

A STUDY OF INITIAL EMPLOYMENT CHARACTERISTICS BETWEEN CO-OP AND NON-CO-OP COMMUNITY COLLEGE GRADUATES

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ABSTRACT

This study analyzed the concept of cooperative education as it relates to preparing students for the workplace. Community college graduates from an engineering/technical graphics program that utilized cooperative education in its curriculum were compared with graduates from another engineering/technical graphics program that was comparable except that it was not involved with cooperative education. Samples chosen from both institutions represented the years 1992-1999. Graduates were examined by measures designed to assess organizational socialization, relevance of job-to-career plans, degree of access to resources, and participation in decision-making. A questionnaire developed by Brown (1984) was modified and employed to obtain data. No significance ($p < .05$) was detected with any of the 4 measures with regard to the following 3 groups of community college engineering/technical graphics graduates (a) cooperative education graduates who stayed with their former co-op employer, (b) cooperative education graduates who gained employment with a new employer, and (c) graduates without cooperative education experience. In addition, statistical significance ($p < .05$) was not attained for the combined 2 groups of cooperative education graduates versus the graduates without co-op experience on the employee sense of power measures.

INTRODUCTION

This inquiry examined the concept of workplace power as related to community college engineering/technical graphics graduates employed at their first job after graduation. In particular, the investigation focused upon the following three groups: (a) cooperative education graduates who remained with their former co-op employer, (b) cooperative education graduates who gained employment with a new employer and (c) graduates who lacked co-op experience. Following the same mission as other past co-op studies, this research was conducted to broaden the understanding of cooperative education. While studies exist which concern cooperative education's effect on the process of socialization into organizations (e.g., Williams, Sternberg, Rashotte & Wagner, 1993; Aultman, 1997), most co-op research supports other types of benefits. A literature review into this subject exposes such a reality and that additional studies exist which suggest that cooperative education experience enhances various aspects of the educational

process (e.g., Carrell & Rowe, 1993; Gregory, 1990). Cooperative education experience is also linked to helping students after they graduate. For instance, students who experience cooperative education may obtain their first job after graduation as a result of co-op involvement. An investigation by Weintraub (1984) supports this benefit by revealing that 41% of community college graduates who gain employment receive jobs as a result of having cooperative education experience. A study by Wessels & Pumphrey (1995) reports that community college graduates who attain jobs through their former cooperative education employers appear to undergo less time in finding their first jobs. After graduation, students with previous cooperative education experience may realize additional benefits as a result of such experience. For example, a study by Gardner, Nixon & Motschenbacher (1992) indicates that students with cooperative education experience can realize greater salary benefits versus traditional students when beginning their careers. This benefit also applies to graduates who begin work with their former cooperative education employers. However, students and graduates are not the only beneficiaries of cooperative education programs. An assessment by Weinstein & Wilson (1983) reveals that employers value cooperative education because it provides an opportunity for both students and employers to experience the work situation before making a final commitment. Cooperative education is also associated with providing employers with an excellent opportunity to recruit and retain co-op students upon graduation. Furthermore, a study by Phillips (1978) indicates that employers value cooperative education programs because they believe co-op graduates are better trained and have valuable company experience. These employer benefits of cooperative education participation are supported by various additional comprehensive co-op studies (e.g., Laporte, 1994; Dobreci, 1996). The previous studies should be carefully considered when reviewing the results of this investigation.

In accordance with Kanter (1977, 1993) and Brown (1984), this study's interpretation of employee sense of power was more closely aligned with the process of adjusting to the work environment than with exerting dominance over others. More precisely, graduates were assessed by measures designed to examine organizational socialization, relevance of job-to-career plans, degree of access to resources, and participation in decision-making. Organizational socialization was evaluated by measures concerning early expectations, job congruence, organizational commitment, and "learning the ropes." All of the measures were derived from a study by Brown and modified to suit the needs of this investigation. Each measure was intended to contribute toward an understanding of employee sense of power as related to the various graduates. The measures concerning degree of access to resources and participation in decision-making served as the primary indicators of employee sense of power in this study.

JUSTIFICATION

Although cooperative education is generally believed to better prepare students for the workplace, it has not been fully embraced in our educational system. Research is needed to see if differences exist between students who experienced cooperative education and students who were not involved with co-op. Without such information, cooperative education programs are open to criticism. Unfortunately criticism can translate into lack of support (Cutt & Loken, 1995). If the field of cooperative education fails to move ahead with a program of research, it may never achieve the academic legitimacy needed to ensure survival. This especially pertains to higher education (Bartkus & Stull, 1997). Students who have experienced cooperative education are especially suited to provide researchers with the type of information needed to advance understanding of co-op programs. Since research concerning how cooperative education affects the behavior of community college engineering/technical graphics graduates is lacking, an

investigation that utilizes the insights of these graduates is needed to provide more understanding into this relationship. The purpose of this study is to expand the knowledge of cooperative education by examining the effects of co-op on the initial employment of community college engineering/technical graphics graduates, including those who continue to work for a former co-op employer. Although research has been found which examined various effects of cooperative education on the initial employment of participants (e.g., Brown, 1984; Gardner & Koslowski, 1993), none has specifically related to community college engineering/technical graphics graduates. In addition, no research has been located that examined how cooperative education affects the behavior of community college engineering/technical graphics graduates.

METHODOLOGY

This investigation was based on a causal-comparative approach. Also known as ex post facto research, this type of investigation “attempts to determine the cause, or reason, for existing differences in the behavior or status of groups of individuals” (Gay, 1987, p. 542). Two North Carolina community colleges were selected to provide samples for this study. Samples from the two institutions consisted of engineering/technical graphics graduates from the years 1992 to 1999. The following groups of graduates were not included in this study: (a) students who never went to work in the area of engineering/technical graphics after graduation and (b) students who obtained other degrees after graduation before gaining employment in the field of engineering/technical graphics. This selection procedure was used in conjunction with a methodology that exclusively focused on engineering/technical graphics graduates working at their first job after graduation.

Community college graduates from the two institutions that participated in the study consisted of a total of 67 graduates between the years 1992 to 1999. A total of 67 questionnaires were mailed to the engineering/technical graphics graduates from the two community colleges.

A questionnaire derived from a survey instrument by Brown (1984) was utilized to collect data concerning whether community college engineering/technical graphics graduates with cooperative education experience reported a greater sense of power on their jobs than community college engineering/technical graphics graduates without co-op experience. This questionnaire was validated for reliability through studies conducted by the original author and others in the field of Cooperative Education. The reliability coefficients for this instrument ranged from .53 to .92 over a period of 20 years (Owen, 2000). A pilot study augmented development of the questionnaire and served to enhance data collection and follow-up procedures. Collected data were analyzed using analysis of variance (ANOVA) to determine which group reported having a greater sense of power.

This study individually examined the following four areas associated with employee sense of power: (a) organizational socialization, (b) relevance of job to career plans, (c) degree of access to resources, and (d) participation in decision-making. These four areas originated in a study by Brown (1984) which examined the influence of cooperative education on the first job of 4-year college graduates. The structure of this inquiry was based on Brown's research. Organizational socialization and relevance of job-to-career plans served as variables of employee sense of power. Degree of Access to Resources and Participation in Decision-Making served as the primary measures of employee sense of power in this investigation.

The following intermediate variables were established in order to gain understanding into the organizational socialization variable: (a) early expectations, (b) job congruence, (c) organizational commitment, and (d) learning the ropes.

With respect to early expectations, Brown (1984) relates that “one way to judge the success of efforts to socialize new recruits to an organization is to measure how realistic the employee’s expectations of his [her] job were when he [she] first began to work for the company” (p. 12). According to Brown, cooperative education has long been linked to providing co-op graduates with the ability to make better decisions concerning employment. This belief is often associated with cooperative education graduates who continued to work for their co-op employer.

Brown (1984) indicates that job congruence is another component of organizational socialization. This intermediate variable relates to having a suitable match between the employee and his/her job. Brown reports that job congruence has been connected with involvement in co-op education. It has been associated with participation in decision-making.

Another component of organizational socialization utilized in this study was organizational commitment. According to Brown (1984), this intermediate variable relates to how well an employee identifies with and is involved with his/her workplace organization. Brown reports that organizational commitment has generally been associated with successful organizational socialization.

Learning the ropes was classified as the final component of organizational socialization in this study. In accordance with Brown (1984), this intermediate variable relates to learning what is expected on the job and knowing how to get it accomplished.

The second major variable of employee sense of power used in this study was relevance of job-to-career plans. “If co-op graduates are more likely to be certain of their career choice at graduation and more concerned that their first job after college relates to their undergraduate major, then it is probable that they will perceive their current job as being part of a broader career plan” (Brown, 1984, p. 12).

Degree of access to resources was the first primary measure of employee sense of power utilized in this study. According to Brown (1984), having adequate access to the resources required to perform one’s duties in the workplace is an ingredient of employee sense of power. This involves having access to “information, equipment, supervisor, co-workers, and authority” (p. 13).

The second and final primary measure of employee sense of power in this study was participation in decision-making. This relates to the ability of employees to make decisions which concern their needs. In accordance with Brown (1984), this measure was evaluated with regard to the new employees’ view of their participation with supervisors concerning job-related issues.

A series of 5-point Likert scales intended for use with the questionnaire were derived from each of the four areas (i.e., organizational socialization, relevance of job-to-career plans, degree of access to resources, and participation in decision-making) in order to provide data related to employee sense of power among the groups of graduates examined by this study. The following numbers and corresponding descriptions illustrate the range of the scales: 1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree, and 5 = strongly agree. Due to constraints of time and resources, a follow-up study was not conducted. Listed in Table 1 are example questions asked to participants from the four areas associated with employee sense of power. Following this table are various findings related to this inquiry.

Table 1

Example Questions from Employee Sense of Power Questionnaire

Questions					
Organizational Socialization:					
I talk up this organization to my friends as a great organization to work for.	1	2	3	4	5
Relevance of Job to Career Plans:					
This job is part of my overall career plans.	1	2	3	4	5
Degree of Access to Resources:					
I have enough information to get the job done.	1	2	3	4	5
Participation in Decision Making:					
In general, I have much say and influence over what goes on in my job.	1	2	3	4	5

Note: *Based on 5-Point Likert Scales: 1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree, and 5 = strongly agree.

FINDINGS

Twenty-four community college graduates representing an engineering/technical graphics program which employed cooperative education in its curriculum were compared with 13 graduates from another engineering/technical graphics program which was similar except that it was not involved with co-op. Forty-seven of 67 questionnaires were returned completed. From this group, 37 (55%) were eligible for examination. Those participants who were excluded from statistical analysis did not meet the required criteria for study inclusion based upon lack of initial work experience in the field of engineering/technical graphics after graduation and the obtainment of additional degrees before gaining employment in the field of engineering/technical graphics. It is important to realize that the accumulation of statistical data is based upon small sample sizes. Therefore, the statistics derived from these samples may be skewed and may not reflect findings characteristic of co-op graduates. Table 2 describes the demographics of study participants.

Table 2

Demographics of Study Participants

	Co-op Graduates Still Working With a Former Co-op Employer	Co-op Graduates Working With a New Employer	Non-Co-op Graduates With No Co-op Experience	Totals
Category:	No. of Students	No. of Students	No. of Students	
GENDER				
Male	13	5	10	28
Female	4	2	3	9
TOTAL	17	7	13	37

Table continues

AGE				
18-20	0	1	0	1
21-25	10	4	5	19
26-30	3	2	4	9
31-35	2	0	1	3
36-40	1	0	2	3
41-45	0	0	1	1
Over 45	1	0	0	1
TOTAL	17	7	13	37
RACE				
White	14	6	13	33
Black	1	1	0	2
Other (Hispanic)	2	0	0	2
TOTAL	17	7	13	37

Table 3 illustrates the related means and standard deviations for the following groups of community college graduates: (a) co-op graduates with a former co-op employer, (b) co-op graduates with a new employer, and (c) graduates without co-op experience. The means and standard deviations illustrated in Table 3 are based on the 5-point Likert scale rating system. Table 3 displays the means of the three groups of community college engineering/technical graphics graduates as related to the four areas associated with employee sense of power. Information found within this table illustrates that the means for the non-co-op group are almost equal to or higher than several of the co-op employer group means.

In order to compare the three groups of community college graduates with respect to the areas associated with employee sense of power, the researcher chose to employ the ANOVA statistic. The following two tables compared the means with an ANOVA statistical test for the measures concerning employee sense of power. This procedure included controlling for the following variables: (a) major related and/or non-major related work experience during community college, (b) amount of major related and/or non-major related work experience during community college, (c) gender, (d) age, and (e) length of employment at current engineering/technical graphics job.

Table 4 shows the means with ANOVA results with respect to the three groups of engineering/technical graphics graduates. This table also indicates that statistical significance ($p < .05$) was not achieved for the three groups of community college engineering/technical graphics graduates on the areas associated with employee sense of power. Note, Table 4 shows that the means for the non-co-op graduates are almost equivalent to or higher than several of the co-op group means.

In keeping with the level of statistical significance ($p < .05$) established for this investigation, Table 5 reveals that statistical significance was not attained for the combined two groups of co-op graduates ($n = 24$) versus the graduates without co-op experience on the measures connected with employee sense of power. Although slight variations between the various means were detected, these differences were not enough to be statistically significant. Like the previous tables, Table 5 shows the means for the non-co-op group are almost equal to or higher than several of the co-op employer group means. Variance testing for these groups was not conducted prior to the ANOVA.

Table 3

Co-op Graduates with a Former Co-op Employer (n = 17), Co-op Graduates with a New Employer (n = 7), and Graduates without Co-op Experience (n = 13)

Areas Associated With Employee Sense of Power	Number of Items	Means Co-op Grads Former Employer (n=17)*		Means Co-op Grads New Employer (n=7)*		Means Non-Co-op Grads (n=13)*	
		SD (n=17)*		SD (n=7)*		SD (n=13)*	
Organizational Socialization	15	3.600	0.453	3.762	0.743	3.725	0.395
Early Expectations	3	3.176	0.591	3.476	1.034	3.461	0.586
Job Congruence	2	3.500	0.829	3.571	1.096	3.808	0.522
Organizational Commitment	9	3.667	0.402	3.714	0.891	3.479	0.254
Learning the Ropes	1	4.059	0.659	4.285	0.488	4.154	0.555
Relevance of Job-to-Career Plans	6	3.578	0.823	3.548	0.780	3.667	0.557
Degree of Access to Resources	11	4.005	0.520	4.026	0.723	3.958	0.501
Participation in Decision-Making	4	3.573	0.828	3.857	0.934	3.788	0.706

Note: *Based on 5-Point Likert Scales: 1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree and 5 = strongly agree.

Table 4

Means with ANOVA Results for the Three Groups of Engineering/Technical Graphics Graduates

Grads Areas Associated With Employees Sense of Power	Co-op Grads Former Employer (n=17)*	Co-op Grads New Employer (n=7)*	Non-Co-op Grads (n=13)*	F-Ratio	Probability Level
Organizational Socialization	3.600	3.762	3.725	0.38	0.688
Early Expectations	3.176	3.476	3.461	0.04	0.958
Job Congruence	3.500	3.571	3.808	0.23	0.794
Organizational Commitment	3.667	3.714	3.479	1.00	0.385
Learning the Ropes	4.059	4.285	4.154	1.52	0.242
Relevance of Job-to-Career Plans	3.578	3.548	3.667	0.25	0.780
Degree of Access to Resources	4.005	4.026	3.958	0.92	0.415
Participation in Decision-Making	3.573	3.857	3.788	0.58	0.570

Note: *Based on 5-Point Likert Scales: 1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree and 5 = strongly agree.

Table 5

Means with ANOVA Results for the Combined Groups of Engineering/Technical Graphics Graduates with Co-op Experience Versus the Graduates Without Co-op Experience

Areas Associated With Employee Sense of Power	Co-op Grads (n=24)*	Non-Co-op Grads (n=13)*	F-Ratio	Probability Level
Organizational Socialization	3.647	3.725	0.36	0.553
Early Expectations	3.264	3.461	0.05	0.828

Table continues

Job Congruence	3.521	3.808	0.09	0.765
Organizational Commitment	3.680	3.479	1.75	0.201
Learning the Ropes	4.125	4.154	1.40	0.250
Relevance of Job-to-Career Plans	3.569	3.667	0.21	0.655
Degree of Access to Resources	4.011	3.958	1.82	0.193
Participation in Decision-Making	3.656	3.788	0.95	0.341

Note: *Based on 5-Point Likert Scales: 1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree and 5 = strongly agree.

CONCLUSIONS

The findings linked to the four measures of employee sense of power disclosed no statistically-significant differences ($p < .05$) among the following three groups of community college engineering/technical graphics graduates: (a) cooperative education graduates working for a former co-op employer, (b) cooperative education graduates working for a new employer, and (c) graduates without cooperative education experience. In addition, no statistically-significant differences ($p < .05$) were found when the two groups of cooperative education graduates were combined and compared with the graduates without co-op experience.

Since the findings of this investigation did not indicate the existence of statistically-significant differences ($p < .05$) among the specified groups of community college engineering/technical graphics graduates on any of the four measures related to employee sense of power, one cannot conclude that cooperative education enhances employee sense of power with respect to these graduates. It is appropriate to consider what the results of this inquiry may imply.

To begin with, it is important to realize that this study was conducted using small sample sizes. Therefore, the data collected within this study may not accurately reflect findings consistent with graduates who experience co-op during community college. While the findings of this study may not be directly useful, they do provide a foundation for future research in this area. The authors of this study suggest that larger sample sizes be used for future studies. In addition, implications are possible concerning the practice of cooperative education if programs utilizing such a strategy are interpreted exclusively with regard to the four employee sense of power measures which underpinned this research endeavor. Because support was not detected in favor of cooperative education as related to the four measures, cooperative education at the community college which utilizes this educational strategy has thus far not substantiated an ability to enhance employee sense of power for initially employed engineering/technical graphics graduates who graduated between the years 1992 to 1999. It is important to consider that such an outcome may be solely related to this investigation. For example, inquiry findings may be specific to these two community colleges. Furthermore, the majority of cooperative education

graduates utilized in this study (19 out of 24) experienced only one 8-week summer semester of co-op. It is reasonable to believe that a study involving graduates with more cooperative education experience (e.g., at least two alternating terms) might have produced findings more supportive of co-op with regard to the four areas associated with employee sense of power (Brown, 1984). Employer differences should, likewise, be considered when examining the results of this study. Such consideration is appropriate since the engineering/technical graphics graduates from the two community colleges were generally employed by different employers. Because this investigation focused solely on individuals who graduated between the years 1992 to 1999, inquiry results might have been influenced by the length of time between the graduates' initial employment and study involvement.

In conclusion, this inquiry revealed that in one particular community college setting, cooperative education has thus far not statistically substantiated an ability to enhance employee sense of power for initially employed engineering/technical graphics graduates. In order to gain more understanding into this issue more research is needed. Recommendations for future research include replicating this study using substantially larger and more equivalent samples, involving graduates that represent comparable size companies which have similar resources, and utilizing cooperative education graduates who experienced more periods of co-op (i.e., at least two alternating terms). It is also recommended that this research topic be pursued by means of a full qualitative investigation. Such an approach has the potential of revealing various insights that may not show up in statistically-based investigations.

The utilization of education interrelated with the process of work (i.e., cooperative education) is one method that can enable our educational system to teach effective ways of dealing with the modern workplace (Gardner, 1996). In order to enhance the survival, growth and potential of cooperative education at all educational levels, more attention needs to be directed to this subject.

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