

Student Satisfaction with the Cooperative Education Program at Virginia Tech

by

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in

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## **Abstract**

The Cooperative Education component of Career Services at Virginia Polytechnic Institute and State University is undergoing a Business Process Re-engineering to develop the “Best Cooperative Education” program. The components considered in this process are the employers, the students, the staff, and the University faculty.

To determine what the students think of the present program and what they might want from an ideal program, a survey was developed and sent to all students currently enrolled in the program and the program participants who graduated in 1996. Participants were surveyed on three different areas: conducting a job search, assessing their experience on the job, and program administration. In addition, they were given the opportunity to comment on why they chose to participate in co-op, what the benefits were for participation, and what changes they would like to see in the program.

Results of the survey showed that the main reason for choosing to participate in the program was to gain experience of all kinds. This experience included the “real world,” the corporate culture, interpersonal skills, making contacts, having a better sense of self-worth, verifying choice of a major, and making links between classroom learning and on the job experience. Earning money to finance their education was a distant second choice.

Increases in the mean responses of questions about the jobs being meaningful, challenging, utilizing skills and abilities, helping in classroom learning, involving well-defined projects, providing a variety of tasks and activities, allowing independent actions, and helping with classroom learning showed that as the students completed more work terms, they more strongly agreed that their job provided these attributes. They believed their colleagues at work were concerned about their professional growth and development and two-thirds would go to work for the company if given an opportunity.

Telephone interviews are becoming more popular and should be included in skills-building sessions with prospective co-op students, according to the respondents. While most students found their jobs through Career Services and a co-op job fair, several departments provided the services in-house for their own students.

Suggestions for improving the program clearly revealed that the students expect help and support through the whole process--finding the job, preparing to go to the workplace, and throughout their remaining undergraduate experience whether they are at school or at work.

The students’ preferences for program services may be difficult to provide within the current department culture where the goal is to do more with less. Career Services may need to make some decisions about how to spend their resources.

## Acknowledgments

Many people have given me a great deal of support in completion of this project and the five years it took to complete my degree work. My husband, Dean, our children and their families, Paula , Deanne, Jay and Sarah, and my mother have all supported my activities even though it meant time away from activities with and for them.

I want to thank my friends in Blacksburg, especially those who have completed degree work as nontraditional students, who listened to much complaining and were very helpful in suggesting ways to keep the school work in proper relationship to the rest of my life. I must thank my supervisors, the students, and some of the faculty in the Mechanical Engineering department who listened as I bounced ideas around and shared their troubles as we went through this process together, including many late nights and week-ends spent in Randolph Hall.

The faculty of the Student Affairs Program have been most supportive and I say thank you to all of them--Don Creamer, Cathy McHugh Engstrom, and Joan Hirt all were remarkably patient and provided the support to this student in need of structure, so that I was able to survive in a program where one is encouraged to make one's own structure. Thanks to the students in the five cohorts of which I was a member for putting up with my obsessive, compulsive nature when it came to group projects.

The staff of Career Services was extremely helpful during my practicum and my project. Thanks to Kimberly Ware for letting me join her group and use it as the basis for my project, to Jim Malone for his support of the project with resources and participation in the Career Services activities, and to Jim McBride, who was so generous of his time and tried to help me keep things in perspective as the project started, progressed, and was brought to a conclusion.

A last word of thanks to the many people at Virginia Tech with whom I have had a chance to work outside of my usual daily activities here on campus. The experience has been extremely worthwhile and I hope I can continue the relationships started during this period. I hope I can give back to the University a small measure of what has been given to me.

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# **Student Satisfaction with the Cooperative Education Program at Virginia Tech**

## **Background**

Cooperative Education is an opportunity for experiential learning for postsecondary students. In this program the students alternate periods of work and school, usually the length of a semester or 15 weeks, hereafter known as a term. Students identify possible opportunities, learn about what services or products the companies produce, apply for positions, interview, and go to work, usually with a single company for three to five terms. The ideal program will provide the student with increasing responsibility in the later terms of their employment. The program adds at least one year to the length of time needed to complete a student's degree program. No academic credit is given to the students for the experience, but the experience is noted on the student's transcript and, more importantly, details of the experience presented on the student's resume provides information for a company wanting to hire the student when he or she graduates.

Virginia Polytechnic Institute and State University, hereafter known as Virginia Tech, has had a Cooperative Education Program in place for 45 years. When the program started, it was administered independently and placed under the responsibility of the Dean of Engineering and Architecture. The Cooperative Education Program became university-wide reporting to the Academic Vice President in 1968. Eight years later, the program was administratively moved to Student Affairs, reporting to the Vice President for Student Affairs. When the University moved to the semester system, in 1988, the program was returned to the Academic Affairs Division. In 1994, the program merged with the University Placement Service and Career Counseling. The new unit became known as Career Services. The administrative responsibility for the program was moved to the Vice-President for Student Affairs (Hedgepeth, 1992).

## **Importance and Purpose of the Study**

Since the merger, there has not been an assessment of student satisfaction with the program. Career Services began a Business Process Reengineering project in the Fall of 1995 with the goal of "examining and redesigning the cooperative education process at Virginia Tech" (J. H. Malone, personal communication, November 21, 1995). Within the framework of the process, it was agreed that it was important to find out what employers, students, university units, and unit personnel thought about the current process in order to decide what changes needed to be made. This project was designed to provide assessment of student satisfaction with the current program as well as a measure of outcomes for possible use in the upcoming outcomes assessment activity of the entire Career Services unit which will need to provide data that indicates students participating in the program are reaching the goals of the program. In line with one of the stated objectives in the charter of the Business Process Reengineering, "To create a process or system that is responsive to student needs," this study was proposed to determine the level of satisfaction as articulated by the students. The current students enrolled in the program and the alumni of the previous year, a total of 1280 students, were surveyed and the results were collated and presented to the unit, along with possible recommendations for further study.

## **Research Questions**

The purpose of this study was to answer the following research questions:

1. Did students who participated in the Cooperative Education Program show increased levels of satisfaction in issues relating to experience on the job as their number of work terms increased?
2. Do Cooperative Education students express a high degree of satisfaction with the administration of the program ?
3. Are Cooperative Education students aware of, and do they make use of, the resources provided by Career Services?

## **Special Terminology**

### **Business Process Reengineering**

Business Process Reengineering is a group process technique designed to improve a program, in this case the Cooperative Education Program. A team was assigned by Career Services Director, Dr. James Malone. He designated the Associate Director of Career Services, Kimberly Ware, as the team leader, members from the Career Services staff as team members, and Barry O'Donnell, from the Pamplin College of Business, as the team facilitator.

### **Career Services**

The unit at Virginia Tech that provides career counseling, placement services, and a cooperative education program is called Career Services.

### **Co-op Connection**

At Virginia Tech Career Services sponsors a career fair which is an opportunity for students to interact with possible Cooperative Education employers. At this career fair, employers interested in hiring Cooperative Education students set up displays and provide personnel to discuss employment opportunities for students. Interviews take place on the day after the event while the recruiters are still in Blacksburg.

### **Cooperative Education**

At Virginia Tech, the formal program for experiential learning for postsecondary students where students alternate periods of work and school is called Cooperative Education.

### **Outcomes Assessment**

The process of outcomes assessment focuses on intentional measurement of how successfully the students in a program learn what the program intends for them to learn. The stated goals of the program should address what learning should occur and the outcomes assessment should measure whether that learning has occurred.

### **Satisfaction**

The degree of satisfaction in this project is measured by the means of responses to questions where the answers are given on a 4-point Likert scale where 4=very much, 3=moderately, 2=only slightly, and 1=not at all. The optimal measure for having "the best Cooperative Education Program" would be a 4.0.

## **Term**

In this study, term means a designated period of time (usually the length of a semester or 15 weeks) where a student is at work.

## **Special Limitations**

As the study progressed, it became evident that a part of the student population had been excluded. Further research should be done to ask students who had indicated interest in the program but were not successful in finding a job or for some other reason decided not to participate in the program why they had dropped out. Another segment of the population that was ignored included the students who may have started the program, but dropped out prior to completion of their designated three to five work terms.

## **Literature Review**

### **Importance of Career Planning and Placement in the University Setting**

Kroll and Rentz (1988) described the development of career planning and placement. Early placement activities happened on a one-on-one basis when the faculty members or dons performed them. When the universities diversified their programs, the personal placement was no longer practical. The first placement office was established at Yale University in 1919. In 1944 the post-war economy spawned a number of job-related counseling services and programs for returning veterans. In the 1970s and 1980s, career decision-making skills became a focus of students and administrators. Astin (1977) reported that getting a “better job” was the first priority after gaining college admission. In 1993, Astin found that the percentage looking for a “better job” had increased since 1977 and “to make more money” had become an important reason for attending college. Kroll and Rentz (1988) saw the period as shifting emphasis from “learning for learning’s sake” to “equating a college diploma with a ticket to ‘the good life’.”

Two ideas seemed to complement each other. First, when classroom learning was integrated into the off-campus workplace, it would mutually benefit the students and the work force. Also, when there was increased interaction, the academic preparation would more closely target the employers’ needs, producing students better prepared for the work place (Kroll & Rentz, 1988).

If one were to look at the stage model of career development described by Kroll and Rentz (1988), all of the stages would be a part of the cooperative education program. The program promotes “self-awareness; career exploration; career choice; reality testing; and job-seeking” (p. 80).

### **Program Review and Assessment**

Program reviews have generated a lot of discussion. Astin (1987) discussed talent development in light of the value-added theory. He suggested that this talent development is something that can be pursued as an approach to excellence and the experience the students gain from the Cooperative Education Program falls in that category. He suggested that assessment/feedback is the way one knows whether one’s objectives have been met. The type of investigation that was conducted in this project was what Astin called a “quick and dirty” assessment after the fact, a self-report about the degree of skill improvement the students think they

have accomplished. He suggested that it is important to consider student involvement and satisfaction with a program as a valuable indication of the institution's effectiveness.

Petrie (1982) emphasized the importance of the group doing the evaluating buying into the process. He stated, "A well-designed program evaluation system will then monitor and correct disturbances to higher education programs" (p. 21). He also said that faculty and administrators at an institution have an idea of what is happening in their program and that undertaking evaluation helps confirm or disprove their ideas. Barak and Breier (1990) affirmed that the program review can be a good tool for improving a program and suggested steps include determining the necessity of the review, making a plan and determining who will be involved, determining resource requirements, and scheduling. The current program review of the Cooperative Education Program was already in process when the author joined the team and she volunteered to help with soliciting and presenting input from current and former students about their satisfaction with the program.

McBride and Muffo (1994) conducted two Student Career Needs Assessments of a sample of Virginia Tech's population in 1989 and 1992, before the merger of the units into Career Services. Their survey focused on importance of career goals, need for career-related information or assistance, and preferred modes and methods of service delivery. They emphasized that knowing the expressed needs of the students should help to plan more effective programming and delivery of services.

The Council for the Advancement of Standards established a set of criteria for developing or evaluating services or programs (Kroll & Rentz, 1988). Specifically the CAS (1986) mission states, "Career planning is a developmental process and must be fostered during the entire period of a student's involvement with the institution. The primary purpose of career planning and placement must be to aid students in developing, evaluating, and effectively initiating and implementing career plans" (p. 15). Further, CAS stated that career counseling is a necessary program which assists students to "obtain occupational information and explore occupational areas including, where possible, experiences such as cooperative education, internships, externships, and summer and part-time jobs" (p. 15). CAS also mandated placement counseling and referral, "assisting the student to clarify objectives and establish goals; to explore the full range of life and work possibilities including graduate and professional preparation, to prepare for the job search or further study; to present oneself effectively as a candidate for employment or further study; and to make the transition from education to the world of work" (p. 15). The third part of the program calls for "student employment, including part-time, vacation, and experiential education programs which assist students in obtaining work experiences, financial resources, and/or the opportunity for academic credit" (CAS, 1986, p. 16).

### **Survey Design**

Suskie (1992) discussed construction of a good survey instrument. She suggested the survey would get a larger return if it asked for simple nonthreatening facts, if the population was sympathetic with the project, and if responding was made as easy as possible. Many of her suggestions were followed in designing the survey. Open-ended questions were included to illustrate some points and see if those opinions supported the quantitative data.

## **Methods**

### **Design of Survey**

The survey was designed by the author during a practicum in Career Services in Spring of 1996. A draft of the instrument was circulated to the Cooperative Education coordinators for their comments and suggestions. A final version of the instrument incorporating the solicited suggestions was completed in the early summer of 1996 (Appendix A).

In May, 1996, the author joined the Business Process Reengineering team. This team met weekly or semi-weekly as schedules permitted. Their articulated goal was to design the “best Cooperative Education Program possible.” The purpose of the Student Needs Assessment Survey was to give student input into the process and evaluate whether the program was serving the students’ needs.

### **Selection of Sample**

The population to be surveyed was defined as current students participating in the Cooperative Education program and students who completed the program and who graduated in 1996. This yielded a population of 1280 students. A group of 60 students were selected, 15 second-year students, 15 experienced students, 15 seniors, and 15 recent graduates for a pilot administration of the survey. The students were selected systematically, every 11th student from the Co-op Class of 1999, every 22nd student from the Co-op Class of 1998, every 17th student from the Co-op Class of 1997, and every 18th student from the Co-op Class of 1996, to get the correct number in each category.

### **Pilot Project**

All members of this group were sent the survey in July and 40 students responded and included suggestions about improvements for the instrument. The preliminary results were collated and presented to the Business Process Reengineering group. Further input was solicited from this group. Suggestions for improvements were incorporated into the final instrument.

### **Final Survey**

After the instrument was reworked, it was sent to all 1280 current participating students and program participants who graduated in 1996, minus those who had participated in the pilot survey (Appendix B). A cover letter (Appendix C) describing the project and insuring participants of the confidentiality of their responses and a consent form were included. Three weeks later reminder postcards were sent to those who had not returned their surveys, and in another two weeks a complete survey packet was sent to those who still had not responded. The final total return was 740 usable surveys, a 60.7% response rate.

### **Data Entry and Analysis**

Data were analyzed in SPSS for Windows. Frequencies were obtained for all questions, means and standard deviations were calculated, and crosstabulations were conducted on several combinations of data. Comments from the open-ended questions were transcribed into lists and grouped into common themes. This information was examined for trends and the results reported.

## **Results**

### **Demographic Data**

The demographic data showed that 77.7% of the respondents were male and 22.3% were female. Sophomore respondents numbered 10.7%, experienced students, 41.2%, seniors 31.3% and recent graduates, 16.8%. Grade point averages ranged from 2.0 to 4.0 with 74.3% of the respondents claiming 3.0 or higher (see Table 1).

Table 1. Number of Respondents by Grade Point Average

Grade Point Average	Number of Respondents	Valid Percent
2.00-2.24	4	0.6
2.25-2.49	13	1.8
2.50-2.74	83	11.4
2.74-2.99	87	12.0
3.00-3.24	195	26.8
3.25-3.49	149	20.5
3.50-3.74	123	16.9
3.75-4.00	73	10.0
Missing	13	
Total	740	100.0
Mean GPA = 3.2		

Respondents represented 40 departments (see Table 2) in seven colleges, with the highest participation from the College of Engineering (74.1%), College of Arts and Sciences (11.4%) and Pamplin College of Business (10.0%) (see Figure 1). Students who changed majors since starting the program numbered 6.8%, while students who changed employers numbered 11.2%. The 740 students worked for 205 different companies. The percentages of students who were working or had worked a specified number of terms were as follows: a total of one term, 15.7%; a total of two terms, 27.8%; a total of three terms, 34%; a total of four terms, 15.3%; a total of five terms, 6.1%; and a total of six terms, 1.2% (see Figure 2).

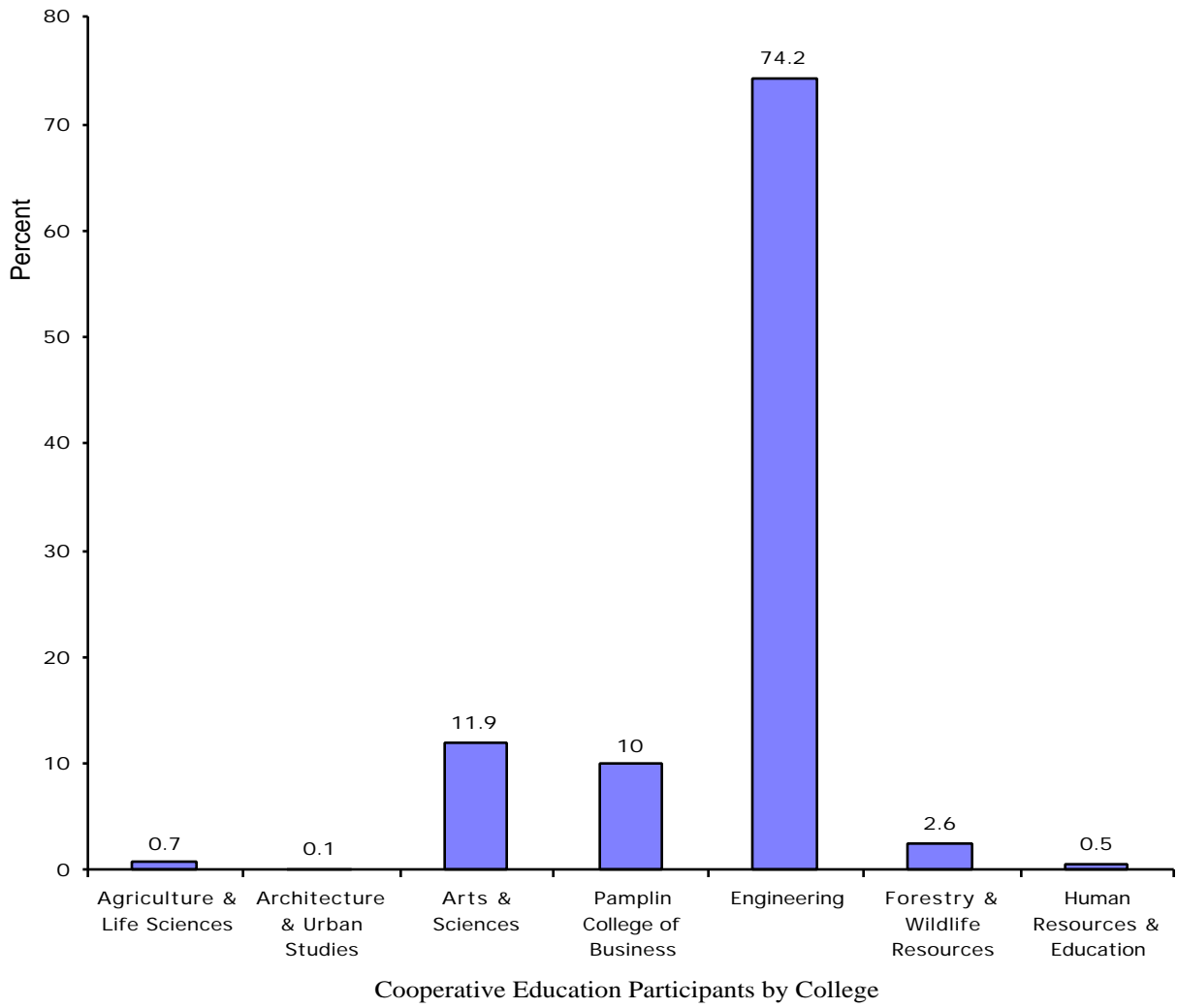
### **Conducting My Search for a Job**

The Job Search section of the questionnaire revealed that 77% of the respondents found their co-op position through Career Services or from Co-op Connection. When academic major is crosstabulated with how students found their jobs, it was noted that 15% of the Accounting majors (n=26), 25% of the Engineering Science and Mechanics majors (n=12), 21% of the Fisheries and Wildlife majors (n=19), 87.5% of the Mining Engineering majors (n=8), and 15% of the Management Science majors (n=33) reported that they found a job in some other way than through Career Services, at the Co-op Connection, or on their own (see Table 3).

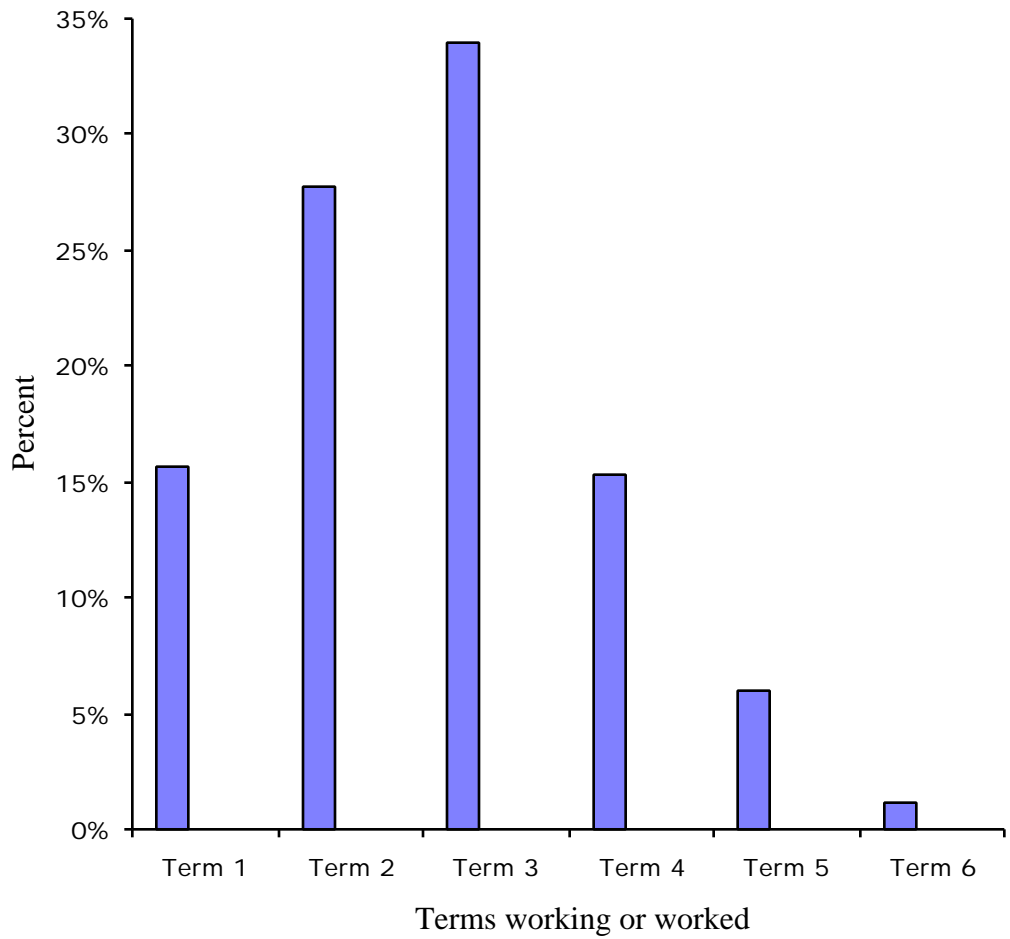
Forty-three percent had their initial interview at Co-op Connection or in Career Services. The next largest number (25.4%) of the responding students had their first interview over the telephone. Even though 74% of the respondents felt they had received no assistance from Career Services in preparing for their Cooperative Education employer interview, 77% felt moderately to very much prepared for the same interviews.

Table 2. Survey Respondents by Major

Major	Frequency	Valid Percent
Accounting	26	3.5
Aerospace And Ocean Engineering	3	0.4
Aerospace Engineering	13	1.8
Biochemistry	3	0.4
Biological Systems Engineering	3	0.4
Biology	7	0.9
Chemical Engineering	99	11.9
Chemistry	5	0.7
Civil Engineering	56	7.6
Civil Engineering - Environmental Option	18	2.4
Communications	7	0.9
Computer Engineering	54	7.3
Computer Science	53	7.2
Electrical Engineering	73	9.9
Engineering Science And Mechanics	14	1.9
Environmental Science	5	0.7
Family And Child Development	1	0.1
Finance, Insurance and Business Law	8	1.1
Fisheries And Wildlife Sciences	19	2.6
Forest Products	1	0.1
General Engineering	2	0.3
Geological Sciences	1	0.1
Horticulture	1	0.1
Hospitality And Tourism Management	3	0.4
Industrial And Systems Engineering	1	0.1
Industrial Design	1	0.1
International Studies	1	0.1
Landscape Architecture	1	0.1
Liberal Arts And Sciences	2	0.3
Management	2	0.3
Management Science	33	4.5
Marketing	5	0.7
Materials Science And Engineering	24	1.8
Mathematics	2	0.3
Mechanical Engineering	162	21.9
Mining Engineering	8	1.1
Ocean Engineering	1	0.1
Physics	2	0.3
Political Science	1	0.1
Statistics	3	0.4
Total	740	100.0



*Figure 1. Survey Respondents by College*



*Figure 2. Percentages of students and the total number of terms they have worked or are working*

Table 3. How students found their jobs, crosstabulated with academic major

Major	Career Services	Co-op Connection	On Own	Other	Total
Accounting	14	7	1	4	26
Aerospace and Ocean Engineering	3				3
Aerospace Engineering	7	3	2	1	13
Biochemistry	2	1			3
Biological Systems Engineering	1	1			2
Biology	4	2		1	7
Chemical Engineering	48	23	12	3	86
Chemistry	5				5
Civil Engineering	31	12	8	2	53
Civil Engineering--Environmental	11	3	3		17
Communications	3		2	2	7
Computer Engineering	20	19	13	1	53
Computer Science	22	14	13	4	53
Electrical Engineering	25	32	10	5	72
Engineering Science & Mechanics	4	2	3	3	12
Environmental Science	1		3	1	5
Family and Child Development				1	1
Finance, Insurance & Business Law	3	2	2		7
Fisheries and Wildlife Sciences	6	4	5	4	19
Forest Products		1			1
General Engineering			2		2
Geological Sciences	1				1
Horticulture			1		1
Hospitality and Tourism Management	2		1		3
Industrial and Systems Engineering	16	13	7	2	38
Industrial Design	1				1
International Studies		1			1
Landscape Architecture			1		1
Liberal Arts and Sciences	2				2
Management	1	1			2
Management Science	12	12	4	5	33
Marketing	3			2	5
Materials Science and Engineering	7	4	2		13
Mathematics	1	1			2
Mechanical Engineering	94	42	20	4	160
Mining Engineering	1			7	8
Ocean Engineering	1				1
Physics	1	1			2
Political Science	1				1
Statistics		3			3
Total	354	204	115	52	725

The mean number of total job interviews conducted was 3.2 and the mean number of offers received was 1.8 with 588 students receiving one or two offers. The mean number of interviews by college was 2.3 for the Pamplin College of Business, 3.3 for the College of Engineering, and 3.9 for the Arts and Sciences majors, with eight Arts and Sciences students interviewing from nine to 25 times. In number of offers reported, Arts and Sciences majors had a mean of 1.94 offers, with four having six or more, Business majors had a mean of 2.40 offers with none having more than four, and Engineering majors had a mean of 1.86 offers with nine having six or more offers (see Figure 3).

Ninety-one percent of the students found a job in the first or second semester they looked. The number of times a respondent met with a coordinator during the job search period ranged from 0 to 30, with the mean being 2.7. Ninety percent of the students were aware of the available employer resources and a large number found the Opportunities Binder which lists current co-op job opportunities (63.8%) and Employer Information Binders which provide information about the employers who hire co-op students (65.9%) to be helpful. An equal percentage felt that the Senior Reports on file, which are final reports about the student's total work experience, were not very helpful (67.1%).

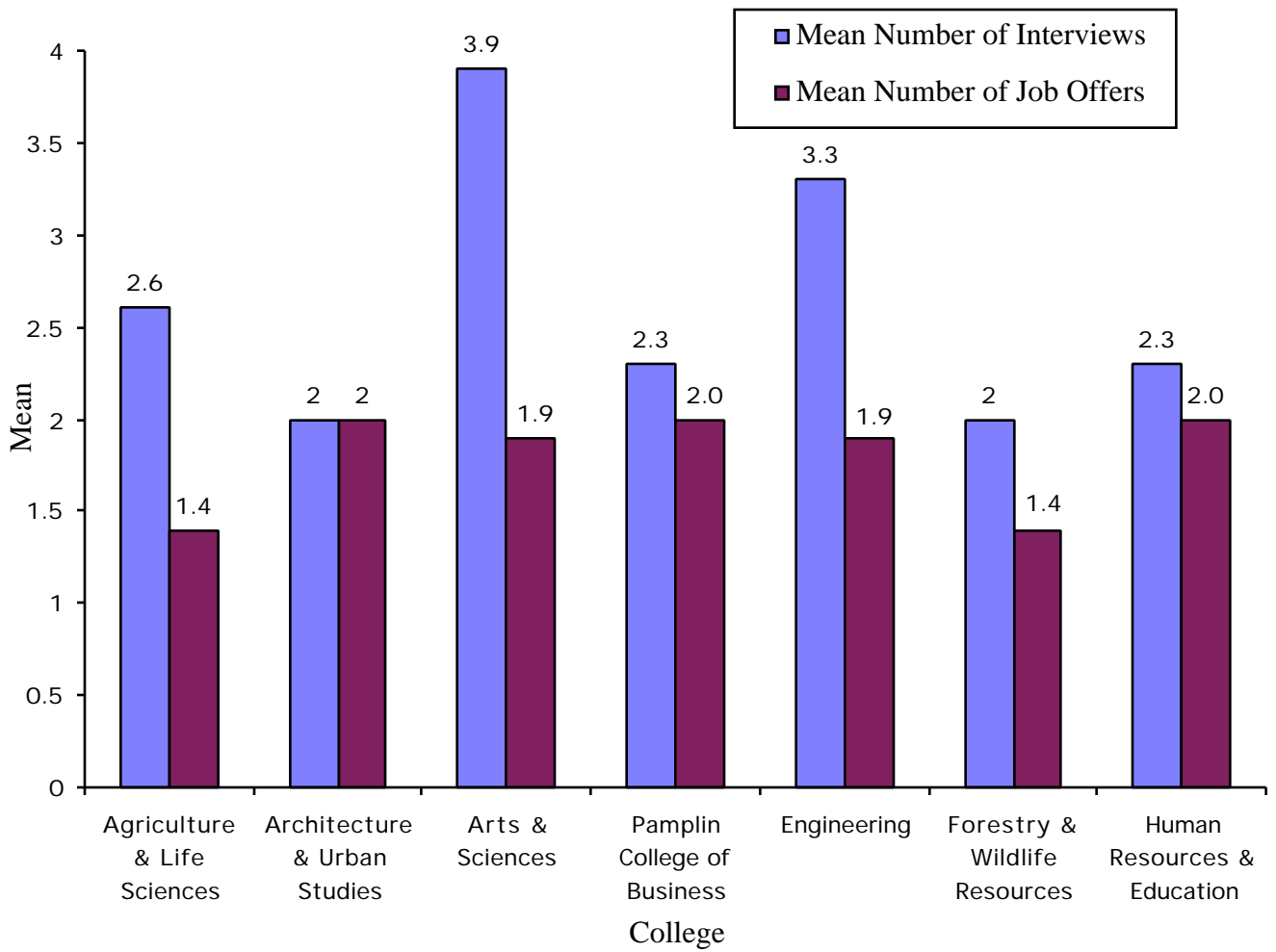
### **Assessing My Experience on the Job**

The next section of the questionnaire targeted "Assessing My Experience on the Job" and examined whether the job became more meaningful, challenging, used skills and abilities, helped in subsequent classroom learning, involved a structured, well-defined project, provided a variety of tasks and activities, allowed independent actions and were used in classroom experience (see Figure 4). Generally the mean of the responses increased as students gained more experience (see Table 4).

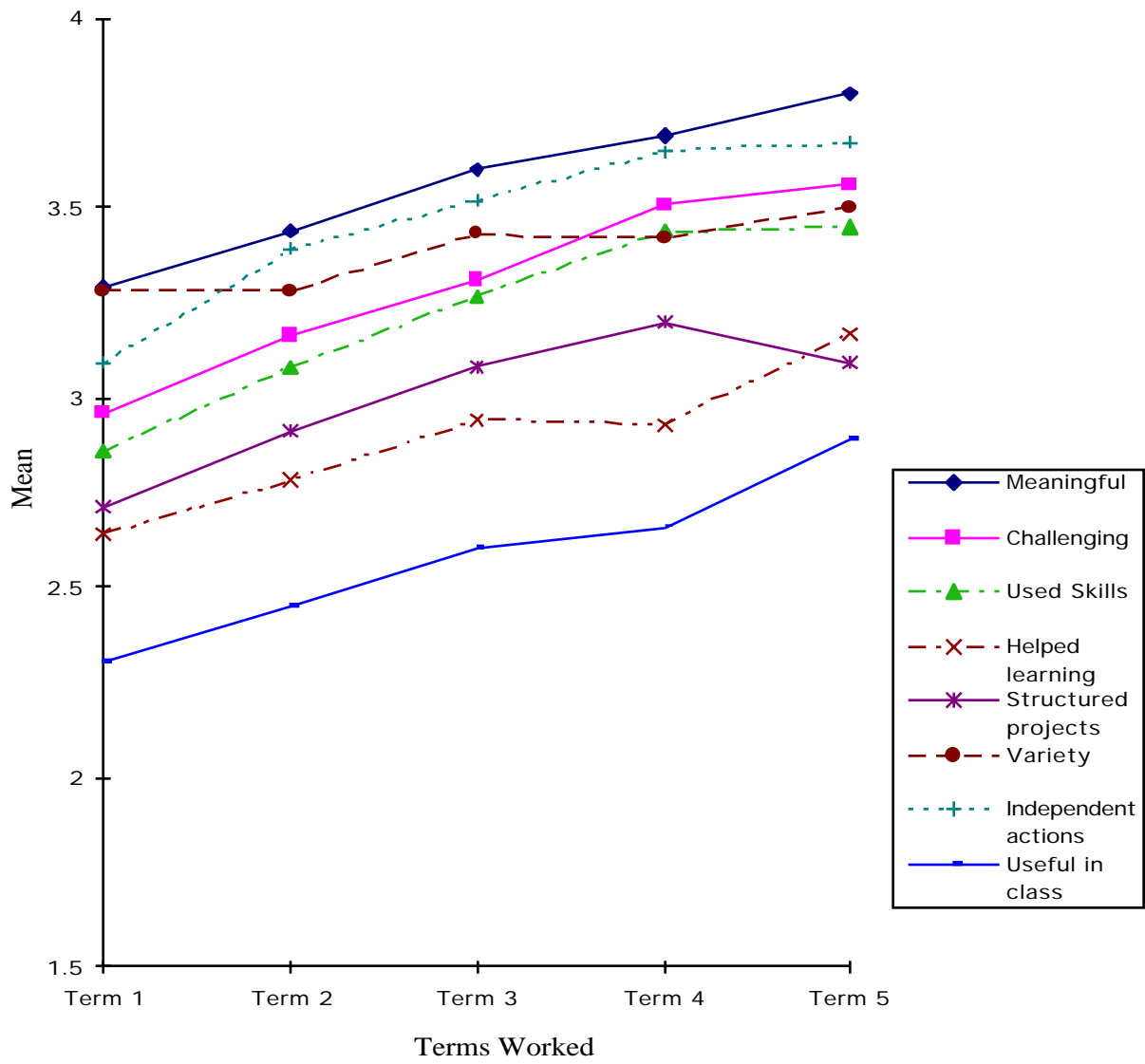
When asked if their colleagues at work were concerned about their professional growth and development, more than 90% answered moderately to very much. When they responded to the question about whether they would consider a job with their current employer, only 64% answered, "Yes." Of the students who answered the question about their job becoming more challenging as they advanced in their studies, only 27.5% responded, "Very much," while 45.3% answered, "Moderately."

### **Program Administration**

Under the heading of Program Administration, respondents agreed (66%) the Career Services staff was well-informed about procedures and policies, and, to a lesser extent (55%), that the staff members were courteous and helpful. Of those who attended the workshop presentations (40.8%), 83.8% agreed or strongly agreed that the subject matter was very helpful. And finally, from the multiple response questions, 77.8% of the responses agreed or strongly agreed that the process of submitting the resume to be forwarded to employers was satisfactory.



*Figure 3. Mean number of job offers versus interviews by college*



*Figure 4. Trends in perceived value of work experience*

Table 4. Means and Standard Deviations of Responses\* for Selected Survey Questions by Terms of Employment

Question	Term 1		Term 2		Term 3		Term 4		Term 5	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Has your Co-op job been meaningful?	3.3	.84	3.4	.73	3.6	.64	3.7	.63	3.8	.49
Extent to which you were allowed independent actions	3.1	.90	3.3	.74	3.5	.68	3.8	.58	3.7	.70
Extent to which assignment provided variety of tasks and activities	3.1	.93	3.2	.82	3.4	.73	3.6	.72	3.5	.61
Has your Co-op job been challenging?	3.0	.93	3.2	.85	3.3	.80	3.5	.70	3.6	.69
Extent to which assignment utilized your skills/abilities	2.9	.88	3.1	.78	3.3	.73	3.4	.71	3.5	.74
Did assignment involve structured, well-defined projects?	2.7	1.06	2.9	.99	3.1	.96	3.2	.94	3.1	.98
Extent to which assignment helped in classroom learning	2.6	1.04	2.8	1.02	2.9	.96	2.9	1.02	3.2	1.0
Extent to which classroom experience made use of these assignments	2.3	.86	2.5	.88	2.6	.91	2.7	.86	2.9	.88

\*4 = very much; 3 = moderately; 2 = only slightly; 1 = not at all.

## **Open-ended Questions**

Three questions were posed to the participants which asked for them to write in their responses. The responses to the two open-ended questions about the benefit of the Co-op program and their reasons for choosing to participate in the Cooperative Education program were very similar.

**Benefits of the program.** Of the 657 responses to the statement, “Describe the biggest benefit of the Co-op Program,” 396 thought experience gained was very important. One hundred and forty-five mentioned decision making about their major or career. Third on the response list was making money (104 responses). Exposure to the corporate world and relationships with professionals came next with 74 responses. Real world experience or a reality check was a specific type of experience mentioned by 72 respondents as a benefit of participation in the Cooperative Education program. Sixty-six students spotlighted educational benefits like helping classroom learning, a learning experience outside the classroom, or application of classroom learning in the workplace. Another 42 respondents mentioned personal development such as interpersonal skills, maturing, confidence building, and learning responsibility.

**Reasons for co-oping.** Students responded to the question, “Why did you choose to co-op?” in a number of ways. Some of the topics were the same as described in “Benefits”, but they appeared in a different order. The majority named experience as the primary reason (535 out of the 697 who responded to that question). A distant second choice was for the financial benefits (224 out of 697). A combination of resume building, having a competitive edge, and opportunities for future employment added another 95. Affirming or modifying their choice of major and learning about their field was articulated by 86 respondents, and 50 students focused on needing a break from school. The remainder selected the opportunity to learn more--both for classroom application and out of school, to understand themselves better, because of personal referrals from siblings, parents, faculty, other students, and others, and for experience working with people and in a corporate environment. Only two respondents said they participated to make up for their poor grades while six mentioned, “Because it’s fun!”, or because it was an “adventure.”

**Suggestions for improving the program.** A wide variety of responses were given when students were asked to suggest changes for improving the cooperative education process. The largest proportion of the comments that 481 students offered concerned their co-op coordinator. Sixty-five respondents wanted more contact with their coordinator and to be able to find them in their offices, especially during school breaks and vacations. Twenty-four respondents commented on the many coordinator changes, with some saying they did not know who their current coordinator was. Twelve students wanted their co-op coordinator to act as a personal advocate, being more knowledgeable about them, the students, and the companies and to take more of an interest in them. Twelve respondents characterized their coordinator as not helpful and eight mentioned their coordinator as not being knowledgeable.

The next group of responses concerned maintaining some kind of quality control over the opportunities offered by the companies insuring meaningful work assignments (29). The respondents also wanted the program to keep in better contact with the employer--returning phone calls, supplying information about pertinent dates, and following up on problems the students

have with the employer. One student requested an opportunity to evaluate the employer supervisor, as the student was rated by the supervisor.

The software recently adopted and required for participating in the job search activities of Career Services, Resume Expert Plus, was singled out for comment by 30 participants. The comments were primarily about getting rid of the software, but did include several suggestions for access to the system from remote locations. Problems with housing were next, with 24 respondents expressing a concern. Most suggestions included updated lists of housing possibilities, employer-provided housing, cost-of-living information, and a change in the housing form. Marketing suggestions included nine who wanted more diverse opportunities, both within their major (usually from nonengineering and business majors) and in number and size of employers and location. They also suggested that there needed to be a more concerted effort to recruit more students (22) with a split between those recommending waiting until after the sophomore year to start (4) and those who suggested starting immediately after the freshman year (2).

The process of getting involved in the program was the target of many suggestions. Forty-six participants wanted more help interviewing, mock interviews by major, interview information sheets or interview information sessions, easier sign-up for interviews, and closer parking to the Henderson Hall interviewing area when dressed up for interviews. Comments about the offer-rejection process emphasized the need for quicker response time on the part of the employer, keeping the students informed about the status of their applications, letting students follow up on their own, and a request for more resume help--workshops, individual help, and better advertising of the assistance opportunities. Five students would appreciate a better explanation of the job search process ranging from a request for calendar of what to do and when, to a request for a one-stop approach where a student could register for the program, drop off his/her resume, and meet with the appropriate advisor.

Keeping connected was a recurring theme. Seventeen students would like the Co-op Office to keep in touch with them while they are out of school with concerns ranging from notifying them when deadlines are to being able to network with other co-ops at work in the same geographic area. Sixteen participants asked for various sorts of electronic connection from an e-mail listserve to an interactive homepage to direct links to the prospective employer's homepage. Seven students would like to be able to contact students who had worked for a particular company to see what the previous students thought about their work assignment. One student suggested an 800 number for the Co-op Office. Students would also like better cooperation between units at the University, particularly in the areas of Financial Aid, the Budget Tuition Office, and a one-step address change which would change all of the student's addresses at the University.

Flexibility with scheduling of the work terms and coordination of the work and academic schedule was mentioned by thirty-two students. Six more participants mentioned wanting the flexibility to change employers.

## **Discussion**

### **Introduction**

A large and rich amount of data was gathered. I will examine it within the context of the four categories: demographics, conducting the search for a job, assessing experience on the job, and program administration. In most cases there were open-ended comments that supported the

numerical data. While some of the data affirmed the research questions, other data led to suggestions for implementation of new processes, an examination of the role of the coordinator, and suggestions for further study.

### **Demographics**

Students from the College of Engineering made up the largest group of respondents. Since the program was originally designed for that college, the fact is not unanticipated. The mean grade point average of students who responded was 3.2. It is suggested that since the 2.5 grade point requirement for students in the College of Engineering has been changed to 2.0, a follow-up survey in about three years might investigate whether the mean grade point average of students participating in the Program stays the same or drops. A question to ask at that time is, “Did the College of Engineering’s decision to lower the grade point requirement for their students to participate in the program change the hiring practices of employers who hire the Cooperative Education students” and did it benefit the students with low grade point averages?

### **Conducting My Search for a Job**

The data from the survey and the responses to the open-ended questions presented some interesting information. Complimentary to the Career Services unit is the fact that almost eight in ten students found their positions through Career Services or the Co-op Connection. When this question is crosstabulated with academic majors, students in Accounting, Engineering Science and Mechanics, Fisheries and Wildlife, Mining Engineering, and Management Science responded in greater numbers to the “other” category of how they found a job. This information may suggest efforts by particular majors to provide Co-op employment opportunities for their own majors, bypassing the efforts of Career Services.

The fact that over 25% of the respondents had their first interview over the telephone, along with the fact that 73.6% responded negatively when asked if they received any assistance in preparing for their interview, would suggest that this is an area that Career Services should include in their Interview Preparation component. It would seem worthwhile to design a presentation on how to interview over the telephone, perhaps making it part of a presentation on different types of interviewing. Having a setup where the student could get a feel of the unique types of questions to ask or that might be asked, and what might be appropriate responses, would increase the comfort level of the student when he or she encountered that situation. This situation could be a group presentation, a taped presentation, or incorporated into mock interviews. Students mentioned their discomfort when an early morning phone call came from an employer they knew nothing about. Some suggestions specific to this situation should be included in the presentation of interview strategies.

Continuing on the theme of interview preparation, almost 25% of the respondents reported they were only slightly prepared or not at all prepared for their interview. At least twenty students commented that they needed better interview preparation, suggesting more information sheets and more and better advertised sessions, mock interviews by major, easier sign-up for the interviews, and more one-on-one help. Additional comments about the interview process suggested more convenient parking would help when coming to Henderson Hall to interview. They found it too difficult to conduct a large number of interviews on the day after Co-op Connection, suggesting spacing the interview portion out to two days.

Students in the various colleges had varying numbers of interviews. The data indicated that Arts and Sciences students were conducting more interviews per person than any other college, but the average number of offers they received from those interviews were not higher than many of the other colleges. Regarding the number of interviews versus the number of job offers, the question could be asked whether the data were skewed. Might there have been students who didn't know they had the option to explore multiple opportunities, accepted the first offer and did not wait to see if more were forthcoming? Arts and Sciences students might need help to better target companies or brush up on their interviewing skills.

Seventy percent of the students who found jobs found them during the same semester they began looking and an additional 20% found them the next semester. This should be a good recruiting statistic for presentations about the program to various student constituencies. This does not say anything about the students who tried for jobs and were not successful.

The number of times met with a coordinator, with a mean number of visits of 2.651 for each student, suggests why coordinators may feel overworked. While the staff may be looking for ways to cut down the number of visits, students want more visits. At the early college age, they are looking for more support as they embark on this new activity.

Comments on the reason for participation in the Cooperative Education Program and on its greatest benefit listed experience as the most frequent answer in both cases. A total of 535 of the 697 students listed experience as their reason for participation. Other common reasons that were articulated included financial considerations (n=224), affirming or modifying major or career and learning about the field (n=86), resume building and gaining a competitive edge (n=92), needing a break from school (n=50), and educational experience, whether in the classroom or out-of-class learning or choosing specialization's (n=34). Five respondents chose to participate, "Because it's fun!", two because it was "too good to pass up," and one because of a sense of "adventure."

### **Assessing Experience on the Job**

Research question one asked, "Did students who participated in the Cooperative Education Program show increased levels of satisfaction in issues relating to experience on the job as their number of work terms increased?" The data showed that the mean value of the responses in the Assessing Experience on the Job section increased as the students got more experience and Figure 2 illustrates the increase of the means by terms. Interestingly, when asked whether their responsibilities on the job became more challenging as they advanced in their academic studies, only 72% responded moderately to very much. The one case on the question about structured, well-defined projects where the fifth term mean decreased may be explained by the fact that as the student returns for the fifth work term, he or she was more able to work on open-ended or ill-defined problems. It could also be that the structure in the company only provides for three or four terms leaving the student to find his or her own project for the fifth term. A focus group with fifth-term students might clarify this issue. The largest increase in the means involved jobs being challenging, utilizing skills and abilities, able to act independently, and making use of the assignments in the classroom.

The fact that 64.3% of the respondents would consider a job with their current employer and that 90% felt their colleagues at work were concerned about their professional growth and development indicated that the students were having positive experiences in the workplace. Comments supported this as 74 students articulated learning more about relationships with professionals and learning about and understanding large companies and industries, and 27

students thought networking opportunities were an important by-product of the process. The specific terms “reality check” and “real world” were important enough to mention as a benefit of the experience by 72 respondents.

### **Program Administration**

The research question relevant to program administration is, “Do Cooperative Education students express a high degree of satisfaction with the administration of the program. “Strongly Agree” was not a popular response to the questions in this section. The most frequent response found in this section was “agree.”

This next section of the survey was more relevant to the day-to-day operation of the program than the philosophical goals. In the directive to the Business Process Reengineering team, objectives that were listed as “being responsive to student needs, creating a system that is easily managed by staff, and minimizes the use of support staff, and integrates all aspects of Co-op for purposes of record-keeping”. With the charge to design the “Best Cooperative Education Program” in the country, one would like for responses to be overwhelmingly in the “strongly agree” column.

When asked if the staff was well informed, only 22% strongly agreed. Were they courteous and helpful? Only 32% strongly agreed. A number of comments addressed the students’ interactions with Career Services staff. Nearly 100 respondents asked for more contact with their advisor or at least with the Co-op Office and fewer changes in advisors. Four students asked for more advisors and the resources to meet individual needs. Specifically, they wanted their individual coordinator to be reachable by phone or when they came into the office. They wanted the coordinators to know about their major and about them, where they work, and track their progress. Keeping in touch with them by email or maintaining a listserv to keep them in touch with what is going on at school while they are at work was articulated by several students. Other requests included wanting on-line information, employer and opportunity binders on-line, electronic work reports, connecting to the employers’ homepages, and use of the internet for the job search. They are also concerned about turnover in coordinators. One student commented, “Every time I turn my head I seem to have a new advisor, and the worst part about it is that I never know when my advisor has been changed or who he/she is.” In addition, ten respondents took the trouble to mention the need for a courteous and helpful office staff. One student commented, “Don’t treat students like idiots”. Better organization and records in the office was identified as a need, by students citing missing reports as the reason for blocking their registration.

Research Question Three asked, “Are Cooperative Education students aware of, and do they make use of, the resources provided by Career Services?” Twenty-three respondents volunteered comments about the Senior Reports, Employer Information Binders and Opportunities Binders. They suggested a need to keep the materials current, have an up-to-date list of companies that actually have openings, have the employers better define the jobs, and list the salary ranges. While 90% of the students said they were aware of the employer resources in the Employer Resources Library, 80 to 84% used them. Approximately two-thirds of the students who used the employer resources found the Opportunities Binder and the Employer Information Binders useful, while the same percentage found the Senior Reports not useful. Students would like to have more current information on file including better job definitions and salary ranges and including only currently open positions in the Opportunities Binders. Comments about the Senior Reports suggested eliminating the requirement, having one done after each term instead of at the end of the process, and updating the reports on file. If only 33% find them useful, perhaps it is time to

eliminate the requirement. On the other hand, some of the information they have indicated they want, better job descriptions, housing information, etc., are in these reports. A more efficient way of sifting through the material--as in having them electronically available with a Search function--and a better explanation to the prospective co-ops of all the material in the reports might increase use of the materials.

Of those 41% who attended the workshop presentations, only 12.8% strongly agreed they were helpful. Suggestions for improving the workshops included better publicity, direct mailings, a diversity of opinions on whether they should be required, and a request for one-on-one resume help.

An examination of the whole job search process was suggested by five respondents. They wanted a one-stop operation where they could register, drop their resume, and meet with an advisor. Another student suggested a calendar of what to do when and others suggested getting started earlier in the year. One respondent suggested a presentation like the Professionals in Computing course that is available in the Computer Science department.

The process of submitting the resume was strongly agreed to be satisfactory by only 22% of the respondents. Thirty of the students had suggestions related to getting rid of or changing Resume Expert Plus. One student made the observation, "I really don't like the resume program. The resumes it creates are incomplete and poorly formatted and the user interface is unsatisfactory." Other respondents criticized the price, said the program needed to be updated--maybe put on Windows, and have a separate format within the program for instances like Co-op Connection.

Quality control of the work assignments was something respondents felt should be done by the coordinators. One student commented, "The employer should have taught me something...anything." Another respondent said he was finally getting to do, in his fifth term, the job that was described at his interview. The students would like to have better descriptions of the positions, wondering sometimes whether the employer really has a good idea of what a Co-op position should be.

Housing was a big issue with 24 students, from the student who asked, "Provide info on Co-op housing. My employer does not help with housing so I lived in a tent all summer," to the student who suggested developing "a network of alumni/students with which Co-ops could live during Co-op terms--saving money for the Co-ops." One student mentioned having an on-line opportunity to search for housing both at work and at school.

Ways to improve the registration process brought a lot of suggestions. Timeliness of receiving materials, sometimes not receiving the materials, and being blocked for missing reports when they had not been notified to do the reports were among the responses. Several respondents had contacted the office when they had trouble with the schedule, receiving promises that the problems would be fixed, and then arrived back on campus to find no schedule and a late fee tacked on. These were the people who also asked, "Why is there a \$50 fee when we have to do all the work ourselves?"

Other comments that seem to have merit include "an 800 number for Career Services," "getting in-state tuition for Co-op positions in Virginia," and one-stop address changes where all a student's addresses at the University could be changed by one submission. Cooperation between University departments, Career Services, the Co-op students, the Budget Tuition Office, and the Financial Aid office was mentioned by 14 students.

From the 740 surveys that were returned, a total of 205 companies were represented (Appendix E). Nine companies hired double digit numbers of students, from AlliedSignal with 41 to General Motors at 11. Students who did change companies seem to know early on that it was not a good fit and most of those changed between the first and second or second and third terms.

Sixteen students made the effort to say the process was okay. One said, "I can't think of any improvements right now. The Co-op Career Services staff has always been professional and helpful. This program makes the transition from college to a career much easier." The Cooperative Education Program would certainly be declared a success if 75% of the students made similar comments. With the current Business Process Reengineering project and their mission to become the Best Cooperative Education Program in the country, perhaps the next survey will find that wish has come true.

## References

- Astin, A. W. (1977). Four critical years. San Francisco: Jossey-Bass.
- Astin, A. W. (1987). Assessment, value-added, and educational excellence. In D. F. Halpern, Ed., Student outcomes assessment: What institutions stand to gain. (p. 91-107). San Francisco: Jossey-Bass Inc.
- Astin, A. W. (1993). What matters in college?: Four critical years revisited. San Francisco: Jossey-Bass.
- Barak, R. J., & Breier, B. E. (1990). Successful program review: A practical guide to evaluating programs in academic settings. San Francisco: Jossey-Bass.
- Counsel for the Advancement of Standards for Student Services/Development Programs. (1986). CAS standards and guidelines for student services/development programs.
- Hedgepeth, R. E. (1992). The cooperative education program: Through the years, 1952-1992. Internal communication. Virginia Polytechnic Institute and State University.
- Kroll J., & Rentz, A. L. (1988). Career placement and planning. In A. L. Rentz, & G. L. Saddlemire, Eds., Student affairs functions in higher education (pp. 71-97). Springfield, IL: Charles C. Thomas.
- McBride, J. L., Jr., & Muffo, J. A. (1994) Students assess their own career goals and services needs. Journal of Career Planning and Employment, 54 (3), 26-31.
- Petrie, H. G. (1982). Program evaluation as an adaptive system. In R. F. Wilson, Ed., Designing academic program reviews. (p. 17-30). San Francisco: Jossey-Bass Inc.
- Suskie, L. A. (1992). Questionnaire survey research: What works. Resources for Institutional Research, 6. Tallahassee, FL: Association for Institutional Research.

## Appendix A

### Pilot Survey

#### CO-OP STUDENT SATISFACTION ASSESSMENT

Cooperative Education in Career Services is undergoing a program review. In order to find out how we are doing, we are surveying the various constituencies we serve. We would appreciate your participation in this process by filling out the survey form so that we can better direct our efforts to serve your needs.

#### Conducting My Search for a Job

Please check (✓) the one best response.

1. How did you find your co-op position? through Career Services Through Co-op Connection on my own.
2. In what format was your first interview conducted with your co-op employer?  
At Co-op Connection  
In the Career Services Office (Henderson Hall)  
Over the telephone  
At the employer's corporate site  
Other (please describe) \_\_\_\_\_
3. Did you receive any assistance from Career Services in preparing for your co-op interview?  
yes no
4. How prepared did you feel for your co-op interviews?  
Very prepared  
Moderately prepared  
Only slightly prepared  
Not at all prepared
5. How many total co-op job interviews did you conduct? \_\_\_\_
6. How many total co-op job offers did you receive? \_\_\_\_
7. From the time you started your search for a co-op position, how many semesters did it take for you to secure a job? I found a job the same second third semester I began my search. other (please explain) \_\_\_\_\_  
How many times did you meet and/or correspond with your adviser during this period? \_\_\_\_
8. Were you aware of the employer resources available in the Employer Resources Library in Henderson Hall?  
yes no

Which resources were most useful in locating a job. (Check all that apply)?

Co-op Opportunities Binder yes no

Senior Reports yes no

Employer Information Binders yes no

Other (please specify)\_\_\_\_\_

### Assessing My Experience on the Job

9. Has your co-op job been meaningful and challenging? yes no (If no, please explain)\_\_\_\_\_

10. Did your responsibilities on the job become more challenging as you advanced in your academic studies?  
yes no (please explain)\_\_\_\_\_

11. Did each work assignment utilize your skills and abilities? (please complete for each term you have worked)

	<u>Work Term</u>	1	2	3	4	5
Mostly						
Somewhat						
Not at all						

12. Did each work assignment facilitate your learning and development?

	<u>Work Term</u>	1	2	3	4	5
Very much						
Moderately						
Only slightly						
Not at all						

13. Did each work assignment involve a structured, well-defined project? yes no

14. Did you have the opportunity to perform a wide variety of tasks and activities?

	<u>Work Term</u>	1	2	3	4	5
Yes						
No						

15. Were you given independence in what you work on and how you work on it?

	<u>Work Term</u>	1	2	3	4	5
Yes						
No						

16. Did the assignments relate to your in-class experiences?

Work Term    1            2            3            4            5  
Yes  
No

17. Do you believe your professional colleagues at work are concerned about your professional growth and development?

Very much    Moderately    Only slightly    Not at all

18. At this point in your career would you consider a job with your co-op employer?    Yes  
No

19. If you are a senior or a recent graduate, did you interview with the company for a permanent position?

Yes    Not offered a chance    Didn't choose to.  
(specify) \_\_\_\_\_

If you interviewed, were you offered a permanent position?    Yes    No

20. Will you complete your scheduled number of work terms?

Yes    No

#### Program Administration

21. In my opinion, the Career Services staff is well-informed about procedures and policies.  
Yes    No

22. The staff members were courteous and helpful.    Yes    No

23. The subject matter of the workshop presentations I attended was very helpful.    Yes    No  
Didn't attend.

24. The process of submitting my resume to be forwarded to employers was satisfactory.    Yes  
No

25. If you could recommend two changes that you believe would greatly improve the Co-op Process, what would they be?

a.

b.

26. What is the biggest benefit you have received from the program?

Background Information

Gender: Female Male

Class standing: Sophomore Junior Senior  
Recent Grad

QCA \_\_\_\_\_

Academic Major \_\_\_\_\_

Have you changed your major since you began co-oping?  
Yes No

Co-op Employer \_\_\_\_\_

Number of terms spent at work (including current term)\_\_\_\_\_

Why did you choose to co-op?

-

## Appendix B

### CO-OP STUDENT SATISFACTION ASSESSMENT

Cooperative Education in Career Services is undergoing a program review. In order to find out how we are doing, we are surveying the various constituencies we serve. We would appreciate your participation in this process by filling out the survey form so that we can better direct our efforts to serve your needs.

Instructions: either check( ) the best response or provide the requested information.

Conducting My Search for a Job.

1. How did you find your co-op position? through Career Services Through Co-op Connection on my own. other
2. In what format was your first interview conducted with your co-op employer?  
At Co-op Connection  
In the Career Services Office (Henderson Hall)  
Over the telephone  
At the employer's corporate site  
Other (please describe) \_\_\_\_\_
3. Did you receive any assistance from Career Services in preparing for your co-op interview?  
yes  
no
4. How prepared did you feel for your co-op interviews?  
Very prepared  
Moderately prepared  
Only slightly prepared  
Not at all prepared
5. Number of total co-op job interviews you conducted? \_\_\_\_
6. Number of total co-op job offers you received? \_\_\_\_
7. A. From the time you started your search for a co-op position, how many semesters did it take for you to secure a job? I found a job the  
same semester  
second semester  
third semester I began my search.  
other (please explain) \_\_\_\_\_
- B. Number of times you met and/or corresponded with your adviser during this period? \_\_\_\_

8. A. Were you aware of the employer resources available in the Employer Resources Library in Henderson Hall?

yes

no (If no, proceed to #9)

B. Which resources were most useful in locating a job. (Check yes or no in each of the following response options)?

yes no Co-op Opportunities Binder

yes no Senior Reports

yes no Employer Information Binders

#### Assessing My Experience on the Job

For these questions please rate each work term. Work term 1-5 refers to the co-op assignments you have participated in. If you worked only 2 terms, complete information for term 1 and 2 only.

9. Has your co-op job been meaningful?

<u>Work Term</u>	1	2	3	4	5
Very much					
Moderately					
Only slightly					
Not at all					

10. Has your co-op job been challenging?

<u>Work Term</u>	1	2	3	4	5
Very much					
Moderately					
Only slightly					
Not at all					

11. Did your responsibilities on the job become more challenging as you advanced in your academic studies?

Very much  
Moderately  
Only slightly  
Not at all

12. To what extent did each work assignment utilize your skills and abilities?

<u>Work Term</u>	1	2	3	4	5
Very much					
Moderately					
Only slightly					
Not at all					

13. To what extent did each work assignment help you in subsequent classroom learning?

<u>Work Term</u>	1	2	3	4	5
Very much					
Moderately					
Only slightly					

Not at all

14. Did each work assignment involve a structured, well-defined project?  
Work Term                    1            2            3            4            5  
 Very much  
 Moderately  
 Only slightly  
 Not at all
15. To what extent did your work assignment provide a variety of tasks and activities?  
Work Term                    1            2            3            4            5  
 Very much  
 Moderately  
 Only slightly  
 Not at all
16. To what extent were you allowed independent actions?  
Work Term                    1            2            3            4            5  
 Very much  
 Moderately  
 Only slightly  
 Not at all
17. To what extent did your classroom experience make use of these assignments?  
Work Term                    1            2            3            4            5  
 Very much  
 Moderately  
 Only slightly  
 Not at all
18. To what extent do you believe your colleagues at work are concerned about your professional growth and development?  
 Very much  
 Moderately  
 Only slightly  
 Not at all
19. At this point in your career would you consider a job with your current co-op employer?  
 Yes  
 No

Program Administration

20. In my opinion, the Career Services staff is well- informed about procedures and policies.  
 Strongly agree    agree    disagree    strongly disagree
21. The staff members were courteous and helpful.  
 Strongly agree    agree    disagree    strongly disagree

22. The subject matter of the workshop presentations I attended was very helpful.

Strongly agree    agree    disagree    strongly disagree  
Didn't attend any.

23. The process of submitting my resume to be forwarded to employers was satisfactory.

Strongly agree    agree    disagree    strongly disagree

24. What changes do you believe should be made to improve the Co-op Process

a.

b.

25. Describe the biggest benefit of the Co-op program?

#### Demographic Information

Gender:            Female  
                      Male

Class standing:        Sophomore  
                              Junior  
                              Senior  
                              Recent Grad

QCA \_\_\_\_\_

Academic Major \_\_\_\_\_

Have you changed your major since you began co-oping?

Yes  
No

Have you changed employers since you began co-oping?

Yes    No    Between which terms: \_\_\_ and \_\_\_.

Co-op Employer(s) 1. \_\_\_\_\_ 2. \_\_\_\_\_

Number of terms spent at work (including current term) \_\_\_\_\_

Why did you choose to co-op?

## **Appendix C**

### **Cover Letters and Release Form**

July 23, 1996

Dear Co-op Student:

You have been selected to participate in an important study of the University Cooperative Education Program as part of a Business Process Re-engineering of the Program. Your participation in this study only requires you to complete the attached survey. It is our hope that each of you will take the time to complete and return the form to us in the enclosed, business reply envelope. The survey is in a developmental stage and we would appreciate any comment you would care to make about questions you feel are not relevant or clear. If you need to call and ask about a question, please call Jan Riess (540)231-7747 (e-mail [riessjt@vt.edu](mailto:riessjt@vt.edu)) in the Mechanical Engineering Department.

Our intention is to use the results of the confidential survey to improve our services. Your names will never be placed on the questionnaires. Identification numbers will be used so that we can follow up if we have questions. The questionnaires will be destroyed immediately after the responses have been recorded. We look forward to receiving your completed forms soon.

Thank you,

Kimberly Ware  
Associate Director

Jan Riess  
Graduate Intern

October 9, 1996

Dear Co-op Student:

You have been selected to participate in an important study of the University Cooperative Education Program as part of a Business Process Re-engineering of the program. Your participation in this study only requires you to complete the attached survey. It is our hope that each of you will take the time to complete and return the survey form and the signed Informed Consent Form to us in the enclosed, business reply envelope. If you need to call and ask about a question, please call Jan Riess (540) 231-7747 (e-mail: riessjt@vt.edu) in the Mechanical Engineering Department.

Our intention is to use the results of the confidential survey to improve our services. Your names will never be placed on the questionnaires. Identification numbers will be used so that we can follow up if we have questions. The questionnaires will be destroyed immediately after the responses have been recorded. We look forward to receiving your completed forms and the signed Informed Consent Form soon.

Thank you,

Kimberly Ware  
Associate Director

Jan Riess  
Graduate Intern

This research project has been approved, as required, by the Institutional Review Board for Research Involving Human Subjects at Virginia Polytechnic Institute and State University, by the Department of Educational Leadership and Policy Studies.

December 11, 1996

Dear Co-op Student:

We haven't heard from you yet and are still asking for your help in evaluating our program in order to improve the quality of our services, so that we may better meet your needs and those of your fellow students. Your responses will have a direct and positive impact by helping us make immediate improvements to our Co-op program and services.

Your participation in this study only requires about 5-10 minutes of your time to complete the attached survey. It is our hope that each of you will take the time to complete and return the survey form and the signed Informed Consent Form to us in the enclosed, business reply envelope. If you need to call and ask about a question, please call Jan Riess (540) 231-7747 (e-mail: riessjt@vt.edu) in the Mechanical Engineering Department.

Our intention is to use the results of the confidential survey to improve our services. Your names will never be placed on the questionnaires. Identification numbers will be used so that we can follow up if we have questions. The questionnaires will be destroyed immediately after the responses have been recorded. We look forward to receiving your completed forms and the signed Informed Consent Form soon.

Thank you,

\_\_\_\_\_  
Kimberly Ware  
Associate Director

\_\_\_\_\_  
Jan Riess  
Graduate Intern

This research project has been approved, as required, by the Institutional Review Board for Research Involving Human Subjects at Virginia Polytechnic Institute and State University, by the Department of Educational Leadership and Policy Studies.

Informed Consent

Title of Project: Student Survey for the Co-op Program

I voluntarily agree to participate in this study.

I have read and understand the Informed Consent and Conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent for participation in this project.

If I participate, I may withdraw at any time without penalty. I agree to abide by the rules of this project.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Should I have any questions about this research or its conduct, I may contact:

\_\_\_\_\_  
Jan Riess

\_\_\_\_\_  
(540)231-7747

\_\_\_\_\_  
D. G. Creamer

\_\_\_\_\_  
(540)231-9705

## Appendix D

### ANNOTATED CO-OP STUDENT SATISFACTION ASSESSMENT SURVEY

Cooperative Education in Career Services is undergoing a program review. In order to find out how we are doing, we are surveying the various constituencies we serve. We would appreciate your participation in this process by filling out the survey form so that we can better direct our efforts to serve your needs.

Instructions: either check the best response or provide the requested information.

Conducting My Search for a Job

1. How did you find your co-op position?

Response	Frequency	Valid Percent	Cumulative Percent
Through Career Services	354	48.8	48.8
Coop Connection	205	28.3	77.1
On my own	113	15.6	92.7
Other	53	7.3	100.0
Missing data	15		
Total	740	100.0	

2. In what format was your first interview conducted with your co-op employer?

Response	Frequency	Valid Percent	Cumulative Percent
Coop Connection	161	21.8	21.8
Career Services	156	21.1	42.9
Over phone	188	25.4	68.3
Employer's site	190	25.7	94.0
Other	44	6.0	100.0
Missing	1		
Total	740	100.0	100.0

3. Did you receive any assistance from Career Services in preparing for your co-op interview?

Response	Frequency	Valid Percent	Cumulative Percent
Yes	194	26.4	26.4
No	540	73.6	100.0
Missing	6		
Total	740	100.0	100.0

4. How prepared did you feel for your co-op interviews?

Response	Frequency	Valid Percent	Cumulative Percent
Very prepared	146	19.9	19.9
Moderately prepared	417	56.9	76.8
Only slightly prepared	147	20.1	96.9
Not at all prepared	23	3.1	100.0
Missing	7		
Total	740	100.00	

5. Number of total co-op job interviews you conducted?

Response	Frequency	Valid Percent	Cumulative Percent
0	7	.9	.9
1	196	26.6	27.5
2	156	21.2	48.7
3	131	17.8	66.5
4	82	11.1	77.6
5	66	9.0	86.6
6	38	5.2	91.7
7-8	35	4.8	96.5
9-12	15	2.0	98.5
13+	11	1.4	100.0
Missing	3		
Total	740	100.0	
Mean = 3.223			

6. Number of total co-op job offers you received?

Response	Frequency	Valid Percent	Cumulative Percent
0	6	.8	.8
1	388	52.8	53.6
2	200	27.2	80.8
3	88	12.0	92.8
4	27	3.7	96.5
5	13	1.8	98.2
6+	13	1.8	100.0
Missing	5		
Total	740	100.0	
Mean = 1.814			

7A. From the time you started your search for a co-op position, how many semesters did it take for you to secure a job? I found a job the

Response	Frequency	Valid Percent	Cumulative Percent
Same semester	523	70.8	70.8
Second semester	150	20.3	91.1
Third semester	45	6.1	97.2
Other	21	2.8	100.0
Missing	1		
Total	740	100.0	

7B. Number of times you met and/or corresponded with your adviser during this period?

Response	Frequency	Valid Percent	Cumulative Percent
0	70	9.8	9.8
1	151	21.2	31.1
2	184	25.9	57.0
3	148	20.8	77.8
4	62	8.7	86.5
5	50	7.0	93.5
6	19	2.7	96.2
7-10	18	2.5	98.7
11+	9	1.2	100.0
Missing	29		
Total	740	100.0	
Mean = 2.651			

8A. Were you aware of the employer resources available in the Employer Resources Library in Henderson Hall?

Response	Frequency	Valid Percent	Cumulative Percent
Yes	670	90.5	90.5
No	70	9.5	100.0
Total	740	100.0	

8B. Which resources were most useful in locating a job?

Response	Opportunities Binder		Senior Reports		Employer Info Binders	
Yes	385	63.8%	194	32.9%	409	65.9%
No	218	36.2%	396	67.1%	212	34.1%
Missing	137		150		119	
Total	740	100.0%	740	100.0%	740	100.0%

9. Has your co-op job been meaningful?

Response	Term 1	Term 2	Term 3	Term 4	Term 5
Very much	377	339	272	120	46
	51.3%	56.5%	67.7%	77.4%	83.6%
Moderately	214	193	100	23	7
	29.1%	32.2%	24.9%	14.8%	12.7%
Only slightly	126	59	28	11	2
	17.1%	9.8%	7.0%	7.1%	.5%
Not at all	18	9	2	1	
	2.4%	1.5%	.5%	.6%	
Missing	46	140	338	585	685
Total	740	740	740	740	740
Mean	3.29	3.44	3.60	3.69	3.8

10. Has your co-op job been challenging?

Response	Term 1	Term 2	Term 3	Term 4	Term 5
Very much	240 32.7%	246 41.1%	198 49.3%	96 61.5%	36 66.7%
Moderately	282 38.4%	228 38.1%	141 35.1%	44 28.2%	12 22.2%
Only slightly	154 21.0%	98 16.4%	52 12.9%	15 9.6%	6 11.1%
Not at all	59 8.0%	26 4.3%	11 2.7%	1 .6%	0
Missing	5	142	338	584	686
Total	740	740	740	740	740
Mean	2.96	3.16	3.31	3.51	3.56

11. Did your responsibilities on the job become more challenging as you advanced in your academic studies?

Response	Frequency	Valid Percent	Cumulative Percent
Very much	180	27.5	27.5
Moderately	297	45.3	72.8
Only slightly	110	16.8	89.6
Not at all	68	10.4	100.0
Missing	85		
Total	740	100.0	

12. To what extent did each work assignment utilize your skills and abilities?

Response	Term 1	Term 2	Term 3	Term 4	Term 5
Very much	192 26.2%	194 32.4%	170 42.3%	86 55.5%	33 58.9%
Moderately	295 40.2%	275 45.9%	173 43.0%	53 34.2%	15 26.8%
Only slightly	200 27.2%	114 19.0%	55 13.7%	14 9.0%	8 14.3%
Not at all	47 6.4%	16 2.7%	4 1%	2 1.3%	
Missing	6	141	338	585	684
Total	740	740	740	740	740
Mean	2.86	3.08	3.27	3.44	3.45

13. To what extent did each work assignment help you in subsequent classroom learning?

Response	Term 1	Term 2	Term 3	Term 4	Term 5
Very much	171 24.9%	168 29.7%	133 34.5%	56 37.1%	28 51.9%
Moderately	221 32.2%	185 32.7%	130 33.8%	46 30.5%	11 20.4%
Only slightly	173 25.2%	134 23.7%	88 22.9%	32 21.1%	11 20.4%
Not at all	122 17.8%	78 13.8%	34 8.8%	17 11.3%	4 7.4%
Missing	53	175	355	589	686
Total	740	740	740	740	740
Mean	2.64	2.78	2.94	2.93	3.17

14. Did each work assignment involve a structured, well-defined project?

Response	Term 1	Term 2	Term 3	Term 4	Term 5
Very much	206 27.8%	202 33.8%	168 41.6%	72 47.4%	24 44.4%
Moderately	236 60.3%	209 34.9%	132 32.7%	50 32.9%	15 27.8%
Only slightly	161 22.0%	119 19.9%	71 17.6%	18 11.8%	11 20.4%
Not at all	30 17.7%	68 11.4%	33 8.2%	12 7.9%	4 7.4%
Missing	7	142	336	588	686
Total	740	740	740	740	740
Mean	2.71	2.91	3.08	3.20	3.09

15. To what extent did your work assignment provide a variety of tasks and activities?

Response	Term 1	Term 2	Term 3	Term 4	Term 5
Very much	301 41.1%	289 48.25%	228 56.6%	86 55.1%	30 55.6%
Moderately	242 33.0%	205 34.2%	126 31.3%	51 32.7%	21 38.9%
Only slightly	140 19.1%	86 14.4%	45 11.2%	18 11.5%	3 5.6%
Not at all	50 6.8%	19 3.2%	4 1.0%	1 .6%	0
Missing	7	141	337	584	686
Total	740	740	740	740	740
Mean	3.08	3.28	3.43	3.42	3.50

16. To what extent were you allowed independent actions?

Response	Term 1	Term 2	Term 3	Term 4	Term 5
Very much	295 40.2%	316 52.9%	250 62.2%	108 69.2%	42 77.8%
Moderately	251 34.2%	210 35.2%	115 28.6%	40 25.6%	7 13.0%
Only slightly	149 20.3%	61 10.2%	34 8.5%	8 5.1%	4 7.4%
Not at all	39 5.3%	10 1.7%	3 .7%	0	1 1.9%
Missing	6	143	338	584	686
Total	740	740	740	740	740
Mean	3.09	3.39	3.52	3.65	3.67

17. To what extent did your classroom experience make use of these assignments?

Response	Term 1	Term 2	Term 3	Term 4	Term 5
Very much	53 7.4%	65 11.2%	162 41.8%	23 15.2%	13 24.1%
Moderately	245 34.2%	222 38.3%	162 41.8%	70 46.4%	27 50%
Only slightly	283 39.5%	203 35.1%	113 29.1%	42 27.8%	9 16.7%
Not at all	135 18.9%	89 15.4%	52 13.4%	16 10.6%	5 9.3%
Missing	24	161	352	588	686
Total	740	740	740	740	740
Mean	2.3	2.45	2.6	2.66	2.89

18. To what extent do you believe your colleagues at work are concerned about your professional growth and development?

Response	Frequency	Valid Percent
Very much	426	57.9
Moderately	241	32.7
Only slightly	50	6.8
Not at all	19	2.6
Missing	4	
Total	740	100.0
Mean	3.46	

19. At this point in your career would you consider a job with your current co-op employer?

Response	Frequency	Valid Percent
Yes	468	64.3
No	260	35.7
Missing	12	
Total	740	

20. In my opinion, the Career Services staff is well-informed about procedures and policies.

Response	Frequency	Valid Percent
Strongly agree	155	22.1
Agree	485	66.0
Disagree	69	9.4
Strongly disagree	24	3.3
Missing	7	

21. The staff members were courteous and helpful?

Response	Frequency	Valid Percent
Strongly agree	237	32.1
Agree	407	55.1
Disagree	72	9.6
Strongly disagree	22	3.0
Missing	2	
Total	740	

22. The subject matter of the workshop presentations I attended was very helpful.

Response	Frequency	Valid Percent
Strongly agree	38	5.2
Agree	213	29.1
Disagree	37	5.1
Strongly disagree	10	1.4
Didn't attend any	433	59.2
Missing	9	
Total	740	100

23. The process of submitting my resume to be forwarded to employers was satisfactory.

Response	Frequency	Valid Percent
Strongly agree	148	22.0
Agree	376	55.8
Disagree	96	14.2
Strongly disagree	54	8.0
Missing	66	
Total	740	

Demographic Information:

Gender:

Response	Frequency	Valid Percent
Female	164	22.3
Male	570	77.7
Missing	6	
Total	740	100

Class Standing:

Response	Frequency	Valid Percent
Sophomore	79	10.7
Junior	303	41.2
Senior	230	31.3
Recent graduate	124	16.8
Missing	4	
Total	740	

QCA:

Response	Frequency	Valid Percent
2.00-2.24	4	0.6
2.25-2.49	13	1.8
2.50-2.74	83	11.4
2.75-2.99	87	12.0
3.00-3.24	195	26.8
3.25-3.49	149	20.5
3.50-3.74	123	16.9
3.75-4.00	73	10.0
Missing	13	
Total	740	100
Mean	3.206	
SD	.402	

Have you changed your major since you began Co-oping?

Response	Frequency	Valid Percent
Yes	50	6.8
No	688	93.2
Missing	2	
Total	740	100

Have you changed employers since you began Co-oping?

Response	Frequency	Valid Percent
Yes	82	11.2
No	647	88.8
Missing	11	

When did you change employers?

Response	Frequency	Valid Percent
Between 1 and 2	36	50
Between 2 and 3	27	37.5
Between 3 and 4	6	8.3
Between 4 and 5	2	2.8
Every term	1	1.4
Total	72	100

Number of terms spent at work (including current term):

Response	Frequency	Valid Percent
One	114	15.7
Two	202	27.8
Three	247	34
Four	111	15.3
Five	44	6.1
Six	9	1.2
Missing	13	
Total	740	100

## Appendix E

### Employers of Respondents

Employer	Frequency	Valid percent
AAI Corporation	1	0.1
Acadia Polymers	5	0.7
Advanced Engineering and Research Associates	2	0.3
AK Steel	2	0.3
AlliedSignal	41	5.5
Allison Engine Company	4	0.5
Alpha Corporation	1	0.2
Alphatronix	2	0.3
American Management Systems	3	0.4
Annapolis Microsystems	4	0.5
ARCO Chemicals	2	0.3
Argonne National Labs	2	0.2
Army Corps of Engineers	6	0.8
Ashland Petroleum	5	0.7
AT&T	2	0.2
Atlantic Research	1	0.1
AVX	6	0.8
B. F. Goodrich	1	0.1
Baltimore Gas & Electric	2	0.3
Band, Lavis & Associates	1	0.1
Baxter Healthcare	1	0.1
Bechtel	3	0.4
Bell Northern Research	5	0.7
Biowhittaker, Inc.	1	0.1
Black & Decker	3	0.4
Brenco	2	0.3
Bristol Compressors	3	0.4
Bristol Tennessee Electric System	1	0.1
Burlington Menswear	1	0.1
Burns Aerospace	1	0.1
Burroughs Wellcome	8	1.1
CACI, Inc.	2	0.3
Camp, Dresser, & McKee	1	0.1
Cargill Fertilizer Corp.	1	0.1
CEBAF	2	0.3
Central Intelligence Agency	1	0.1
Champion International	4	0.5
Chesapeake Forest/Paper Products	4	0.5
Chimitt, Gilman, Homchick, Inc.	1	0.1
Combined Technologies	1	0.1
Computer Science Corp.	1	0.1
Comsat Labs	4	0.5
CPPC	1	0.1
Credence Systems Corp.	2	0.3

CSTI	1	0.1
Cyprus Amax	4	0.5
Dana Corporation	1	0.1
Danis Heavy Construction	5	0.7
Decision Science Applications	2	0.3
Defense Logistics Agency	4	0.5
Delco Electronics	3	0.4
Department of Defense	1	0.1
Dept. of Justice	2	0.3
Dept. of Transportation	1	0.1
Diebold	1	9.1
Disney	14	1.9
Dow Chemical	2	0.3
Duke Power	2	0.3
duPont	35	4.7
Dynatech Communications	1	0.1
Eastman	3	0.4
Entergy	6	0.8
Environmental Center	1	0.1
Ericsson	19	2.6
Ethyl Corporation	1	0.1
Fairfax County Public Works	1	0.1
Federal Deposit Insurance Corporation	1	0.1
Federal Highway Administration	2	0.1
FHWA	1	0.1
Figgie International	1	0.1
Flexsys-America	1	0.1
Food and Drug Administration	6	0.8
Ford Electronics	1	0.1
Ford Motor Company	1	0.1
Fossac/Naval Supply System	1	0.1
Framatome	3	0.4
Gasper C	1	0.1
GE Aerospace	1	0.1
GE Aircraft	1	0.1
GE Fanuc	7	0.9
General Electric	3	0.4
General Motors	11	1.5
Georgia Pacific	8	1.1
Gibbs & Cox	1	0.1
Gilbarco	1	0.1
GKY & Associates	2	0.3
Glaxo Wellcome	2	0.3
Goodyear	5	0.7
Grumman	1	0.1
Hayes, Seay, Mattern & Mattern	1	0.1
Heery International	2	0.3
High Speed Technologies	1	0.1
Hoechst Celanese	4	0.5
Hollingsworth & Vose	3	0.4
Hughes Associates	3	0.4

IBM	33	4.5
ICI Polymers	1	0.1
Inland Motors	1	0.1
Intel	2	0.3
ITT	4	0.5
John Driggs Co., Inc.	1	0.1
Joyce Engineering	1	0.1
Kaeser	2	0.3
Kimberly Clark	9	1.2
Kollmorgan	2	0.3
Kop-Flex	1	0.1
Limitorque	2	0.3
Loral Aerosystems	1	0.1
LRC Elec	1	0.1
Management Systems Laboratory	2	0.3
Mannington Wood Floors	1	0.1
Maple Meadow Mine	1	0.1
Marriott	1	0.1
Maryland Environmental Service	4	0.5
Maryland-National Capital Parks and Planning Commission	1	0.1
Mattern & Craig	4	0.5
McDonnell Douglas	1	0.1
McDonough, Bolyard, & Peck	5	0.7
McLeod & Company	2	0.3
Mead	1	0.1
Measurex/DMC	2	0.3
Metropolitan Washington Airport Authority	4	0.5
Michelin	5	0.7
Microsoft	1	0.1
Mine Safety and Health Administration	1	0.1
Mitre	5	0.7
Mobil Oil	4	0.5
Monsanto	1	0.1
MPR Associates	1	0.1
NASA Goddard	2	0.3
NASA Langley	5	0.7
National Institutes of Health	1	0.1
National Radio Astronomy Observatory	1	0.1
National Security Agency	2	0.3
Naval Air Warfare Center	1	0.1
Naval Research Laboratories	9	1.2
Naval Surface Warfare Center.	6	0.8
NCTAMS LANT	2	0.3
Newport News Shipbuilding	8	1.1
NIST	3	0.4
Norfolk-Southern	37	5.0
Nortel	21	2.9
North Carolina DOT	2	0.3
Omni Services, Inc.	1	0.1
PCS Phosphate	1	0.1

Pennsylvania DOT	2	0.3
Personal Library Software	1	0.1
Philip Morris	8	1.1
Pine Belt, Inc.	2	0.3
Pratt & Whitney	2	0.3
PRC	1	0.1
R. R. Donnelley	3	0.4
Rayonier	2	0.3
Republic Engineered Steels, Inc.	2	0.3
Research Management Services, Inc.	1	0.1
Rex Roto	1	0.1
Reynolds Metals	5	0.7
Rhone-Poulenc	1	0.1
Roanoke, City of	1	0.1
Robert M. Musselman, CPA	2	0.3
Rubbermaid Commercial Products	1	0.1
Rust Environment & Infrastructure	1	0.1
S. T. Research Corp.	2	0.3
Schnabel	5	0.7
Science & Engineering Associates	1	0.1
Securities and Exchange Commission	1	0.1
Siecor	7	0.9
Siemens	1	0.1
Signal Magazine	2	0.3
Sikorsky	2	0.3
Software Technology Laboratory	3	0.4
Swales & Associates	1	0.1
Tampa Electric	1	0.1
Tele-Works, Inc.	1	0.1
Tennessee Valley Authority	1	0.1
Test and Balance Corp.	2	0.3
Thompson & Litton	1	0.1
Thomson Crown	2	0.3
Town of Blacksburg	1	0.1
Toyota	4	0.5
TRW	9	1.2
TRW Valve	1	0.1
U. S. Army	1	0.3
U. S. Geological Survey	4	0.5
U. S. Government	1	0.1
U. S. Gypsum	1	0.1
U. S. Navy	1	0.1
Union Camp	4	0.5
USAIR	1	0.1
Vatell	1	0.1
VDO NA	1	0.1
Virginia Housing Development Authority	4	0.5
Virginia Power	25	3.4
Volvo/GM	4	0.5
VTLS Inc.	3	0.4
W. R. Grace	1	0.1

West Virginia DOT	1	0.1
Westvaco	8	1.1
Wiley & Wilson	1	0.1
Wilson T. Ballard	1	0.1
Wonderware Corporation	1	0.1
Xerox	1	0.1

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## VITA

JANET TIMMERMAN RIESS

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### EDUCATION

M.A., 1997, Education of Student Personnel, Virginia Polytechnic Institute and State University (Virginia Tech), Blacksburg, VA

B.S., 1962, Home Economics for General Education, Concentration in Telecommunicative Arts, Iowa State University of Science and Technology, Ames, IA

### PROFESSIONAL EXPERIENCE

Program Advisor, Career Advisor, Co-op Advisor, Mechanical Engineering, Virginia Polytechnic Institute and State University, 1979-present

Editorial Assistant, Mechanical Engineering, Virginia Polytechnic Institute and State University, 1974-1979

Practicum Student, Career Services, Virginia Polytechnic Institute and State University, Spring, 1996

Practicum Student, Student Development Office, New River Community College, Dublin, VA

Project Co-Facilitator, Project Success, Academic Enrichment Program, Virginia Polytechnic Institute and State University, 1996

### PROFESSIONAL DEVELOPMENT

#### Affiliations

National Academic Advising Association (NACADA)

University Self Study Committee, Research and Graduate Studies, 1996-present

Business Process Reengineering Team, Career Services, 1996-present

Student Systems Taskforce, 1995-1996

College of Engineering Graduation Reception Committee, Co-chair, 1992-present

Association for Student Development

#### Awards/Honors

First Exemplary Employee Award, College of Engineering, 1995

#### Volunteer Experience

Wesley Foundation, Advisory Board, 1993-1996