

The Coop Experience: A Lasting Impact?

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Recent studies that have examined the transition from college to the workplace have revealed that co-op participation has (1) leveled the playing field for those with less work experience by equalizing salaries; (2) enhanced starting salaries, compared to other engineering graduates with similar experiences; and (3) facilitated early socialization into the work place. Co-op participation clearly has decided advantages that influence early work experiences. But do these advantages last?

Once the game has been engaged, co-op experiences may (1) continue to influence career advancement by accelerating promotions and salary increases or (2) be offset by other experiences and factors related to the work place, such as workplace learning. Little is known about the sustained impact of the co-op experience on the early careers of participants. This presentation presents evidence from a study that probed into the early careers of a group of engineers to determine if the co-op experience had any sustained influence on promotions, salary and career patterns.

METHOD

A cross sectional, time series design was employed whereby two groups of engineering graduates from Michigan State University between 1979 and 1989 were selected to participate in this study. The first group was drawn from those graduates who had been involved in the starting salary study (Gardner, Nixon and Motschenbacher, 1992), augmented by all remaining co-op graduates from this period. A total of 1196 valid addresses were obtained for this group. The second group consisted of randomly selected graduates who had been omitted from the salary study and a small group of 1990 graduates. Through comparisons of group one and two, a determination on the generalizability of the group one results to the general population of engineers graduating from Michigan State University could be made.

A survey instrument was partially adapted from the approach taken by Nicholson and West (1988) in their study of managerial job change. The instrument consisted of two parts: (1) review of work experiences while in college, skill development in undergraduate program, career evaluation and outlook, and demographic information; and (2) a detailed work diary, emphasizing the first job, current job and three job changes (promotions or responsibilities). For each position, information was sought on position within the organization, job title, salary, and selected sets of attitudes and

perceptions. A final section obtained a career summary, including number of organizations worked for, promotions, job changes, and changes in job responsibilities.

A total of 409 from group one returned the survey (34% response rate) and 201 from group two (22% response rate) for a total of 610.

RESULTS

The preliminary results shared in this presentation represent 381 surveys and diaries. (The remaining diaries which were recently returned are being coded and will be available to the reader in early 1993.) Approximately, 21% (n=79) of the respondents indicated that they had gained no career related work experiences during their undergraduate years. Those with work experience consisted of 39% with co-op (n=148), 29% with summer employment (n=109) and 11% with an internship (43). The internship experience, an informal arrangement usually with a faculty member as the intermediary, is a recent development with 60% obtaining their internship after 1987. The co-op group was further broken down into COOP I with two or fewer co-ops sessions (n=46) and COOP II with more than three (n=102). This distinction provided to be significant in our earlier research and analyses in this study would be conducted on this grouping.

Sixty-four percent (64%) of the respondents were men. The mean age was 31 years with a range from 25 to 40. Only three respondents could be identified as non-traditional students with ages reported above 40. The highest level of education obtained by 75% of the respondents was their bachelors in engineering. Forty-six (12%) had earned a masters in engineering, 42 (11%) a masters in business, three (1%) a doctoral degree in engineering and the remaining five professional degrees in law or medicine.

First Job. Slightly over 60% of the respondents found their first job in the manufacturing sector with the remainder located in transportation, consulting, government and other professional services. Ten percent indicated by their job titles and responsibilities that they were in sales and management. The vast majority (78%) indicated their occupation as engineer in these common categories: industrial (20%), electrical (11%), mechanical (11%), and computer engineering (8%). The size of firm varied widely from 50 employees to over 100,000.

Most graduates were assigned to entry level positions, appropriate for bachelor's degree recipients, in their hiring organizations, approximately 60%. Some graduates were placed in positions at a step or two above the entry level.

Aside from the intern group, the COOP II found 38% in positions above the entry level. This was higher than for those with no work experience and summer employment and comparable to COOP I.

Differences were found on several other job characteristics. COOP II were employed in larger organizations compared to no experience, COOP I, and summer employment groups. This meant that there were more engineering and management levels above COOP II respondents than other groups. The most significant difference was found for starting salary. COOP II and intern participants held a decided advantage after adjusting salaries to 1979 dollars.

Length of time one remained in their first position found those with no experience and COOP I staying the longest, approximately two and one-half years (slightly longer for no experience). The other groups tended to move within about two years.

Differences were examined according to the time the respondent entered the labor market. Those who entered prior to 1983 tended to stay in their position longer and work for larger companies. Those who entered between 1984 and 1986 were also very stable remaining in their first position nearly two and one half years. Recent entrants have done much more moving-- usually within the first year and one-half. The exception being those with no experience who held their first position for slightly over two years. More noticeable have been the changes in size of the organization. COOP II and interns worked for much larger firms than the members of the other groups. COOP II members held a salary advantage within each group though the difference shrunk over time; until nearly disappearing for the most recent graduates.

Current job. In their current position (those who have had at least one job change), the percent working in the manufacturing sector dropped to 58% with nearly 21% working as consults or professional services. Through job titles and responsibilities, 25% were classified as managers, 6% in sales, 61% as engineers (concentrated in the same areas as in first job) and 11% in computer systems/programming. When grouped according to position within the organization, approximately 55% of the COOP II group were in the middle steps. This was slightly higher than the other groups, especially those from COOP I. It was more unlikely to find COOP II at the higher levels of management; though it was common in the other groups.

Comparisons on the job characteristics used previously found no differences among groups. Likewise, few differences were found when respondents were grouped by the time they entered the labor market. While not significant, it was clear that COOP II members continued to work for larger companies, especially more recent graduates. The significant salary differences had disappeared by this time, regardless of when entry into the labor market occurred. In a symbolic sense, COOP II maintained their salary advantage, enjoying one of the highest levels, particularly over no experience and COOP I.

Career Summary. Respondents were asked to summarize their career in terms of the number of organizations they worked for, promotions, job changes (without promotion) and changes in responsibilities (in same position). Comparisons across these factors found no discernable differences among groups. Generally everyone had worked for two organizations, been promoted two to three times, and have not seen changes in position or modifications in job responsibilities.

Comparisons by time they entered the workforce suggested that COOP II members who entered prior to 1983 had worked for three companies (compared to two or fewer for others) and had received nearly four promotions (one more than those in other groups). Similar advantages were not found for those co-ops who entered the labor market after 1983.

A final set of comparisons was conducted on a set of variables that measured career success, career satisfaction, and career progress to date. In comparisons by collegiate work experiences, no differences were found. In fact, regardless of group, respondents felt somewhat successful in their career, they were making adequate progress in their career as compared to their peers, and somewhat satisfied with how their career had developed up to this time.

DISCUSSION

The preliminary results provide some initial insights into the early career patterns of engineering graduates. Some of these patterns may change when the entire data set is available for analysis. At this point, several items are worth highlighting.

1. Engineers who have gained no engineering-related work experience while in college are at a disadvantage in the labor market. Their salaries lag behind those with work experiences and they must remain longer in their first position in order to adjust to the world of work.

2. Co-op participants who complete a co-op cycle (at least one year - 12 months) have a salary advantage throughout their early career though the difference gradually shrinks. Co-ops are also stable, remaining in their positions longer than others with work experience. This may be related to the tasks they carry out and the degree to which they exercise the skills learned in their co-op experience. Co-op graduates tend to work for large firms which may mask their career advancement in comparison to those who work for smaller firms. More attention will be given to controlling for firm size in later analyses.

3. Academic major was found to make a strong difference in our first study. This variable has not been introduced yet in this analysis. We expect that major will influence the career patterns. For example, computer science majors tend to work for smaller companies or set-up their own consulting business as compared to the traditional engineering disciplines of mechanical, electrical, and chemical.

As we begin to probe deeper into the data, the path suggests that the benefits from co-oping may dissipate quickly for the participant but may remain for a longer period for the employer. At this stage we do not see accelerated promotions, higher levels of responsibility, nor enhanced careers for co-ops over other graduates. The lack of distinction among work experiences may stem from the measures we employed; however, it is more likely that once everyone has socialized into the organization, engineers become more alike than different. If true, this suggests that co-op experiences are a valuable learning tool, especially in the sense of aiding in initial job choice--co-ops know better what they want to do. With additional information in the work diaries, we will be able to explore these assumptions.

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