42.1)	31 (44.9)
Dissatisfied	14 (14.0)	21 (16.7)	9 (6.4)	2 (2.9)
	X^2 = .303	p > .05	X^2 = 1.183	p > .05

TABLE G-21 (continued)

	Liberal Arts			
	Co-op		Non-Co-op	
Fully satisfied	83	(33.2%)	152	(42.8%)
Partially satisfied	115	(46.0)	145	(40.8)
Dissatisfied	52	(20.8)	58	(16.3)
	X^2 = 6.006		p < .05	

TABLE G-22
Promotions Received In First Job:
Responses of Sex Subsample:

	Male		Female	
	(1) Co-op	(2) Non-Co-op	(3) Co-op	(4) Non-Co-op
Yes	165 (51.7%)	193 (52.0%)	84 (33.2%)	89 (30.2%)
No	154 (48.3)	178 (48.0)	169 (66.8)	206 (69.8)
	X^2 = .000	p > .05	X^2 = .448	p > .05
	t (1) versus (3) = 2.857		p < .01	
	t (2) versus (4) = 3.586		p < .01	

TABLE G-23
Promotions Received In First Job:
Responses of Curriculum Subsamples

	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Yes	60 (61.2%)	73 (57.9%)	79 (56.8%)	45 (64.3%)
No	38 (38.8)	53 (42.1)	60 (43.2)	25 (35.7)
	X^2 = .130	p > .05	X^2 = .785	p > .05

TABLE G-23 (continued)

	Liberal Arts			
	Co-op		Non-Co-op	
Yes	80	(32.8%)	124	(35.6%)
No	164	(67.2)	224	(64.4)
	X^2 = .396		p > .05	

TABLE G-24
Still at First Place of Employment:
Responses of Sex Subsamples

	Male		Female	
	(1) Co-op	(2) Non-Co-op	(3) Co-op	(4) Non-Co-op
Yes	162 (51.4%)	160 (43.0%)	68 (26.9%)	82 (27.8%)
No	153 (48.6)	212 (57.0)	185 (73.1)	213 (72.2)
	X^2 = 4.521	p < .05	X^2 = .021	p > .05
	t (1) versus (3) = 3.658		p < .02	
	t (2) versus (4) = 2.397		p < .05	

TABLE G-25
Still at First Place of Employment:
Responses of Curriculum Subsamples

	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Yes	44 (45.4%)	55 (44.0%)	79 (58.5%)	40 (58.0%)
No	53 (54.6)	70 (56.0)	56 (41.5)	29 (42.0)
	X^2 = .004	p > .05	X^2 = .006	p > .05

TABLE G-25 (continued)

	Liberal Arts			
	Co-op		Non-Co-op	
Yes	73	(29.7%)	103	(29.5%)
No	173	(70.3)	246	(70.5)
	X^2 = .002		p > .05	

TABLE G-26
Still at First Place of Employment:
Responses of Males In Liberal Arts

	Co-op Males		Non-Co-op Males	
Yes	38	(44.7%)	58	(33.9%)
No	47	(55.3)	113	(66.1)
	X^2 = 2.378		p > .05	

TABLE G-27
Reasons Stopped Working:
Responses of Sex Subsamples

	Male		Female	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Laid off	6 (24.0%)	13 (28.3%)	4 (4.2%)	1 (.8%)
Relocation	-- ---	3 (6.5)	11 (11.6)	19 (15.0)
Marriage	-- ---	-- ---	10 (10.5)	16 (12.6)
Have baby	-- ---	-- ---	20 (21.1)	48 (37.8)
Graduate school	10 (40.0)	18 (39.1)	24 (25.3)	13 (10.2)
Other	9 (36.0)	12 (26.6)	26 (27.5)	30 (23.6)
	X^2 = 2.282	p > .05	X^2 = 16.126	p < .01

TABLE G-28
Promotions and Raises Since First Job:
Responses of Minority Subsamples

	White		Minority	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Raises since first job				
Yes	140 (49.3%)	162 (44.4%)	13 (50.0%)	5 (27.8%)
No	144 (50.7)	203 (55.6)	13 (50.0)	13 (72.2)
	X^2 = 1.358	p > .05	X^2 = 1.351	p > .05
Promotions since first job				
Yes	160 (54.8%)	198 (52.8%)	17 (68.0%)	7 (36.8%)
No	132 (45.2)	177 (47.2)	8 (32.0)	12 (63.2)
	X^2 = .189	p > .05	X^2 = 3.064	p > .05

TABLE G-29
Merit Raises Since First Job:
Responses of Sex Subsamples

	Male		Female	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Yes	97 (66.0%)	131 (63.9%)	82 (46.6%)	77 (39.7%)
No	50 (34.0)	74 (36.1)	94 (53.4)	117 (60.3)
	X^2 = .084	p > .05	X^2 = 1.522	p > .05

APPENDIX H

TABULAR DATA DISCUSSED IN CHAPTER 6, "CURRENT ACTIVITIES OF ALUMNI SAMPLE"

TABLE H-1
Current Job Titles:
Responses of Sex Subsamples:

	Male		Female	
	Co-op	Non-Co-op (1)	Co-op	Non-Co-op (2)
Professionals	206 (68.2%)	186 (54.1%)	121 (65.1%)	140 (69.3%)
Managers	62 (20.5)	94 (27.3)	25 (13.4)	24 (11.9)
Clerical workers	5 (1.7)	24 (7.0)	27 (14.5)	26 (12.9)
Sales workers	13 (4.3)	24 (7.0)	6 (3.2)	6 (3.0)
Craftspeople, operatives, laborers, service workers	16 (5.3)	16 (4.7)	7 (3.8)	6 (3.0)
	X^2 = 20.660	p < .05	X^2 = .841	p > .05
	t (1) versus (2) = 2.836	p < .05		

TABLE H-2
Current Job Titles:
Responses of Minority Subsamples

	White		Minority	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Professionals	300 (67.6%)	301 (59.7%)	22 (68.8%)	21 (56.8%)
Managers	81 (18.2)	109 (21.6)	3 (9.4)	7 (18.9)
Clerical workers	24 (5.4)	46 (9.1)	7 (21.9)	6 (16.2)
Sales workers	19 (4.3)	28 (5.6)	-- ---	1 (2.7)
Craftspeople, operatives, laborers, service workers	20 (4.5)	20 (4.0)	-- ---	2 (5.4)
	X^2 = 9.004	p > .05	X^2 = 4.361	p > .05

TABLE H-3
Current Salary:
Responses of Sex Subsamples

	Male		Female	
	Co-op	Non-Co-op	Co-op	Non-Co-op
5,999 or below	7 (2.4%)	16 (4.6%)	37 (20.1%)	21 (11.1%)
6,000 - 7,999	6 (2.0)	10 (2.9)	20 (10.9)	27 (14.2)
8,000 - 9,999	20 (6.8)	28 (8.1)	44 (23.9)	37 (19.5)
10,000 - 11,999	24 (8.1)	36 (10.4)	31 (16.8)	42 (22.1)
12,000 - 13,999	57 (19.3)	64 (18.6)	21 (11.4)	25 (13.2)
14,000 - 15,999	35 (11.9)	60 (17.4)	19 (10.3)	23 (12.1)
16,000 - 17,999	30 (10.2)	31 (9.0)	2 (1.1)	7 (3.7)
18,000 - 19,999	39 (13.2)	22 (6.4)	1 (.5)	4 (2.1)
20,000 and above	77 (26.1)	78 (22.6)	9 (4.9)	4 (2.1)
	$X^2 = 16.192$	$p < .05$	$X^2 = 14.856$	$p > .05$

TABLE H-4
Feelings of Being Discriminated Against:
Responses of Sex Subsamples

	Male		Female	
	Co-op	Non-Co-op	Co-op	Non-Co-op
To a great extent	15 (4.7%)	11 (3.0%)	13 (5.7%)	16 (6.6%)
Somewhat	26 (8.2)	37 (10.2)	49 (21.4)	42 (17.2)
Hardly at all	29 (9.1)	29 (8.0)	33 (14.4)	31 (12.7)
	(1)	(2)	(3)	(4)
Not at all	249 (78.1)	287 (78.8)	134 (58.5)	155 (63.5)
	$X^2 = 2.275$	$p > .05$	$X^2 = 1.964$	$p > .05$
	t (1) versus (3) = 3.908		$p < .02$	
	t (2) versus (4) = 3.347		$p < .02$	

TABLE H-5
Feelings of Being Discriminated Against:
Responses of Minority Subsample

	Male		Female	
	Co-op	Non-Co-op	Co-op	Non-Co-op
To a great extent	23 (4.6%)	22 (3.9%)	3 (8.3%)	5 (13.9%)
Somewhat	65 (13.0)	70 (12.4)	10 (27.8)	9 (25.0)
Hardly at all	54 (10.8)	53 (9.4)	8 (22.2)	4 (11.1)
	(1)	(2)	(3)	(4)
Not at all	359 (71.7)	418 (74.2)	15 (41.7)	18 (50.0)
	$X^2 = 1.088$	$p > .05$	$X^2 = 2.159$	$p > .05$
	t (1) versus (3) = 2.240		$p < .05$	
	t (2) versus (4) = 1.965		$p \leq .05$	

TABLE H-6
Supervise the Work of Others
Responses of Curriculum Subsamples

	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Regularly	47 (43.9%)	62 (55.2%)	65 (44.8%)	31 (43.7%)
Occasionally	36 (33.6)	36 (28.8)	70 (48.3)	33 (46.5)
Never	24 (22.4)	20 (16.0)	10 (6.9)	7 (9.9)
	$X^2 = 3.158$	$p > .05$	$X^2 = .578$	$p > .05$

TABLE H-6 (continued)

	Liberal Arts	
	Co-op	Non-Co-op
Regularly	99 (40.1%)	162 (45.6%)
Occasionally	78 (31.6)	122 (34.4)
Never	70 (28.3)	71 (20.0)
	$X^2 = 5.702$	$p > .05$

TABLE H-7
Supervise the Work of Others:
Responses of the Classes of 1965, 1970, and 1974

	1965		1970	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Regularly	97 (63.8%)	102 (55.1%)	79 (41.1%)	116 (56.6%)
Occasionally	36 (23.7)	54 (29.2)	80 (41.7)	62 (30.2)
Never	19 (12.5)	29 (15.7)	33 (17.2)	27 (13.2)
	X^2 = 2.602	p > .05	X^2 = 9.487	p < .01

TABLE H-7 (continued)

	1974	
	Co-op	Non-Co-op
Regularly	48 (24.5%)	69 (34.7%)
Occasionally	89 (45.4)	84 (42.2)
Never	59 (30.1)	46 (23.1)
	X^2 = 5.501	p > .05

TABLE H-8
Responsible in Several Phases of Work:
Response of Business Majors

	Business	
	Co-op	Non-Co-op
Regularly	94 (87.9%)	96 (76.8%)
Occasionally	12 (11.2)	23 (18.4)
Never	1 (.9)	6 (4.8)
	X^2 = 5.687	p > .05

TABLE H-9
Responsible in Several Phases of Work:
Responses of Minority Subsamples

	Minority			
	Co-op		Non-Co-op	
Regularly	30	(69.8%)	36	(85.7%)
Occasionally	9	(20.9)	5	(11.9)
Never	4	(9.3)	11	(2.4)
	X^2 = 3.477		p > .05	

TABLE H-10
Plan Own Work:
Responses of Curriculum Subsamples

	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Regularly	92 (86.0%)	99 (79.2%)	118 (81.4%)	61 (85.9%)
Occasionally	14 (13.1)	29 (16.0)	25 (17.2)	10 (14.1)
Never	1 (.9)	6 (4.8)	2 (1.4)	-- ---
	X^2 = 3.511 p > .05		X^2 = 1.391 p > .05	

TABLE H-10 (Continued)

	Liberal Arts			
	Co-op		Non-Co-op	
Regularly	185	(75.2%)	283	(79.5%)
Occasionally	48	(19.5)	58	(16.3)
Never	13	(5.3)	15	(4.2)
	X^2 = 1.560		p > .05	

TABLE H-11
Plan Own Work:
Responses of Classes of 1965, 1970, and 1974

	1965		1970	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Regularly	133 (87.5%)	166 (89.7%)	166 (86.5%)	176 (85.9%)
Occasionally	17 (11.2)	17 (9.2)	22 (11.5)	24 (11.7)
Never	2 (1.3)	2 (1.1)	4 (2.1)	5 (5.6)
	X^2 = .415	p > .05	X^2 = .065	p > .05

TABLE H-11 (continued)

	1974			
	Co-op		Non-Co-op	
Regularly	131	(66.8%)	131	(65.8%)
Occasionally	54	(27.6)	52	(26.1)
Never	11	(5.6)	16	(8.0)
	X^2 = .941		p > .05	

TABLE H-12
Opportunities For Advancement On Job:
Responses of Curriculum Subsamples

	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Regularly	56 (53.3%)	59 (48.0%)	50 (34.7%)	29 (40.8%)
Occasionally	40 (38.1)	50 (40.7)	77 (53.5)	33 (46.5)
Never	9 (8.6)	14 (11.4)	17 (11.8)	9 (12.7)
	X^2 = .861	p > .05	X^2 = .970	p > .05

TABLE H-12 (continued)

	Liberal Arts			
	Co-op		Non-Co-op	
Regularly	75	(31.4%)	116	(43.4%)
Occasionally	109	(45.6)	161	(46.4)
Never	55	(23.0)	70	(20.2)
	X^2 = .736		p > .05	

TABLE H-13
Usefulness to Society:
Responses of Curriculum Subsamples

	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Regularly	54 (52.4%)	71 (57.7%)	74 (51.4%)	39 (55.7%)
Occasionally	41 (39.8)	38 (30.9)	64 (44.4)	22 (31.4)
Never	8 (7.8)	14 (11.4)	6 (4.2)	9 (12.9)
	X^2 = 2.31	p > .05	X^2 = 7.228	p < .05

TABLE H-13 (continued)

	Liberal Arts			
	Co-op		Non-Co-op	
Regularly	164	(67.5%)	269	(77.5%)
Occasionally	65	(26.7)	67	(19.3)
Never	14	(5.8)	11	(3.2)
	X^2 = 7.761		p < .05	

TABLE H-14
Social Standing and Prestige:
Responses of Curriculum Subsamples

	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Regularly	55 (52.9%)	56 (45.9%)	40 (28.0%)	22 (32.4%)
Occasionally	42 (40.4)	48 (39.3)	81 (56.6)	37 (54.4)
Never	7 (6.7)	18 (14.8)	22 (15.4)	9 (13.2)
	X^2 = 3.840	p > .05	X^2 = .487	p > .05

TABLE H-14 (continued)

	Liberal Arts			
	Co-op		Non-Co-op	
Regularly	95	(40.4%)	161	(46.8%)
Occasionally	91	(38.7)	148	(43.0)
Never	49	(20.9)	35	(10.2)
	X^2 = 12.880		p < .01	

TABLE H-15
Social Standing and Prestige:
Responses of Classes of 1965, 1970, and 1974

	1965		1970	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Regularly	74 (49.7%)	95 (51.9%)	81 (43.5%)	100 (49.5%)
Occasionally	61 (40.9)	77 (42.1)	77 (41.4)	86 (42.6)
Never	14 (9.4)	11 (6.0)	28 (15.1)	16 (7.9)
	X^2 = 1.357	p > .05	X^2 = 5.113	p > .05

TABLE H-15 (continued)

	1974			
	Co-op		Non-Co-op	
Regualarly	68	(35.6%)	64	(33.3%)
Occasionally	87	(45.5)	90	(46.9)
Never	36	(18.8)	38	(19.8)
	X^2 = .224		p > .05	

TABLE H-16
Future Work Plans:
Responses of Classes of 1965, 1970, and 1974

	1965		1970	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Same type of work	63 (40.4%)	93 (48.2%)	75 (37.7%)	96 (43.0%)
Same career but more advanced job	61 (39.1)	61 (31.6)	69 (34.7)	69 (30.9)
New career field	18 (11.5)	19 (9.8)	30 (15.1)	30 (13.5)
Unsure	4 (2.6)	1 (.5)	2 (1.0)	8 (3.6)
Don't plan to work	10 (6.4)	19 (9.8)	23 (11.6)	20 (9.0)
	X^2 = 6.540	p > .05	X^2 = 5.040	p > .05

TABLE H-16 (continued)

	1974			
	Co-op		Non-Co-op	
Same type of work	62	(30.1%)	58	(25.0%)
Same career but more advanced job	68	(33.0)	65	(28.0)
New career field	47	(22.8)	76	(32.8)
Unsure	3	(1.5)	5	(2.2)
Don't plan to work	26	(12.6)	28	(12.1)
	X^2 = 6.091		p > .05	

TABLE H-17
Participation in Political Activities:
Responses of Curriculum Subsamples

	Business		Engineering	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Often	1 (.9%)	4 (2.9%)	4 (2.7%)	1 (1.3%)
Occasionally	23 (20.7)	33 (24.1)	18 (12.2)	7 (9.1)
Never	87 (78.4)	100 (73.0)	126 (85.1)	69 (89.6)
	X^2 = 1.783	p > .05	X^2 = .996	p > .05

TABLE H-17 (continued)

	Liberal Arts			
	Co-op		Non-Co-op	
Often	18	(6.4%)	19	(4.5%)
Occasionally	95	(33.7)	140	(33.4)
Never	169	(59.9)	260	(62.1)
	X^2 = 1.219		p > .05	

TABLE H-18
Participation in Community Activities:
Responses of Classes of 1965, 1970, and 1974

	1965		1970	
	Co-op	Non-Co-op	Co-op	Non-Co-op
Often	28 (17.5%)	32 (15.5%)	21 (10.1%)	24 (10.2%)
Occasionally	91 (56.9)	112 (54.1)	85 (40.9)	97 (41.3)
Never	41 (25.6)	63 (30.4)	102 (49.0)	114 (48.5)
	X^2 = 1.092	p > .05	X^2 = .012	p > .05

TABLE H-14 (continued)

	1974			
	Co-op		Non-Co-op	
Often	25	(11.4%)	13	(5.2%)
Occasionally	81	(36.8%)	102	(41.0)
Never	114	(51.8)	134	(53.8)
	$X^2 = 6.042$		$p < .05$	

REFERENCES CITED

Epting, Luther. "Survey Analysis of Mississippi State University Cooperative Education Graduates From 1970-74." Journal of Cooperative Education XI, 2 (May 1975).

Fox, David. The Research Process in Education. New York: Holt, Rinehart and Winston, Inc., 1969.

Gore, George J. "Co-op Versus Non-Co-op Revisited." Journal of Cooperative Education XI, 1 (November 1972).

Guilford, J.P. Fundamental Statistics In Psychology and Education. 3rd ed. New York: McGraw-Hill Book Company, 1965.

Hayes, Richard A., and Trairs Jill H. Employer Experience With Cooperative Education: Analysis of Costs and Benefits. Detroit: Detroit Institute of Technology, 1976.

Mosbacker, Wanda B. "Women in Co-op." Journal of Cooperative Education X, 1 (November 1973).

Nie, Norman; Hull C.H.; Jenkins, J.G.; Steinbrenner, K.; Bent, D.H. Statistical Package for the Social Sciences. 2nd ed. New York: McGraw-Hill Book Company, 1975.

Osipow, Samuel H. Theories of Career Development. New Jersey: Prentice-Hall, Inc., 1973.

Rodes, Harold P. "The After Effects of Cooperative Education." Journal of Cooperative Education IV, 2 (May 1968).

Sommers, Dixie. "Occupational Rankings for Men and Women by Earnings." Monthly Labor Review (August 1974); reprint ed.

Tyler Ralph. "Values and Objectives." In Handbook of Cooperative Education. By Asa S. Knowles and Associates. San Franciso: Jossey-Bass, Inc., 1971.

Van Sickle, Harriet P. "Professional Development of Women." In Handbook of Cooperative Education. By Asa S. Knowles and Associates. San Francisco: Jossey-Bass, Inc., 1971.

Wilson, James W. Impact of Cooperative Education Upon Personal Development and Growth of Values: Final Report to the Braitmayer Foundation. Boston: Cooperative Education Research Center, 1974.

Wilson, James W.; Brown, S.J.; Bork, G.R.; Black, V.H. Implementation of Cooperative Education Programs. Boston: Cooperative Education Research Center, 1974.

Wilson, James W, and Lyons, Edward H. Work-Study College Programs: Appraisal and Report of the Study of Cooperative Education. New York: Harper and Brothers, 1961.

Yensco, William R. "A Comparative Analysis of Engineering Graduates From Cooperative and Regular Programs: Career Status and Attainment of 1962 and 1965 Baccalaureate Graduates." Unpublished doctoral dissertation, University of Michigan, 1970.