Factors that Influence Winnipeg Employers to Participate in Post-Secondary Co-operative Education Programs in Technical Communication

by

Alexa Campbell

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Abstract

Co-op programs bridge the gap between the academic and work worlds and provide students with practical experience in their chosen fields while they earn money between academic school terms. The Technical Communication Diploma program at Red River College in Winnipeg, Manitoba, has incorporated a co-operative education term. Instructors at the College charged with placing co-op students each year are challenged in finding such placements, and they receive little guidance from research. In this study, I interviewed 21 employers in Winnipeg who hired co-op students from the Technical Communication Diploma program at Red River College from 2003–2005, to determine their perspectives on participation in co-op programs. Important factors influencing Winnipeg employers were the productivity of students and their specialized skill sets. The major deterrent to re-hiring students was lack of funding. A Model of Employers' Motivation to Participate in Co-op Programs is proposed.

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Chapter I: Introduction

Despite the fact that adult education has become an increasingly important part of Canadian society in the past 30 to 40 years and that *lifelong learning* is now a catchphrase, we are still not sure whether learning occurs more effectively in the classroom or the workplace, and the relationship between workplace learning and classroom learning remains tenuous (Hawke, 2002; Jacobs, 2002). Employers may be somewhat skeptical of the relevance of classroom learning (Hornsby & Johnson, 1991; Hu, 2003; "Understanding employers' perceptions," 1997), and traditional educators may be somewhat skeptical of the haphazard nature of workplace learning (Hawke, 2002) or may feel they do not want to be involved in vocational training (Rainey, 1996).

Some of the disconnection between the world of work and the world of school arises out of the nature of learning in each environment. The core function of schools and post-secondary institutions is education; the core function of business and industry is the production of goods and the delivery of services (Munby, Hutchinson & Chin, 2002). Because the focus of each environment is quite different, we would expect learning to go on in different ways. Thus, in the classrooms and laboratories of our educational institutions, learning is frequently general, formal, logical, context-free, structured, and theoretical (Hawke, 2002; Hendricks, 2001; Munby, Hutchinson & Chin, 2002). In the workplace, learning is frequently specialized, informal, intuitive, context-embedded, authentic, and practical (Beaufort, 2000; Hawke, 2002; Hendricks, 2001; Kerka, 1997; Munby, Hutchinson & Chin, 2002). Yet both types of learning can bring enormous benefits to learners and can complement each other. Nowhere is this potential synergy more obvious than in co-operative education.

Co-operative education programs at colleges and universities are those that include a work placement for one or more terms. Co-operative education has made significant strides during the last few decades in post-secondary programs in Canada (Canadian Association for Co-operative Education, n.d.). It is an accepted component of the educational system, and it is attractive to many students because of the benefit of paid employment and the opportunity to get work experience related to their field of study. In Canada, every year, thousands of students work for thousands of companies in several dozen co-operative education programs. These arrangements require large amounts of co-operation between employers and educators and result in a powerful learning experience for the adult student (Heermann, 1973).

The benefits of co-operative education for students are well documented and have been quite thoroughly studied (Ballinger, 1992). Educators can stay connected to the workplace while their students have the opportunity to become more committed to their chosen profession and to apply skills and knowledge taught in the classroom (Heermann, 1973). But what motivates employers to hire co-op students? Hiring, orienting, training, supervising, and evaluating students are time-consuming and expensive tasks. Employers are generally not likely to see any return on their financial investment in the few short months of a co-op term. Conventional wisdom tells us that companies are motivated by profit. Yet, if they do not profit by the hiring of co-op students, then what motivates them to hire such students?

This question is an important one for colleges and universities that run co-op programs. Every year, staff at educational institutions offering co-op programs spend countless hours marketing their students and their students' skills to prospective

employers. For staff setting up new programs that feature a co-op education component, establishing a list of available and willing employers poses a major challenge. With little research data to help them out, co-op coordinators struggle to find the right way to market the skills of the students to the employers. Such is the challenge faced in the two-year Technical Communication Diploma program at Red River College in Winnipeg, which began in 2002 and which offers a four-month co-operative education summer term between year one and year two of the program.

The technical communication program is faced with an additional challenge, that of explaining to potential employers what the students from the program actually do. In general, technical communication is the art and science of explaining technical material to non-technical audiences. It draws upon research in human factors, visual design, usability, adult learning, and a number of other fields. Technical communicators apply this research in practical situations, in the workplace, using a variety of technologies (Giammona, 2004). Although most companies have people who perform technical communication functions such as report writing, few companies in Winnipeg employ full-time technical communicators (Acumen Research, 2001). Technical communication is not well known in Winnipeg.

Technical communication has a long history, but only in the past decade or so have aspiring technical communicators had easy access to formal training programs, especially in Canada (McFadden, 1994). In the last ten years, in addition to the program at Red River College, two- and three-year programs have begun in universities and colleges in major centres such as Toronto, Vancouver, and Calgary. It is the Red River College Technical Communication Diploma program that is the focus of this study.

Statement of the Problem

Co-operative education was originally devised as a way of providing career-related summer employment for young people working their way through university (Heermann, 1973). Although its origins were pragmatic, it is a form of education that has its philosophical roots in constructivism, especially in the work of Dewey and Vygotsky (Merriam & Caffarella, 1999). It is part of a continuum of work-based learning experiences, including apprenticeships, internships, clerkships, job shadowing, mentorships, clinical experience, work-study programs, field experience, practicum, preceptorships, student teaching, community-service learning, and client-based projects (Johnson & Palmer, 1999; Metzger, 2002, Statewide Advisory Committee, n.d.).

The Technical Communication Diploma program at Red River College, which began in September 2002, uses a cognitive apprenticeship model (Merriam and Caffarella, 1999).[1] Instructors create experiences for students that approximate workplace assignments by having them work with outside clients. Of course, classroom assignments, even if they are client-based, are still assigned grades and are therefore not truly authentic (Beaufort, 2000). In addition, speakers are brought in from the technical writing community; mentors are arranged from the same community; and students present papers at an annual professional conference organized jointly by the instructors at the College, representatives from the local Society for Technical Communication, and from MANCOM, a local combined chapter of the Education, Management and Professional Communication societies of the Institute of Electrical and Electronic Engineers.

[1] A fuller description of the Technical Communication Diploma program is contained in Chapter II.

Co-operative education is a natural extension of these activities. A co-operative education term provides learners with truly authentic writing assignments typical of the work they will do as practicing technical communicators.

Co-operative education has developed as an alternative to the traditional model of education. Figure 1 illustrates the traditional view of the separation of classroom and workplace learning.

Figure 1:

In traditional academic education, there is a separation between workplace and classroom learning.

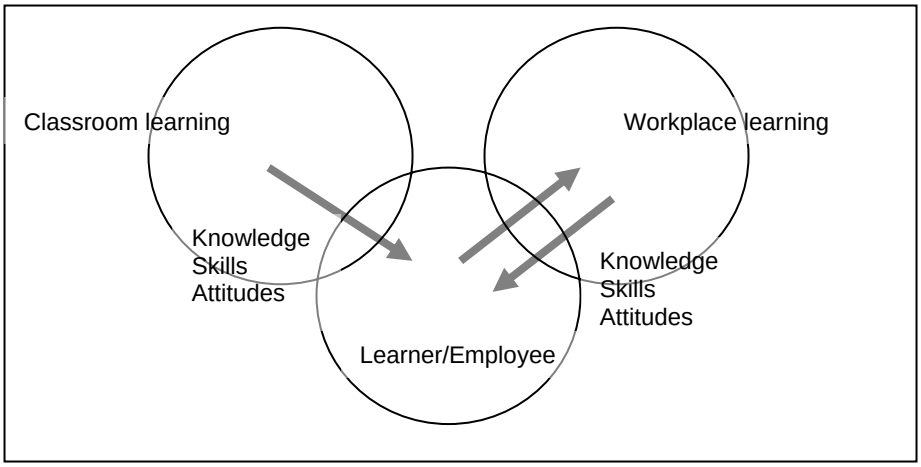
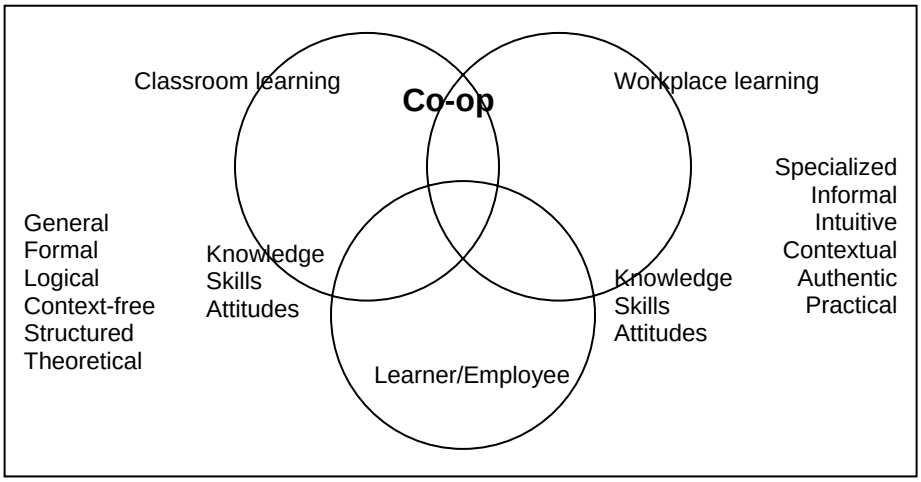


Figure 2 illustrates the co-operative model where employers and instructors work together to develop a learning experience for learners. The model illustrates employer involvement, but it does not explain why employers participate in co-op programs.

Ballinger (1992), in reviewing literature on motivations of employers in co-op programs, identified the following categories of factors associated with their participation: workplace enhancements, affirmative action, employer/college relations, community service, economic benefits, and human resource development. For his Ph.D.

Figure 2:

Co-operative education provides opportunities for students to apply their classroom learning in an authentic workplace setting.



thesis, he surveyed employers of co-operative education students from the University of Cincinnati and found that human resources development factors ranked highest, with affirmative action near the bottom along with community service opportunities (Ballinger, 1992). In other words, employers were motivated more by needs to recruit productive employees and to develop skills of current and new employees than by more altruistic motives such as relationships with the community and affirmative action.

Purpose of the Study

The purpose of this study was to identify factors that influence employers in Winnipeg to hire co-op students from the Technical Communication Diploma program at Red River College in Winnipeg and factors that may cause them to discontinue hiring these students.

Specifically, the objectives of the research were to

1. Identify the perceived factors that influence employers to participate in co-operative education programs for technical communication.
2. Identify the perceived factors that cause or would cause employers to cease their participation in co-operative education programs in technical communication.
3. Identify whether company size, type, or industry sector might influence employers' decision to participate in co-operative education programs in technical communication or to cease to participate in such programs.

Research Design

The target population consisted of 25 employers who, from 2003 to 2005, hired co-op students from the Technical Communication Diploma program at Red River College.

Two types of data were collected. The first type involved responses to a structured series of questions using a Likert scale. The second type involved responses to open-ended questions in an interview format. The instrument is referred to as a semi-structured interview.

Assumptions

Four assumptions were made in relation to this study. First, the current co-op employers of students in the Technical Communication Diploma program could be adequately questioned and results presented. Second, employers would respond honestly to the questions asked of them. Third, co-op employers in technical communication were capable of providing informed judgments of factors that influence employer participation. Fourth, employers would cease to participate in co-operative education programs when they ceased to perceive that there are advantages to their participation.

Delimitations of the Study

The study was done in relation to the co-operative education program for the Technical Communication Diploma program at Red River College in Winnipeg. It did not look at other programs, because technical communication is different from other programs offered at the College, for the following reasons.

First, it is a new program. Other co-op programs at Red River College are well established.

Second, although Technical Communication students are placed with many of the same companies that other co-op programs use, they are not placed in the same departments, and therefore they may be hired for different reasons.

Third, technical communication is still a relatively new profession in Winnipeg. The local chapter of the Society for Technical Communication was not founded until 1989. In 1994, a survey of 100 employers in Winnipeg showed that, although all companies had employees who did technical writing (defined as writing reports or other documents), none of them had employees they described as technical writers (Tech-Write Documentation, 1994).

Finally, the skill sets that Technical Communication students have are less known than, for example, the skill sets of engineering technology or business students, programs frequently associated with colleges. In Ballinger's (1992) sample, 41.7% of the co-op students were from engineering technology programs and 40.2% were from business programs. Such programs are well established in the eyes of employers, and employers have a clear understanding of what students from such programs can do for their companies.

Definitions of Terms

The following operational definitions were used for the research.

Coordinator. A person employed by Red River College who has the responsibility to facilitate the placement of students into co-operative education jobs. In the Technical Communication Diploma program, the three instructors share the responsibility for co-op placements, although one instructor is designated as co-op coordinator.

Co-operative education program. A program that provides students with work placements related to their course work during one or more terms in their program of study. Students are paid for their work. In the Technical Communication Diploma program at Red River College, term three of a total of five terms is the co-op placement term. Students must complete this term to graduate, and they are given a pass/fail grade.

Technical communication. The art and science of explaining technical material to non-technical audiences. It draws upon research in human factors, visual design, usability, adult learning, and a number of other fields. The terms *technical communication* and *technical writing* are used interchangeably. The field was traditionally called technical writing; the name technical communication became common in the 1980s.

Significance of the Study

This study explores the factors that influence employers to hire and discontinue hiring co-operative education students in technical communication. The study is significant for a number of reasons.

First, an applied professional writing program such as technical communication program should include a co-operative education component (Hayhoe, 1998; Rainey, 1996; Smart, 1999). Workplace writing is complex and cannot be adequately taught or simulated in even the best-designed classroom (Beaufort, 2000).

Second, co-operative education depends on the involvement of employers. It is easy to understand why colleges and students benefit from co-operative education. It is less easy to understand the benefits that accrue to employers. Although the literature contains lists of perceived benefits to co-op employers, there is little research to support these lists (Ballinger, 1992). The lack of research in this area is surprising considering the importance of co-operative education programs to many colleges and universities.

Third, there has been even less research done on co-operative education programs in technical communication. Within the technical communication literature, co-op experience is not a priority. For example, in 178 doctoral dissertations in technical, scientific and business communication from 1989–1998, only 52 related to workplace writing (Rainey, 1999). Many topics were covered, including processes and problems involved in writing in and for the workplace; acculturation to workplace writing; uses of workplace writing; graphics in business communication; collaboration; crisis and risk communication; training in the workplace; oral presentations in business communication; instructional technology and business communication; and curriculum, instruction and career development. Only one study related even remotely to co-op programs, and that looked at how professional writing interns negotiate the transition from academe to the workplace.

Fourth, the study was needed because of the lack of information about co-operative education programs at Red River College. Out of the 140 or so programs at Red River College, 25 have a co-op term. Each of these co-op programs has a different coordinator. There is anecdotal information about what has been tried and what works. There is a co-operative education coordinators' committee that meets once or twice a year, but, for the most part, the co-op coordinators work independently, and there is no accumulated written body of knowledge about marketing the skills of co-op students. In the Technical Communication program, the three full-time instructors share the job of finding co-op positions, although one person has increasingly taken on the role of coordinator.

Finally, the study was needed to help the co-op coordinator in the Technical Communication Diploma program. Since the program began in 2002, all eligible students have been placed in co-op jobs, but an extraordinary amount of work is involved in finding those placements. Technical communication is still a relatively unfamiliar profession to employers in Winnipeg, and much of the coordinator's time is spent explaining what technical communication students can do for the employers that hire them.

A study documenting what influences employers in Winnipeg to participate in co-operative education programs would benefit a marketing program and allow the three instructors involved in finding co-op placements to make more efficient use of their limited time.

Chapter II: Review of the Literature

The question to be studied is what are the factors that influence employers to hire and discontinue hiring co-operative education students from the Technical Communication Diploma program at Red River College in Winnipeg. I look first at the academic aspect of co-operative education programs, specifically in technical communication. I examine co-operative education, technical communication, and the co-operative education component of the Technical Communication Diploma program at Red River College in Winnipeg, Manitoba. Next, the benefits to students are briefly explored. Finally, I provide an overview of the research examining how employers hire in general, and why they hire, or discontinue hiring, co-operative education students.

Curriculum Overview: Co-operative Education and Technical Communication

Technical communication is communication for the purposes of explaining technical information to non-technical audiences. To do their jobs well, technical communicators require a number of skills, although there is not total agreement among practitioners and employers what those skills should be (Tech-Write Documentation, 1994). Based on its consultations with industry practitioners, the instructors in the Technical Communication Diploma program at Red River College have adopted a number of outcomes. Graduates of the program are expected to write clearly, concisely and grammatically, understand how people read and learn, work well in teams and individually, manage their projects, and act professionally. The skill areas developed in the program are shown in Figure 3 on page 17. In Winnipeg, formal training for technical communicators was largely non-existent until 1994, when a certificate program in technical communication was begun through Continuing Education at Red River College.

The introduction of the diploma program in 2002 enhanced the options available to those who wished to obtain formal training in technical communication in Winnipeg.

Before these programs began, technical communicators received their technical communication training on the job, through workplace learning, occasional workshops, and perhaps attendance at conferences. Close ties to workplace practice are appropriate for technical communication, because it is practical writing, and these ties are maintained in the diploma program through projects that are as authentic as possible; for example, students develop manuals, Web sites and newsletters for outside clients, and they complete their program by presenting their own research papers at a local conference. Co-operative education is a logical component of the program, consistent with its philosophy and structure.

Co-operative education, as previously discussed, provides opportunities for linkages between formal education programs such as the Technical Communication Diploma program and the employers who will hire the graduates of such programs. Learners get to practice their developing professional skills, and employers get to see what potential graduates can do. In this section, I describe the formal education component of the co-operative education triangle illustrated in Figure 2.

Overview of Co-operative Education

Co-operative education programs are programs that provide students with work placements related to their course work during one or more terms in their program of study. Students are usually paid for their work. Co-op education has a long history, and its roots are in the need to provide financially challenged students with meaningful paid summer employment.

Providing paid employment for students has always been the primary aim of co-op programs. Adams and Stephens (1970) identify co-op programs in North America, starting with the founding of Harvard in 1636, initially as a means of allowing poor boys to work their way through college. Throughout colonial times, ministers and teachers worked their way through university.

In England, co-op programs were first known as “sandwich” courses (Chainge, 1988). In 1903, the first sandwich programs were initiated at Sunderland Technical College in engineering and naval architecture. The traditional mode of education with emphasis on knowledge and understanding was not sufficient; students required relevant work experience. The name *sandwich* derived from the way co-op terms were sandwiched between periods of formal classroom training.

The first formal co-op education program in the United States was developed by Herman Schneider at the University of Cincinnati in 1906, in engineering (Adams & Stephens, 1970). Schneider observed that many students needed to work, and it was better to have them work at jobs related to their fields. In addition, not all preparation for a profession can occur in classrooms.

Co-operative education was first discussed in Canada in 1913, in a Royal Commission Report that described co-operative education as a plan for boys between the ages of 14 and 18. Boys could continue their schooling and get workplace experience at the same time (Government of Canada, 1913). However, the first program in Canada was not started until 1957 when the University of Waterloo started its first co-op program in engineering (Chainge, 1988; Francis, 1996). Other early co-op programs were also in engineering, as well as industrial management, architecture, and business administration.

The first programs were in universities, such as the University of Waterloo. Co-op programs were not common in secondary schools or junior colleges (Cap, 1975).

The Canadian Association for Co-operative Education (CAFCE) formed in 1972. By 2002–03, 75,000 students participated in co-op programs in 85 programs at colleges and universities across Canada (Canadian Association for Co-operative Education, 2003). At Red River College, out of 140 programs, 25 have a co-op term.

Co-op programs are seen to relate to the professions as apprenticeship programs relate to the trades. Both co-operative and apprenticeship models, at least in Canada, provide a combination of classroom and workplace learning. However, the focus is different. Where apprenticeship programs add a term of schoolwork to the workplace learning, co-op programs add a term of workplace learning to schoolwork.

Co-op programs in general are based on one of two models. The first model is in either vocational or technical education (known as the Schneider model, after the man who introduced co-op education to Cincinnati, and the United States, in 1906). Vocational education co-op in the Schneider model is a highly structured and specialized career program directed at the development of an occupational skill. The second model is in general education (known as the Antioch model). The Antioch model stresses personal development and exploration along with career exploration, but with no specific occupational skill development (Ballinger, 1992; Franchak & Smith, 1986).

The Technical Communication Diploma Program at Red River College

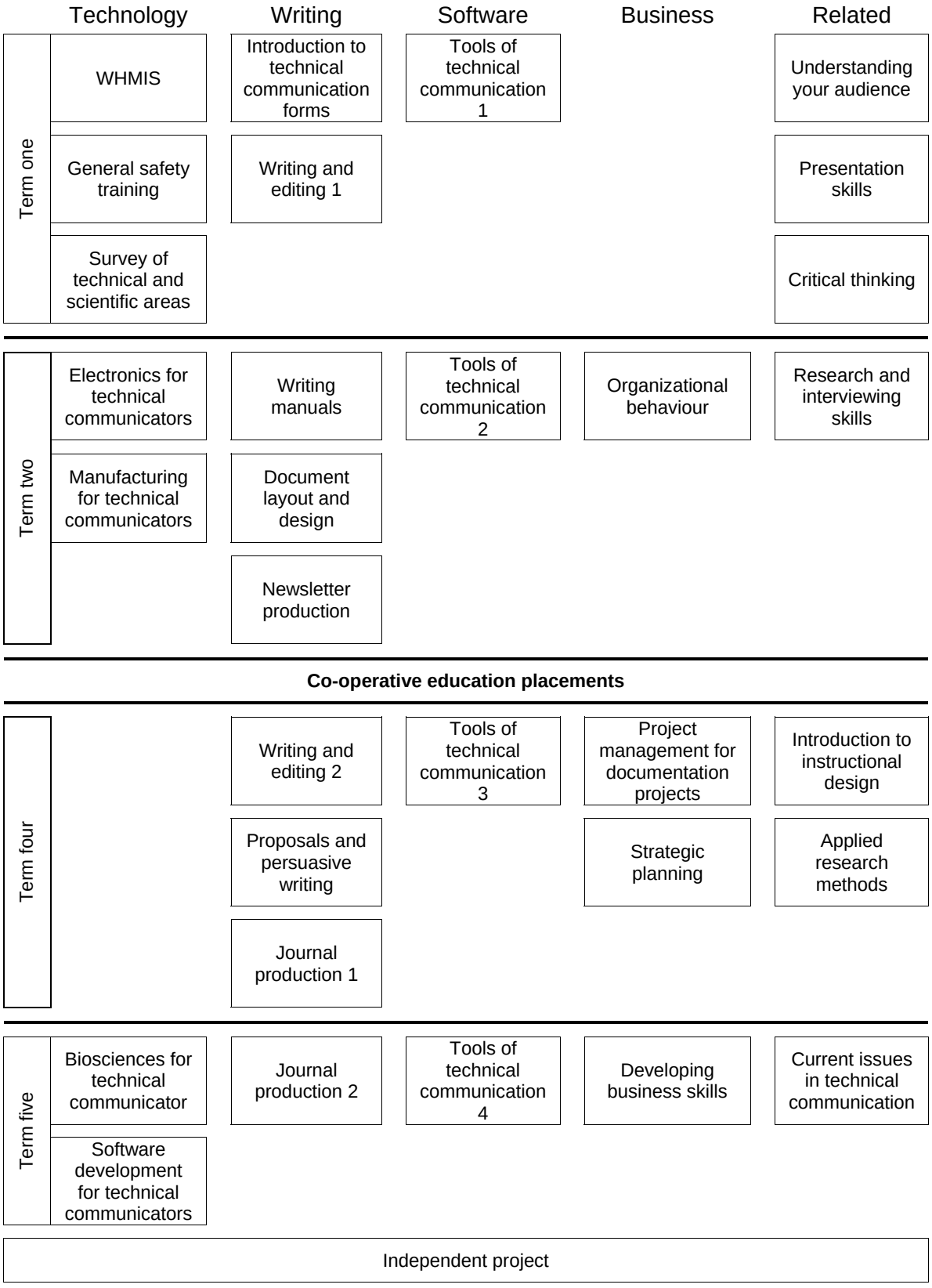
At Red River College, the Technical Communication Diploma program is based on the vocational and technical co-operative education model, the Schneider model. Students obtain jobs related to their program of study where they can apply their writing

skills. Throughout their program, in addition to the co-op term, they produce a variety of documents for outside clients, such as manuals, display boards, newsletters, and Web sites. They learn a document development process; they develop skills in using software for paper and online publication, in oral communication, in teamwork, in research and interviewing, and in project management; and they develop advanced skills in writing and editing. The specialized skills students develop in the Technical Communication Diploma program should be valuable to employers and should contribute to the willingness of employers to hire students from the program. Appendix A gives a brief synopsis of each of the courses in the program to indicate the skills and knowledge gained by students in the Technical Communication Diploma program. Figure 3 shows the relationship of the courses to each other and the skill sets developed.

Value of Co-op Programs to Students

The value of co-op programs to students has been well studied (Ballinger, 1992). However, students are not the focus of the current study; therefore, research on the benefits of co-op programs to students is covered only briefly. Like apprentices, students in co-op programs are able to learn about their chosen profession while being paid (Evanciew, 1994). They develop better attitudes towards work, are motivated to stay in school and obtain a diploma, are provided with another avenue into the world of work, acquire more interest and maturity in school, earn school credit for working, gain realistic experiences in the work atmosphere they are preparing to enter, and have the opportunity to supplement school experiences with work experience (Cap, 1975). They can test their career choices without commitment (Davies, 1997).

Figure 3: The courses in the Technical Communication Diploma program cover five sets of skills over four terms.



Students in co-op programs apply the learning from the classroom (Hawke, 2002). They acquire marketable job skills; they establish contacts and begin to build networks; they get feedback from supervisors; they tend to have higher starting salaries as a result of their work experience (Cantor, 1995; Franchak & Smith, 1986; Heermann, 1973; Sapp & Crabtree, 2002). They may have higher grade point averages (Hornsby & Johnson, 1991; Knouse, Tanner, & Harris, 1999). They may or may not make more money upon graduation. Follow-up studies of co-op students suggest that, although co-op students may have an initial benefit in terms of salary, the benefits in tenure and pay are not long-lived (Johnson, 2000; Knouse, Tanner & Harris, 1999; Thomsen, 1997).

For technical communication students particularly, co-op is a valuable step on their journey from novice to expert. They work with expert practitioners, use style guides, imitate rhetorical models in their workplaces, attend planning and editing sessions with mentors or supervisors, and work with clients (Beaufort, 2000; Blakeslee, 2001; Breuch, 2001; Cantor, 1995; Kerka, 1997; Kreth, 2000). They develop a portfolio (Pass & Zerbe, 1999).

They learn to write for real audiences (Breuch, 2001). “Not even the best-written case study or end-of-textbooks-chapter-exercise can duplicate the rhetorical complexity that comes from a real human reader trying to solve a real problem using a real document" (McEachern, 2001, p. 211). In other words, they are becoming professionals (Tovey, 2002).

Employers’ Hiring Practices

Ballinger (1992) found that one of the main factors influencing employers to hire co-op students is the ability to use participation in co-op programs as a recruitment tool.

Therefore, it is useful to look at employers' hiring practices: at hiring in general, at hiring of technical communicators, and at hiring of co-operative education students.

Employers' Hiring Practices in General

Although there are many studies of how job seekers look for work, there is a lack of corresponding studies in employers' recruitment behaviour (Behrenz, 2001).

Behrenz (2001) identified three stages in the recruitment process: the decision to hire, the search process, and the candidate selection. The decision to hire is made for one of two reasons, either to replace an employee who has left or to expand the labour force. Each reason accounts for about 50% of vacancies. The search process varies with the employment rate. In times of high unemployment, fewer search channels are used. People that are hired received their information about the job vacancy from a variety of sources, including from employment offices (50%), from newspapers (15%), or from networking (36%). In general, those who are unemployed fare better with employment offices. Job changers do better with networking.

Candidate selection involves finding the person who will be most productive in the job. Traditionally, productivity indicators are education and experience, although employers use several indicators that are not related to productivity, such as race, ethnic origin, or gender (Behrenz, 2001). In the first stage of the candidate selection process, Behrenz found that the three main reasons for eliminating applicants were lack of experience, lack of education, and age over 45 years. In the second stage, selecting candidates to be interviewed, employers looked at experience (58%) or education (18%). Other factors looked at were age, originality, and good application papers, but these together constituted 14% of reasons for selecting candidates.

In the final stage of candidate selection, the three most important factors were information gained in the interview (41%), personal contacts (26%), and references (27%). However, in comparing the characteristics of the persons who were hired with the persons who were not hired, Behrenz found that although 64% of all applicants filled the demands for education completely, of those who got the job, only 53% filled the demands for education completely. Similarly, 52% of applicants filled the demands for experience completely, but out of successful candidates, only 45% filled the demands for experience completely. In other words, although employers say the factors that most influence them to hire are education and experience, in fact, other factors influence hiring decisions. These factors do not seem to be age over 45, gender, or current employment status. Immigrants were slightly more represented in the percentage of applicants overall (11%) than in the percentage of applicants who got jobs (7%). In other words, experience gets a candidate the interview; personal engagement and social competence (as viewed through references and networking) can influence employers to hire candidates with less than the required education and experience. In job interviews, Behrenz concludes, “During the job interview, which the employers, together with personal contacts of all kinds, regard as the most important source of information in the recruitment process, the employer searches for a person with professional knowledge, personal engagement and social competence” (p. 275).

Another study found that employers ranked the following criteria as important factors in making hiring decisions: attitude (93%), communication skills (80%), previous work experience (69%), current employees’ recommendations (54%), previous employer’s recommendations (50%), industry-based credentials (46%), interview test

scores (26%), years of education (26%), reputation of school (22%), grades (15%), and teachers' recommendations (12%) ("Weighing the benefits," 1996).

Hu (2003) looked at the differences in hiring between large and small companies, observing that the literature on new hires and employer size is very limited. In general, large firms pay more than small firms and are more willing to provide training. Large firms also prefer to hire younger workers, to reap more benefits from their investments in salary and training. Hu examined data from May 1979 to April 1993, and found that for white-collar workers, the mean age-at-hire declines as the firm size increases, and workers' tenure increased with firm size. In addition, larger companies (100 or more employees) pay higher starting wages for employees until they are about 35. Wages are about the same from 35 to 50. Newly hired workers aged 50 or more are paid less in large firms than in small firms, suggesting that large firms dislike hiring new old workers. Hu also found that the transportation, utility, and communication industries tended to hire younger workers than the trade and construction sector.

Behrenz (2001) showed that employers have rather an ambivalent attitude to the educational qualifications of job applicants. Applicants were eliminated on the first round because they did not have the education asked for (55.8%) or the experience asked for (62.5%). But in determining who should be called for an interview, experience (58.0%) was more important than education (17.8%). Although Behrenz does not explore the reasons for the shift in the emphasis on education, it is possible that once employers eliminate the people without the minimum educational qualification, additional education beyond the minimum is not considered as significant as experience. The finding that employers use education as an initial screening tool is important for Red River College's

Technical Communication Diploma program, which provides the major formal qualification for technical communicators in Winnipeg.

There is evidence that employers should pay more attention to educational qualifications. A study conducted by the National Center on the Education Quality of the Work Force found that the more educated the employees of a company are, the more productive the establishment ("Weighing the benefits," 1996). Employers might discount education when they make hiring decisions, but ultimately they fare better in the marketplace with employees that are more educated. They also tend to have less turnover and to provide more training to employees.

A National Employer Survey (NES) in 1997 (Institute for Research on Higher Education, 1998) addressed the issue of employers' views of college graduates, in particular the mixed message that employers sometimes send: we want employees to be college graduates, but we don't think colleges do a good enough job of preparing graduates for employment. Although 25% of employers report participating in school-to-work activities such as job shadowing, mentoring, internships, and co-operative education, when it came to hiring, they continue to ignore schooling factors when hiring youth. Although only 4% of companies surveyed rated community college graduates as less than adequate, only 41% ranked graduates as more than adequate or outstanding. Higher rankings were associated with a number of factors: employers' favourable impressions of feeder high schools, the number of employees who used computers, the size of the company, and a limited number of graduates. Employers who believe their workforce is highly productive and who interview more candidates are less likely to rate college graduates as more than adequate.

Employers and Technical Communicators

The hiring of technical communicators is affected by a number of factors. First, especially in Canada, particularly in western Canada, employers may not have heard of technical writers. Second, many employers do not understand the roles and functions of technical writers in the workplace. Third, there is no clear educational path to technical communication. Fourth, there is no universally accepted set of skills for technical communicators. Fifth, there is a discrepancy between what employers think is important and what technical communicators think is important.

Awareness of technical communication as a profession. In Canada, technical writing as a profession is largely unrecognized and, at least according to practitioners, underappreciated (KPMG Peat Marwick Stevenson & Kellogg, 1993, 1994; McFadden, 1992, 1994; Tech-Write Documentation, 1994). Technical writing is something that engineers and computer programmers do; it is not a job in itself. The Government of Canada tracks information about writers through National Occupation Code (NOC) 5121, which includes copywriters, novelists, playwrights, script writers, poets, and humourists as well as technical and specifications writers (Government of Canada, 2003). Therefore, it is difficult to gather national data on the employment of technical writers. The Society for Technical Communication (STC) reports that Canadian membership is about 1000 (Society for Technical Communication, 2005), but the actual number of people in Canada working as technical writers is likely to be much higher, as many practitioners do not belong to STC.

A decade or so ago, technical writers in Canada engaged in studies to determine the best way to increase awareness of their occupation (KPMG Peat Marwick Stevenson

& Kellogg, 1993, 1994; McFadden, 1992, 1994; Tech-Write Documentation, 1994). In the first of these studies, the authors observed that

> There is a perception that Canadian industry as a whole does not attach sufficient importance to supporting and enhancing their products with clear communication about how to use and maintain them. If this perception is true, it follows that Canadian industry in general does not see the need for well-qualified technical communicators (McFadden, 1992, p. 1).

In 1994, most of the 300 employers interviewed by telephone across Western Canada had to have the term *technical communication* explained to them (KPMG Peat Marwick Stevenson & Kellogg, 1993, 1994). Technical communication as a profession was not perceived as being well established. Although companies acknowledged the value that quality documentation added to their products and services, only 31% employed technical communicators inhouse. In all, 86% used other staff such as engineers for technical communication functions, and 40% hired external consultants.

In 2001, all 60 employers interviewed by telephone were aware of what technical communication was (Acumen Research, 2001). Between the time of those first two studies and the 2001 study, several technical communication programs had begun in Western Canada; undoubtedly, these programs helped raise awareness of technical communication.

Understanding the roles and functions of technical communicators. Despite the improved awareness of the profession, there is still not a good understanding of what technical communicators do. This lack of understanding may lead to advertisements that are misleading or vague and that result in hiring the wrong people, as suggested by two studies of hiring practices in different areas of communication.

Downes and Jirari (2002), in looking at employment trends for graduate students in the communications disciplines, surveyed 181 members of two communication associations, the Association for Education in Journalism and Mass Communication and the National Communication Association. They also analyzed job announcements for academic positions during one academic year, 1998–99. They found a number of positions required credentials in multimedia, digital communication, and computer-related fields using new technologies. Positions included assistant professors, associate professors, chairs, instructors, administrators, and technicians. Slightly more than half of the positions required PhDs. Firstly, the researchers found that, not surprisingly, during the next few years, a large number of academic positions will become available as people retire. Currently, there are not enough PhD candidates to fill the potential jobs. Secondly, many of the positions, especially in applied fields, required professional experience. Thirdly, job advertisements were frequently vague: They often failed to specify hiring criteria such as teaching load, availability of summer work, salary ranges, or courses to be taught. The researchers are quite critical of these advertisements, especially considering they are for communication positions: Using advertisements that were more specific would make the hiring process more efficient.

Rude and Cook (2004) describe a similar situation in technical communication, and they ponder the long-term consequences for the technical communication profession. They observe,

> An imbalance between demand for faculty and supply creates multiple problems and can compromise the development of the field overall. Programs cannot develop as planned, positions may be filled by people with little preparation and interest in the field, and research may suffer if faculty positions are held by people unfamiliar

> with the methods of research and research questions in this field (Rude & Cook, 2004, p. 49).

They observe further that "growth of academic programs and the parallel demand for new faculty seem tied to growth of the role for technical communicators in the corporation (the dominant employer of graduates from undergraduate and master's programs)" (p. 50).

Rude and Cook reviewed 133 advertisements that appeared through professional organizations and that asked for technical, professional, business, or scientific writing, in one academic year. They noted a discrepancy among what was listed in the advertisement, what the schools, when contacted, said they wanted, and who were finally hired. In their analysis of academic positions, they identify a problem that pervades the technical communication field as a whole: "The bad news is that the field remains amorphously defined to department chairs and deans, with the particular areas of expertise unrecognized. . . This lack of definition may also hinder programs' abilities to define hiring needs and argue for new or replacement tenure-track lines: Without identified specializations, how does a program demonstrate that it lacks in a specialized area of expertise?" (p. 55). Specialties in technical communication focus mostly on technology (Web design, multimedia or digital rhetoric). They also point out the importance of networking in hiring for academic positions: Faculty get to know other faculty at professional conferences, and they make it a point to get to know upcoming graduates. In looking at who were actually hired in 36 professorial positions, they found that teaching experience and a teaching demonstration ranked as more important than dissertation area or publication record. Hence, many positions are filled by candidates with degrees in English rather than technical communication and rhetoric. They add,

hopefully, “If the field grows and if the ratio of candidates to jobs increases, search committees might refine their criteria and rate the specialization higher” (p. 59). If academic programs do not recognize the value of having specialists in technical communication teach those programs, how can corporations be expected to recognize the specialized skills of graduates of technical communication programs?

Educational path to technical communication. There are many ways to enter the technical communication field: People with technical or scientific training may hone their writing skills, and people with degrees in English literature may develop technical knowledge. It is not clear what sort of post-secondary education is most useful: specific technical writing programs, liberal arts programs or technology programs.

Just over a decade ago, a survey found that training for technical writing in Canada was limited to a few programs in engineering faculties across Canada and a handful of professional writing programs (McFadden, 1994). Seventy-seven percent of 232 technical communicators responding to the survey had at least an undergraduate degree, in areas from English to psychology. Younger technical communicators generally had higher educational qualifications than older ones.

The results of the study suggest the following:

> The attitude revealed by the survey seems to support the perception that Canadian employers still look upon technical communicators as being an “overhead” that does not contribute much of value to the product itself. They are not seen as a valuable resource in the management of projects or in the development of products. Part of this attitude may be attributed to the perception by employers that, since no communication programs exist at the university level, then the communicators they do hire may not have the necessary qualifications to be anything but writers and editors (McFadden, 1992, p. 10).

The Government of Canada (2003) states that technical writers usually need a university degree in an area of specialization such as computer science or engineering. They offer no other suggestions about how to prepare for a career in technical writing.

The lack of professional designation for technical writers was highlighted as an issue in the survey of employers (KPMG Peat Marwick Stevenson & Kellogg, 1993, 1994). Employers would prefer to hire someone with the appropriate education. Employers in Winnipeg responding to a survey in 2001 said that they would give preference to hiring graduates of a technical communication diploma program (Acumen Research, 2001).

Skills required for technical communicators. Despite several attempts, the Society for Technical Communication has been unable to identify core competencies for technical writers (Turner & Rainey, 2004). The authors state that a lack of a competencies assessment "tarnishes the profession by suggesting irresponsibility on the part of its leaders and by keeping the public ill informed about the professional competencies of those who practice the profession" (p. 216).

Despite the lack of a well defined skill set for technical communicators, several authors suggest ways that companies can ensure they hire the right candidates; for example, through role profiles (Mason, 2002), effective interviewing (Billard, 1998; Jensen, 1995; Johnson & Fernandez, 1998), and defining core competencies (Tatge, Moore & Robinson, 1996). Companies need to be aware of the skills required and need to be able to frame those skills into a technical communication job position (Huettner & Jackson, 1996; Mason, 2003).

However, some authors suggest that employers may benefit from hiring people with academic training over people trained solely in the workplace. In general, graduates can get up to speed quickly and inexpensively and require less on-the-job training. They have current, tested skills (Rehling, 1996). Academic programs typically cost less than in-house training, assign grades for completion of work, provide well-balanced content, and are subject to external and internal controls.

The following principles were described as desirable guidelines for the practice of technical communication (Tech-Write Documentation, 1994):

- Technical communicators are recognized professionals.
- Technical communicators know about and use research in technical communication.
- Technical communicators have a well-defined skill set: They are dedicated to meeting the needs of the audience; they are expert writers; they may have technical expertise; they have a broad base of skills in interpersonal communication, audience analysis, and organizational behaviour.
- Technical communicators add value to products.
- Technical communicators follow good project management practices.
- Technical communicators are part of project teams.
- Technical communicators are recognized and work in all areas of technology and industry.
- Technical communicators communicate through many media.

Discrepancy between employers' and practitioners' expectations. Perhaps the most challenging finding for technical communicators that emerges from research is the

discrepancy between the skills and knowledge employers think practitioners should have and the skills and knowledge practitioners themselves think they should have.

Employers cite the importance of a number of skills and areas of knowledge, such as educational background, knowledge of the industry, training and experience, good communication skills, professional designation, comprehensive understanding of the product, team effort, ability to meet the needs of end users, and interest in the product (KPMG Peat Marwick, 1993). The findings from this study are summarized in Table 1.

Table 1:

Qualities Employers Look for When Selecting a Technical Communicator

Quality	Percentage of responses	Quality	Percentage of responses
Technical expertise	61	Ability to work in a team	5
Past experience	47	Product knowledge	5
Industry experience	33	Attitude	5
Writing capability	33	Empathy	3
Project experience	24	Organizational skills	3
Price	16	Professionalism	3
Educational credentials	13	Reputation	3
Knowledge of company	12	Interviewing capabilities	2
References	9	Learning capabilities	2
Oral communication skills	8	Commitment to a project	2
Ability to rush request	6	Analytical skills	2

(Tech-Write Documentation, 1994)

The study revealed discrepancies in how employers view technical writers and how technical writers view themselves. Few employers viewed technical communicators as professionals, but the technical communicators viewed themselves that way. Eighty percent of 127 practitioners surveyed had at least undergraduate degrees, and eleven percent had post-graduate degrees. Eighty-seven percent belonged to at least one professional organization. Employers, on the other hand, had to have technical

communication explained to them, and only 31% employed technical communicators full-time.

Whereas employers valued technical and industry expertise and experience, technical communicators listed the following as their top ten skills: interpersonal, problem-solving, organization, flexibility, eye for detail, creativity, logic, clarity of thought, ability to learn quickly, and time management. In all, practitioners listed 50 skills that they felt were important; experience and technical background were mentioned just twice (Tech-Write Documentation, 1994).

The author concludes

> When employers look for people to work on technical communication projects, they look first for technical expertise. They rank writing skills, and other skills considered important by technical communicators themselves, as secondary. Technical communicators are going to have to pay attention to this finding, and either increase their level of technical expertise, or develop good arguments why technical expertise is not as important as employers think (Tech-Write Documentation, 1994, p. 29).

Before developing the Technical Communication Diploma program in Winnipeg, the program planners researched the potential for employment for graduates of such a program. Sixty employers in Winnipeg were interviewed by telephone to determine the market demand for potential graduates of the Technical Communication Diploma program (Acumen Research, 2001). Sixty-two percent said they would prefer to interview a candidate with a diploma rather than without; all said they would prefer the candidate with the diploma. Thirty-eight percent said that hiring would depend on experience and skills, technical writing background, training with the company, performance on the interview, engineering background, computer skills, or Web site development experience. The skills they considered important were writing capability,

project management, industry experience, industry knowledge, page layout and design, interviewing, online design, and Web site design. Two-thirds of respondents expected that graduates would offer technical writing skills and the ability to communicate in simple language, as well as effective communication skills with customer and business, computer skills including Web design, a wide range of subject knowledge, grammar skills, and creativity (Acumen Research, 2001). Seventy-seven percent of respondents said they would be likely to hire co-op students.

These results were encouraging and were used to support the establishment of a Technical Communication Diploma program at Red River College.

Although learners in technical communication programs will have exposure to a variety of documentation tools, in looking for qualifications provided by academic programs, employers should not focus on tools. Good writers can quickly adapt to new tools; in fact, they will be doing so throughout their careers: WordPerfect is replaced by Word, Ventura Publisher by FrameMaker, FrontPage skills transfer to WebWorks, and so on. Knowing the tools does not make you a writer, just as knowing how to hammer a nail does not make you a cabinetmaker (Molisani, 1999).

That is what practitioners say. However, employers are not listening. A look at some recent job ads, through techwr-l, a popular technical writers' listserv, and through Monster.com, shows that there is a discrepancy between how technical writers view their jobs and how employers view their jobs. In early 2005, I conducted a quick informal survey of 30 technical writing jobs from January to March 2005. I found that 100% asked for experience, 87% asked for knowledge in a particular technical area such as software

or financial services, 83% asked for a degree or diploma, and 77% listed specific software tools. The results are summarized in Table 2.

These results support the findings of Behrenz (2001): Employers look first for experience (and for technical writers they look for specific industry experience and software experience), and education (a degree or diploma, in usually unspecified fields).

Table 2:

Survey of Job Requirements, January to March 2005

Job requirement	Number	Percentage
Experience	30	100
Technical skills, knowledge	26	87
Degree/diploma	25	83
Tools	23	77
Interpersonal, communication, teamwork	16	53
Attitude, deadlines, independent	15	50
Technical writing skills	15	50
Project management, documentation process	10	33
Research, analytical skills	10	33
Credential in technical writing	6	20

Three Web sites that describe technical communication as a career talk about the need for education and technical proficiency as key. They also list the following skills: organizational skills, communication skills, time management skills, project management skills, ability to meet deadlines, writing skills, knowledge of technology, interpersonal skills, research, and analytical skills (Alberta Human Resources and Employment, 2002; iseek, 2005; Monster.com, 2005).

Factors That Influence Employers to Hire Co-op Education Students

Co-op programs are used in a variety of disciplines in colleges and universities around the world, and yet “research on school-to-work programs in postsecondary

education is still limited, and the complexity of the programs makes it difficult to know which elements produce positive effects" (Inger, 1995). This observation echoes the words of Ballinger (1992), "Co-operative education is a topic on which there has been only limited research. . . Further, the research which has taken place has been insufficient, and little of it has been employer oriented" (p. 11). Ballinger further observes that "Most of the more recent studies of co-operative education have been targeted on program implementation or evaluation studies" (p. 12).

The Canadian Association for Co-operative Education (CAFCE) Web site lists the following benefits to employers of hiring co-op students, but without any substantiation, either in the form of research or even of testimonials from employers:

- Co-op students are an ideal source of workers to fill temporary human resource needs during staff leaves or for short-term projects.
- Co-op programs offer year-round access to students.
- Employing co-op students can reduce future recruiting costs—co-op employment aids in the vetting of students for future hiring of motivated and skilled employees.
- Co-op students can help create a bridge between the employer and the student's academic institution, and employers can provide valuable feedback about course curricula and content.
- Employment of co-op students gives a supervisor the opportunity to mentor bright and enthusiastic students, as well as the chance to take part in the training of their future colleagues (Canadian Association for Co-operative Education, n.d.).

College and university Web sites list a variety of reasons that employers should participate in co-op education programs, but, like CAFCE, they provide no research to

substantiate their lists. For example, the following is taken from a university Web site: "Among the immediate benefits of co-operative education, employers cite technical knowledge and computer skills, along with the fresh perspective and enthusiasm that engineering co-ops bring to their jobs. As for longer-term, employers view co-op as one of their top recruiting tools . . . Co-op is a kind of 'on-the-job interview'" (Work Experience Programs, 2004). Another university Web site says that the benefits of co-op to employers are that they can economically prescreen qualified job applicants on-the-job, hire productive, enthusiastic employees, reduce the cost of recruiting college students, make better use of valuable staff time by turning over routine tasks to co-op employees, add professional workers during peak work times or for special projects, reduce the cost of training potential full-time professional employees, and increase company visibility among the college community (Career Services Center, 2003).

Ballinger (1992), in describing research about factors that influence hiring of co-operative education students, organized his discussion around six themes—workplace enhancements, hiring minorities, community service, employer/college relations, economic benefits, and human resource development. The following discussion enlarges upon these themes. Ballinger's results are summarized in Table 3.

Table 3:

Factors that Influence Employers to Hire Co-op Students

Category	Factor	Rank
Category 1 Workplace Enhancements	Factor 1: Students are good employees with positive attitudes.	5
	Factor 7: Students bring new ideas and technology to the work site.	13
	Factor 9. Students improve the morale of the workplace.	17
Category 2 Employer/College	Factor 4: The relationship between the employer and the college are improved.	11

Table 3:

Factors that Influence Employers to Hire Co-op Students

Relations	Factor 5. The relationship between the employer and the college enables the employer to influence the curriculum.	12
Category 3 Affirmative Action Goals	Factor 6. Increases chances for hiring women and minorities.	16
Category 4 Economic Benefits	Factor 2: Students are good employees who are productive.	6
	Factor 3: Students are an excellent source of temporary workers.	9
	Factor 8. Students cost less to hire than regular employees.	15
	Factor 12. Hiring students allows permanent employees to be more productive.	8
	Factor 14. When students become new employees, they are more productive and less costly to orient and train than new employees with no prior company experience.	1
	Factor 17. Co-operative education students who become full-time employees have less turnover than other permanent employees who were not.	7
Category 5 Community Service Opportunities	Factor 11. Co-operative education enables employers to provide a community service.	14
Category 6 Human Resource Development	Factor 10. Students have some training and/or interest in the type of work to be performed.	2
	Factor 13. Employers are able to recruit the most desirable students as permanent employees.	4
	Factor 15. Co-operative education is an efficient way to recruit permanent employees.	10
	Factor 16. Co-operative education provides employers a reservoir of students from which permanent personnel can be hired.	3

(Adapted from Ballinger, 1992)

Workplace enhancements. Ballinger (1992) defines a workplace enhancement as any influence co-operative education students are perceived to have in making the workplace a more desirable environment. These enhancements are often mentioned by those who write about the field; for example, co-op students can add to the intellectual capital of an organization (Raheja & Raheja, 1999), or boost morale (Ballinger, 1992;

Franchak & Smith, 1986). Others say hiring students could help "companies develop products, meet deadlines, and, in short, increase revenue" (Hart & Glick-Smith, 1994, p. 404) or use "new ideas, approaches and techniques that may enhance productivity and efficiency" (Kitagawa, 1998, p. 3). Co-op students bring technical knowledge and computer skills to their jobs, along with fresh perspective and enthusiasm (Ballinger, 1992; Work Experience Programs, 2004).

However, the research studies do not support these ideas. Ballinger (1992), in reviewing six research studies, observes that five did not mention workplace enhancements as influencing employers to participate in co-operative education. The sixth placed it at the bottom of their list. His own study of employers in Cincinnati did not find any support for the contention that the potential workplace enhancements influence employers to hire co-operative education students. Ballinger associated three factors with workplace enhancement. The statement "Students are good employees with positive attitudes" was ranked 5 out of 17; "Students improve the morale of the workplace" ranked last at 17, and "Students bring new ideas and technology to the work site" ranked 13.

Ballinger concludes, "Students had positive characteristics which were valued by both educator and employer respondents, but these characteristics did not necessarily result in workplace enhancements, nor were they important reasons why employers participated in co-operative education programs" (p. 136).

Metzger (2002) found in a survey of co-op employers in Boise, Idaho, that 67.7% of respondents agreed strongly or moderately that "Internship students positively affect

staff quality by providing fresh perspectives" (p 102). However, the statement ranked 16 in a list of 22 statements, so it was not considered a high priority.

Considering employers' skepticism about educational programs discussed earlier, perhaps this finding is not surprising. In Winnipeg, where most technical writers have been trained on-the-job, there are two extreme possibilities. One is that employers may welcome the new ideas of well-trained employees; the other is that existing writers may resent the opportunities the co-op students have had and run the risk of exhibiting what Hayhoe (1998) refers to as: "an arrogance of ignorance about the theoretical principles and research base of our field."

Hiring women and minorities. Ballinger (1992) quotes several sources that suggest that affirmative action—hiring women, visible minorities, and other special populations—could motivate employers to hire co-operative education students. However, his references were from the 1970s and 1980s and likely reflect the politics of that time. From his own research of employers in Cincinnati, Ballinger concludes that "meeting an affirmative action goal was not a highly ranked reason motivating employers to take part in co-operative education programs" (p. 137). As shown in Table 3, he associated one factor with Affirmative Action Goals, "Increase chances for hiring women and minorities." It ranked 16 out of the 17 factors, clearly not a priority for co-op employers in Cincinnati.

Metzger (2002) found that a statement on hiring minorities ranked last in a series of 22 statements ranked by co-op employers in Boise, Idaho; 21.2% of respondents said they agreed moderately or strongly with the statement "Internship programs serve to increase minority representation in participating organizations" (p 102).

Community service. Many writers on co-op education proclaim that employers participate in co-operative education programs because they view such participation as a means of providing a service to the community (Cap, 1975; Franchak & Smith, 1986; Heermann, 1973). As a result of their co-op experience, students make contacts in the community, become more aware of the opportunities that exist in their community, and are more likely to stay there. In turn, the community benefits because graduates provide a pool of college-educated workers with valuable work experience. The community becomes more aware of what the college does, increasing rapport between the college and the community (Davies, 1997; Heermann, 1973; Hornsby & Johnson, 1991; Kitagawa, 1998).

However, Ballinger (1992), in his study of co-op employers in Cincinnati, concludes that the influence of community service is borne out by only one of the six research studies he reviewed and its low importance is substantiated by his own study, as shown in Table 3. He associated one factor with Community Service Opportunities, "Co-operative education enables employers to provide a community service." It ranked 14 out of 17 factors.

Metzger (2002) found that a statement on community service ranked 12 in a series of 22 statements ranked by co-op employers in Boise, Idaho; 77.4% of respondents said they agreed moderately or strongly with the statement "Internship programs serve as excellent community relations' mechanisms" (p 102). However, Metzger's study focused on asking respondents their opinions about benefits to employers from hiring co-op students, not about their reasons for hiring.

Employer/college relations. Educational institutions and employers both benefit from a strong relationship between them. Colleges whose programs meet the needs of the market produce graduates that can find jobs; high graduate placement rates encourage new enrolments and ensure the college's success. Employers find skilled employees that meet their requirements.

Many colleges seem willing to follow Heermann's dictum, "The college ought to be integrated with the community and its vital economic and social pursuits" (Heermann, 1973, p. 1). For colleges, co-op programs provide good opportunities for community outreach and may help make them eligible for additional sources of financial aid and fundraising. They get a curriculum tested in the workplace; they have access to state-of-the-art employer facilities or other facilities that cannot be duplicated on campus; and their faculty keep current with the industry through contacts with co-op employers. They experience better learner retention and graduate placement (Cantor, 1995; Franchak & Smith, 1986; Heermann, 1973; Sapp & Crabtree, 2002; Tovey, 2002).

For technical communication, co-op programs are especially important. "If technical communication is to grow as a professional field and as an academic discipline (and, indeed, the changing global economy requires that it grow in both directions), we would argue that each venue needs to learn from the other and co-operate in developing truly beneficial curricula, wherever taught" (Hart & Glick-Smith, 1994, p. 400). Programs that teach applied skills, such as professional writing programs, need to be in touch with changes and developments in the industries they serve. Instructors can identify writing practices and competencies that appear to be common to a variety of workplaces (Smart, 1999). Colleges and universities easily become out of touch with what is going

on in industry. For example, in a survey of 259 professors and 454 practitioners, it was found that technical writing professors emphasized resume writing, report writing, and proposal writing, whereas practitioners found they needed product information, instruction in developing hypertext, project management skills, and grammar skills (Gerson & Gerson, 1995).

Co-op components strengthen technical communication programs because “you learn to ride by riding, as well as by reading about riding" (Dubinsky, 2002, p. 133). In other words, you learn to write by writing and by reading about writing, although there is a risk that “workplace writing practices might turn out to be so complex, dynamic, and context-specific that they couldn’t be taught in school at all, but rather only learned in situ, after individuals move into careers in particular professional organizations” (Smart, 1999, p. 7). For example, students gain experience working for multidisciplinary teams and handling situations that do not resolve themselves easily, as textbook examples sometimes may (Wojahn et al., 2001).

So for colleges, and particularly technical communication programs in colleges, relationships with employers are important. Correspondingly, many writers cite convincing arguments that employers should view relationships with colleges as equally important. Co-op programs can help employers increase their visibility among the college community (Career Services Center, 2003) and establish contact with schools (Cap, 1975). Co-op programs can help industry stay in touch with the college, for example by increasing employers’ awareness of academic research in technical communication. Placing students in co-op positions may help industries benefit from research and theory in the field (Spilka, 2000). Employers have opportunities to influence the college

curriculum design and content where it relates to the employees' training needs (Cantor, 1995; Franchak & Smith, 1986; Heermann, 1973; Kitagawa, 1998). Employers get employees who are more job-ready. Traditional schooling frequently assumes that learning and doing are separate, and what is learned formally about writing in the schoolroom does not easily transfer to the workplace. Even when classroom learning is scripted to imitate "real life," it does not transfer well outside the classroom situation (Hendricks, 2001).

Employers can also influence students to understand the culture of their profession (Blakeslee, 2001; Jarvelä, Lehtinen, & Solonen, 2000; Katz, 1998a; Tovey, 2002). Students have to learn the technical communication culture in the context of a specific organization. In finding out information, technical communicators use a variety of tactics, and the tactics will be different in different organizations. Beginning writers who learn how to "read" an organization quickly have an advantage over those who do not have this ability (Spilka, 2000, p. 89).

But the question remains whether employers wish to be part of this potentially symbiotic relationship. Employers may ignore schooling factors when hiring youth, even though they think that two- and four-year institutions are doing at least an acceptable job (Institute for Research on Higher Education, 1998). It is not surprising, therefore, that Ballinger (1992) found that improving relationships with the college or university was "ranked of low importance by employers and educators as reasons why employers decide to take part in co-operative education programs" (p. 138). As shown in Table 3, in his study of co-op employers in Cincinnati, he associated two factors with the overall heading Employer/College Relations. The first, "The relationship between the employer

and the college are improved," ranked 11 out of 17 factors used in his questionnaire; the second, "The relationship between the employer and the college enables the employer to influence the curriculum," ranked 12.

Metzger (2002) found that a statement on relationships with academia ranked 12 in a series of 22 statements ranked by co-op employers in Boise, Idaho; 77.4% of respondents said they agreed moderately or strongly with the statement "Internship programs enhance communication between industry and academia" (p 102).

Economic benefits. The economic benefits of hiring co-op employees are generally two-fold. First, employers derive economic benefits by employing co-operative education students because they can hire short-term job-ready employees at a reduced income. Students are not given fringe benefits. Co-operative education programs can provide seasonal or temporary employees for short terms or special projects (Career Services Center, 2003; Heermann, 1973; McEachern, 2001), productive lower-cost employees who can take over routine tasks from other staff (Career Services Centre, 2003), and knowledge and skills not yet available to employers (Ballinger, 1992). Second, employers may view hiring co-op students as an economic way of recruiting new employees. Potential employees can be screened on-the-job (Career Services Center, 2003; Work Experience Programs, 2004).

There are also economic deterrents to hiring co-op students. Employers hire co-op employees only for the short term, and therefore they do not include co-operative education in their normal course of activities. Because they are generally preoccupied with their market share and profitability, they may be interested in co-op employees only when they need new employees. As with hiring any new employee, hiring co-op students

is not cheap. The employer establishes qualifications, interviews, selects, places students, assigns supervisors, communicates value of co-operative education to supervisors, and assists with job counselling and orientation (Adams & Stephens, 1970; Heermann, 1973; Katz, 1998b). Supervising and mentoring students is demanding on permanent staff. Supervisors should be competent in the type of work performed by the student, loyal to the company, kind, friendly, firm, fair, enthusiastic, service-oriented, honest and sincere, informed, tolerant, respectful, democratic, and empathetic. They must function both as teacher and supervisor, managing the workload for students and answering questions as needed (Adams & Stephens, 1970; Heermann, 1973). Evaluating co-op students is also time-consuming, and usually a requirement of the job placement. Employers must give good feedback, neither vague nor overly critical nor overly complimentary (Blakeslee, 2001).

In weighing these benefits and costs, research suggests that employers do not think it important that students cost less to hire than regular employees, but they do value students as good employees who are productive (Ballinger, 1992). Not surprisingly, the value of hiring co-op students was highest when these students became permanent employees. Employers surveyed perceived that there is less turnover among former co-op employees. Ballinger observes that this is an opinion of employers and that the opinions should be confirmed with more research. As Table 3 shows, he associated six factors with Economic Benefits. These, with their rankings out of 17 factors, were, “When students become new employees they are more productive and less costly to orient and train than new employees with no prior company experience” (1), “Students are good employees who are productive (6), “Co-operative education students who become full-time

employees have less turnover than other permanent employees who were not" (7), "Hiring students allows permanent employees to be more productive" (8), "Students are an excellent source of temporary workers" (9), and "Students cost less to hire than regular employees" (15).

Metzger (2002) asked co-op employers in Boise, Idaho several statements concerning economic benefits. The statement, "Participation in an internship program is cost effective for an employer," ranked 15 in a series of 22 statements; 72.2% of respondents said they agreed moderately or strongly with the statement. A second statement, "Hiring internship students is worth some additional expenditure," ranked 17; 67.3% of employers said they agreed moderately or strongly with the statement. A third statement, ""Utilizing internship students is valuable enough that students should be paid fair market value according to their prior experience," ranked 20; 50.9% of employers said they agreed moderately or strongly with the statement (p. 102).

Human resource development. Hiring is an expensive proposition for employers. It might be expected, therefore, that employers view human resource development as a major reason to hire co-op students, because they can use the co-op work term to try out potential new employees. Co-op thus becomes another hiring mechanism (Ballinger, 1992; Canadian Association for Co-operative Education, n.d.; Career Services Center, 2003; Work Experience Programs, 2004). In this way, they see the benefits of taking a more long-term view of human resource development (Franchak & Smith, 1986).

Indeed, many employers use co-op employment as a recruiting and screening tool ("Employers rate," 2004). Students have already been screened by the college by virtue of having completed academic terms. During the co-op term, employers can evaluate

prospective employees without having to commit to long-term employment. Those who participate in co-operative education ultimately become more satisfied and productive workers with more realistic expectations of the workplace (Cantor, 1995; Heermann, 1973).

For new full-time employees who have previously been co-op student employees, the training and orientation time and cost are significantly reduced (Career Services Center, 2003). Job-ready, trained students cost employers less in training (Metzger, 2002). The co-op experience also helps ensure a good match between employer and employee (Franchak & Smith, 1986). In addition, co-op employees develop better workplace attitudes, behaviours, and values (Aultman, 1997; Career Services Center, 2003).

Ballinger (1992), in his study of co-op employers in Cincinnati, observes “an employer’s ability to relate to a reservoir of potential full-time employees from which highly desirable candidates could be selected constituted the primary reason why an employer took part in co-operative education programs (p. 143). However, employers “did not agree that co-operative education students are less costly to recruit than full-time employees” (p. 142). As Table 3 shows, he associated four factors with Human Resource Development. These factors and their ratings out of 17 were “Students have some training and/or interest in the type of work to be performed” (2), “Co-operative education provides employers a reservoir of students from which permanent personnel can be hired” (3), “Employers are able to recruit the most desirable students as permanent employees” (4), and “Co-operative education is an efficient way to recruit permanent employees” (10).

Metzger (2002) asked co-op employers in Boise, Idaho, to rank several statements concerning human resource development. The results showed that employers valued the work experience that students gain during co-op programs, although they do not see it as a major recruiting strategy. The statement, “Students gain marketable skills from participating in internship programs,” ranked 1 in a series of 22 statements; 97.4% of respondents said they agreed moderately or strongly with the statement. A second statement, “Internship experiences provide students with relevant work references,” ranked 3; 96.0% of employers said they agreed moderately or strongly with the statement. A third statement, “Internship experiences enhance students’ chances of post-graduate employment,” ranked 6; 92.9% of employers said they agreed moderately or strongly with the statement (p. 102). Two other statements fared less well. The statement “Internship programs are used as a post-graduate recruitment device” ranked 10 and the statement “Hiring employees who were previous interns within your organization provides for lower long-term employee attrition” ranked 19. Employers agreed moderately or strongly 80.5% of the time to the first of these statements and 58.8% to the second.

Factors That Influence Employers to Discontinue Hiring Co-op Education Students

Organizations encouraging employer participation in co-op programs are not likely to stress the reasons that co-op programs do not work, so it is not surprising that there is little theory or research in this area. Metzger (2002) cites several reasons associated with lack of employer commitment or involvement as to why programs fail: students were given meaningless work, they were not given an orientation, and they were not evaluated. Employers may not participate, Metzger continues, because they think co-

op students cannot make significant contributions, it costs too much to implement a program, they do not have meaningful assignments for students, or the timing is wrong; or the job market is good, and it is easy to fill entry-level positions without providing co-op positions.

Ballinger (1992), in his study of co-op employers in Cincinnati, directly addressed the issue. He asked his survey participants to rank each of the following eight statements from *extremely important* to *not important*. The statements are listed in the order of mean ranking.

1. There were no longer funds available to hire TCD co-op students.
2. The students were not able to do the job.
3. The student quit.
4. Positions budgeted for TCD co-op were filled by permanent employees.
5. The work involved in continually reorienting and training new students to the job was not worth the return.
6. The students never became permanent employees.
7. The corporate policy authorizing co-operative education was changed.
8. The work involved in hiring students was too great.

However, the highest-ranking response had a mean value of 2.5, halfway between *somewhat important* and *very important*. The results, then, are relatively inconclusive. Ballinger concludes that “the research question of why employers discontinue participating in co-operative education programs was not clearly resolved by this study and still remains unanswered” (p. 146).

Summary of Chapter II

Co-operative education programs were begun to provide learners with career-related paid summer employment, and, although that continues to be an important factor for the learners themselves, educational institutions continue to offer co-operative education programs because such programs are consistent with project-based cognitive apprenticeship models of learning.

The Technical Communication Diploma program at Red River College in Winnipeg began in 2002, with its first co-op placements in 2003. Technical communication is a practical writing program, and students gain from having the opportunities to practice their writing skills in real workplaces during their program. The College gains because it keeps current with employers' activities in technical communication.

Employers hire when there is a need, either because of increased workloads or because of vacancies. They make initial selections based on education and experience. An historic issue in the hiring of technical communicators is the difference between expectations of practitioners and employers. Employers look first at education, industry experience and software skills. Practitioners feel that interpersonal, problem-solving, and organizational skills are more important.

The question of why employers participate in co-operative education programs is not clearly answered in research. Factors that influence employers to participate in co-op programs are grouped into six categories. First, workplace enhancements may influence employers to hire. Co-op students can free staff from routine tasks and give them opportunities to do other things (Career Services Center, 2003; Heermann, 1973; McEachern, 2001). This may be an under-rated factor. If co-op employers are not looking

for new staff, they may be interested in hiring short-term staff to undertake the regular jobs of full-time staff. Related to this is the potential that students have to bring technical knowledge and computer skills (Hart & Glick-Smith, 1994; Kitagawa, 1998; Work Experience Programs, 2004). Although Ballinger (1992) discounted workplace enhancements as an influence on co-op employers, given the focus of employers of technical communicators on software skills, employers in Winnipeg may see that co-op students in technical communication bring technological enhancements to the workplace.

Second, employers may view hiring co-op students as an opportunity to hire women and minorities. However, this influence is not supported by research.

Third, employers may see opportunities for community service. However, again, this influence is not supported by research.

Fourth, co-op programs may bridge between the academic world and the workplace (Ballinger, 1992; Canadian Association for Co-operative Education, n.d.; Career Services Center, 2003). Given the ambivalence shown by employers towards academic institutions and given the way that employers discount education (Behrenz, 2001; Institute for Research on Higher Education, 1998; “Weighing the benefits,” 1996), it is not expected that employers see contributing to the education of technical writers as a prime motivator for participating in co-op programs.

Fifth, economic factors may influence employers to hire. Although hiring co-op students is costly, employers discount the cost in favour of the benefits.

Finally, many sources state that human resource factors influence employers to hire co-op students; they see co-op students as a source of future employees (Ballinger,

1992; Canadian Association for Co-operative Education, n.d.; Career Services Center, 2003; Raheja & Raheja, 1999; Work Experience Programs, 2004).

Despite the popularity of co-op programs, and despite claims made by university and other Web sites, research has not clarified why employers hire co-op students (Ballinger, 1992; Inger, 1995), or why employers stop participating in co-op programs.

Ballinger (1992) developed a survey instrument that provides an excellent starting place for an examination of factors relating to why employers will hire co-op students from programs such as the Technical Communication Diploma program at Red River College in Winnipeg. Ballinger's study looked at co-op programs in general at the University of Cincinnati, which is where Herman Schneider initiated co-op program in 1906 (Adams & Stephens, 1970). The programs he studied were primarily technical and business programs, in a university with a long history of co-op programs; technical communication is a less well-known program than these, and there may be differences in employer motivations in hiring from a less known program.

Chapter III: Research Methods

This current study draws upon and extends an earlier study of employer participation in co-op programs conducted among Cincinnati businesses in the early 1990s (Ballinger, 1992). Specifically, it looked at the factors that contribute to employers' decisions to participate in or cease participating in the co-operative education term of the Technical Communication Diploma program that has been in operation at Red River College since 2003. Twenty-one representatives of employers who had hired co-op students from the program were interviewed between February and April 2006. The interviews were semi-structured, consisting of 25 closed, Likert-scale questions, each followed by a series of open-ended questions designed to provide insight into the relative importance of a number of different possible influences on employers' decisions to hire or cease hiring co-op students in technical communication.

Participants

The participants in the current study were representatives of companies who had employed co-op students from the Technical Communication Diploma program for at least one of the three years from 2003 to 2005. During this time, 25 employers had hired one or more co-op students for their co-op term. They were contacted early in 2006 to see if they would be willing to participate in the research. Twenty-one employer representatives agreed to participate. Of the others, one had retired, two were on maternity leave, and one declined to participate. These employers represent a wide variety of company sizes, from one- or two-person operations to companies employing 1500 persons or more. Table 4 shows the distribution of employers by company size.

Table 4:

Companies Employing Technical Communication Co-op Students, by Size, 2003–2005

Type	Number of Companies		Number of Students Hired Annually		
	Hiring co-op students	Participating in study	2003	2004	2005
Large (over 155)	16	13	6.5*	7	8
Medium (26 to 155)	4	3	0.5*	1	2
Small (less than 25)	5	5	2	3	1
Totals	25	21	9	11	11

*One student worked part-time for two employers.

In addition, employers represent a variety of types and industry sectors. Table 5 shows the distribution by type (government, for-profit, not-for-profit).

Table 5:

Companies Employing Technical Communication Co-op Students, by Type, 2003–2005

Type	Number of Companies		Number of Students Hired Annually		
	Hiring co-op students	Participating in study	2003	2004	2005
Government	8	6	1.5*	1	5
For-profit	12	10	3.5*	7	4
Not-for-profit	5	5	4	3	2
Totals	25	21	9	11	11

*One student worked part-time for two employers.

Table 6 shows the distribution of employers by sector. The sector names were chosen from the Destination Winnipeg Web site, which lists Winnipeg businesses by industry (Destination Winnipeg, 2006). The name *Policy Setting and Regulatory* was chosen because it seemed to better describe two of the employers than the closest similar term, *Public Administration*.

Table 6:

Companies Employing Technical Communication Co-op Students, by Sector, 2003–2005

Sector	Number of Companies		Number of Students Hired Annually		
	Hiring co-op students	Participating in study	2003	2004	2005
Education and research	2	2	3	1	1
Entertainment and media	2	2		2	1
Information and cultural services	3	3	1	2	1
Information technology	4	4		2	1
Manufacturing	5	4	2	2	3
Policy setting and regulatory	3	2	1.5*		1
Professional and technical services	2	1	0.5*	1	
Retail	1	1	1		1
Utilities	3	2		1	2
Totals	25	21	9	11	11

*One student worked part-time for two employers.

Instrumentation

This study was a modified replication of a study of employer participation in co-op programs conducted among Cincinnati businesses in the early 1990s (Ballinger, 1992), and uses a revised version of Ballinger's questionnaire. A similar study was conducted in Boise, Idaho, in 2001 (Metzger, 2002), although the focus of that study was how employers *perceived* co-op programs, not what *motivated* them to participate in co-op programs. Although technology has altered the face of the workplace since Ballinger completed his study in 1992, the role of technical communicators has stayed essentially the same in that their function is to explain technology to non-technical audiences. This function does not change, whether technical communicators write by hand, type on a typewriter, or key their information into a computer, or whether they publish online or on

paper. In addition, the function of co-op has not changed—the function is to give students paid work experience related to their fields of interest. Thus, Ballinger's instrument is still relevant and useful.

Ballinger used only a structured questionnaire, which was mailed to employers who participated in co-op programs. The current study uses some of these questions, plus open-ended questions, to construct a semi-structured interview schedule, which is used as a script to conduct face-to-face interviews. The schedule, which has three parts, is attached in Appendix E: Semi-Structured Interview Schedule. Part I consists of ten questions to accumulate some background information on each of the employers interviewed. Part II consists of 17 closed questions with Likert-scale responses relating to factors that influence employers to hire co-op students. Part III consists of 8 closed questions relating to factors that influence employers to stop participating in co-op programs. With the permission of the participant, each interview was taped and the notes transcribed.

In Part II, respondents were asked if they find each statement *extremely important*, *very important*, *somewhat important*, or *not important*. Using this scale provides a basis for comparison between the current study and the Ballinger study. Ballinger (1992) reported an overall reliability coefficient for this section of the survey as Alpha = 0.90, which is considered adequate (Salkind, 2003). Ballinger used 17 pairs of questions, one pair for each factor; the current study uses one of each pair, so that the length of the interview could be limited to one hour. Ballinger organized the 17 pairs of factors—34 questions—into six categories.

Table 7:

Relationships among Categories, Factors and Questions That Influence Employers to Hire Co-operative Education Students

Category	Statement[2]	Number[3]
Category 1 Workplace Enhancements	Factor 1: Students are good employees with positive attitudes.	9
	Factor 7: Students bring new ideas and technology to the work site.	4
	Factor 9. Students improve the morale of the workplace.	3
Category 2 Employer/College Relations	Factor 4: The relationship between the employer and Red River College are improved.	11
	Factor 5. The relationship between the employer and the college enables the employer to influence curriculum.	6
Category 3 Affirmative Action	Factor 6. Co-op increases chances for hiring women and minorities.	12
Category 4 Economic Benefits	Factor 2: Students are good employees who are productive.	2
	Factor 3: Students are an excellent source of temporary workers.	10
	Factor 8. Students cost less to hire than regular employees.	1
	Factor 12. Hiring students allows permanent employees to be more productive.	5
	Factor 14. When students become new employees, they are more productive and less costly to orient and train than new employees with no prior company experience.	17
	Factor 17. Co-operative education students who become full-time employees have less turnover than other permanent employees who were not.	16
Category 5 Community Service Opportunities	Factor 11. Co-operative education enables employers to provide a community service.	7
Category 6 Human Resource Development	Factor 10. Students have some training and/or interest in the type of work to be performed.	8
	Factor 13. Employers are able to recruit the most desirable students as permanent employees.	15
	Factor 15. Co-operative education is an efficient way to recruit permanent employees.	14
	Factor 16. Co-operative education provides employers a reservoir of students from which permanent personnel can be hired.	13

[2] The statement wording is from Ballinger (1992).
[3] The number refers to the question number in the current study.

Table 7 shows the relationship between categories and factors and which question in the current study is associated with each category and factor. The complete list of categories, factors, and questions is shown in full in Appendix C: Relationship among Categories, Factors, and Questions.

In the current study, the wording was modified slightly to refer specifically to the Technical Communication Diploma program, so that question 1, for example, read, *Technical Communication Diploma program co-operative education students can adequately perform a job at a wage rate lower than that of a regular employee*, instead of, *Co-operative education students can adequately perform a job at a wage rate lower than that of a regular employee*. In addition, some questions were rewritten to be more personal, so that a question like *Co-operative education allows the employer the possibility of attracting highly qualified students* became *Co-operative education allows your organization the possibility of attracting highly qualified students*. Finally, the wording of one of the options was changed from *most important* to *very important*, because *most important* seems to imply that only one factor could be given this ranking. The final wording of the objective questions used in the TCD study is shown in Table 8.

After each question, respondents were encouraged to make additional comments to the interviewer elaborating on their choices. Supplementary open-ended questions for each closed question are listed in the script in Appendix E: Semi-Structured Interview Schedule.

Table 8:

Questions Selected for Interviews

Part II To determine why employers hire technical communication co-operative education students
1. TCD co-op students can adequately perform a job at a wage rate lower than that of a regular employee.
2. TCD co-op students generally are productive employees.
3. TCD co-op students generally improve the morale of the permanent employees of the work site.
4. TCD co-op students bring up-to-date ideas and technology to the work site.
5. TCD co-op students enable other permanent employees to be more productive.
6. Hiring TCD co-op students enables your organization to influence and mould the curriculum of the Technical Communication Program to meet your specific needs.
7. Your organization hires TCD co-op students out of a sense of obligation to the community and as a service.
8. TCD co-op students are enrolled in college studies directly related to the work they do at our company.
9. Your organization has jobs that need to be done and you find co-operative students able and enthusiastic workers who are eager to learn.
10. TCD co-op students are capable of efficiently and effectively meeting some of a company's short-term documentation needs.
11. Employing TCD co-op students allows for increasing communication with Red River College.
12. TCD co-op increases access to qualified minorities during the recruitment, selection and hiring process.
13. TCD co-op students provide a pool from which full-time employees can be hired.
14. TCD co-op students are less costly to recruit as full-time employees than other permanent full-time employees.
15. TCD co-op allows the employer the possibility of attracting highly qualified students.
16. When a student progresses through a TCD co-op program and becomes a full-time employee, the student is less likely to leave the job than the employee who has not had the TCD co-op experience.
17. When TCD co-op students become permanent employees, they are almost immediately productive, thus reducing training and orientation costs.
Part III: To determine why employers who once hired co-operative education students have discontinued or would discontinue doing so
1. There were no longer funds available to hire TCD co-op students.
2. The work involved in hiring students was too great.
3. The students were not able to do the job.
4. The work involved in continually reorienting and training new students to the job was not worth the return.
5. Positions budgeted for TCD co-op were filled by permanent employees.
6. The corporate policy authorizing co-operative education was changed.
7. The students never became permanent employees.
8. The student quit.

In Part III, a similar process was followed. Respondents were asked first to rate each of the eight questions as *extremely important*, *very important*, *somewhat important*, or *not important*. Ballinger (1992) reported a reliability analysis coefficient for this portion of the survey as Alpha = 0.60, somewhat low (Salkind, 2003). Again, participants were prompted to elaborate on their responses, using the open-ended questions listed in the script in Appendix E.

This instrument was tested on two instructors from the Red River College downtown Princess Street Campus who were not associated with the study but who have worked with employers, to ensure the wording made sense and the timing was correct. Each interview took approximately one hour to complete.

Data Collection

A semi-structured interview schedule described in the previous section was used for data collection. It was delivered in person to the employers using the following steps.

Step 1. Employers were contacted by letter in January to request them to participate in the research. A copy of the letter is shown in Appendix B: Recruitment Letter to Potential Respondents. The person used as point of contact was the person designated on the co-op job offer forms as the contact person. In some cases, follow-up was made through email.

Step 2. As respondents replied, appointments were made to conduct the interview. Each respondent was told the interview would last about one hour. Interviews were conducted from February to April 2006.

Step 3. The day before the interview was scheduled, the respondent was emailed a copy of the structured questions (shown in Appendix D: Structured Questions Given to Participants) and a copy of the Consent form.

Step 4. At the interview, respondents first completed the Consent form, and then, with their permission, the interview was taped for later transcription and analysis.

Step 5. After the interview, respondents were sent a thank-you letter.

Step 6. All respondents were assigned a number known only to the researcher. They were not identified in any other way.

Step 7. After results had been compiled, response sheets were filed securely in a locked filing cabinet.

There are some inherent dangers to in-person interviews, and every attempt was made to control for these dangers. The biggest danger was that of interviewer bias (Salkind, 2003), because many of the employers were known to the researcher (Hittleman & Simon, 1997). However, two things mitigated this danger. First, neither the employers nor the researcher had a vested interest in one result over another. The results will be used to help focus marketing to employers, but no one set of answers can be perceived as superior to another set. Second, the purpose of the research was not to rank or evaluate employers or the college in any way.

A second danger is a low response rate. In-person surveys receive a higher response rate than mailed surveys, but the response rate is generally not 100% (Leedy & Ormrod, 2005). In this study, 25 employers were contacted. Not all respondents replied to the letter, and some follow-up by email and telephone was required. However, 21 respondents agreed to participate in the research, for a response rate of 84%.

Data Analysis

Data were analyzed in three ways.

First, data from the questions from Part I were summarized and tabulated to provide an overview of the characteristics of the participants. This data may also provide a basis for determining if there are differences in responses from employers based on either company size or type.

Second, data from the closed questions from Parts II and III were summarized to produce mean, median, and modal responses for each question. These means were tabulated. Answers from Part II provided data about the reasons employers choose to participate in co-op programs. Answers from Part III provided data about the reasons employers would choose to cease participating in co-op programs. The results were compared to the results received by Ballinger (1992).

Third, data from the open-ended questions from Parts II and III were summarized in a spreadsheet and analyzed to determine recurring themes in the responses from employers.

Chapter IV: Results

In this chapter, I summarize the data collected about employers, the results from the structured questions, and then the results from the interview questions.

Employer Data

Twenty-one employers of co-op students from the Technical Communication Diploma (TCD) program at Red River College in Winnipeg were interviewed about their motivation for hiring or ceasing to hire co-operative education students from the TCD program from 2003 to 2005. In all, 25 employers had been involved with the TCD program since its inception, but one person had retired, two were on maternity leave, and one was not willing to participate in the research. The response rate was therefore 84%.

Part I of the interview was used to gather data about the participants and their organizations. This information served two purposes: first, to establish the participants' relationship with the organization's co-op programs and hence their ability to answer the interview questions, and, second, to establish some basic characteristics of the employer organizations. The data are summarized in Table 9.

The participants were chosen because they were designated on the co-op job offer form as the contact person for the purposes of co-op visits by the Co-op Coordinator, and they were familiar with the work of the individual students. The data from Table 9 show that participants were closely involved in the supervision of co-op students: 91% were the direct supervisors of the TCD co-op students, 48% had also supervised other co-op students, and 38% coordinated the program in their companies. Only two (10%) had responsibilities solely for coordinating the program.

Only five employers had never previously been involved with co-op. Overall, employers were more familiar with co-op programs outside of Red River College (RRC). Approximately 58% had hired from other colleges and universities, but only 39% had hired from other RRC programs.

Employers represented a variety in terms of size, type of organization, and industry. Five had fewer than 25 employers, while nearly half were large organizations of 500 or more employers. Just over half of the employers were for-profit organizations, approximately 25% were not-for-profit, and the remaining 25% were government.

Table 9:

Employer Descriptive Data (Employers N = 21)

1. Position of the employer with respect to co-operative education students.

	N	%
Supervised TCD students	19	91
Supervised other students	10	48
Coordinated the program	8	38
Both coordinated and supervised	6	29

2. Number of other programs from which students came.

	RRC		Other institutions	
	N	%	N	%
0	13	62	9	43
1	6	29	10	48
2	2	10	1	5
3 or more	0	0	1	5

3. Number of years of respondents' involvement with co-operative education

	TCD		General	
	N	%	N	%
1 year or less	17	81	8	38
2 to 5 years	4	19	9	43
6 to 9 years	n/a		2	10
10 or more years	n/a		2	10

Table 9:

Employer Descriptive Data (Employers N = 21)

4.	Number of years of employers' involvement with co-operative education			
		TCD	General	
		N	%	N	%
	1 year or less	16	81	3	14
	2 to 5 years	5	19	5	24
	6 to 9 years	n/a		4	19
	10 or more years	n/a		5	24
	uncertain	0		4	19
5.	Number of co-operative education students the respondent supervises at any one time			
		TCD	Other	
		N	%	N	%
	1	21	100	11	52
	2			6	29
	3 or more			4	19
6.	Size of organization			
		Winnipeg	Canada	International
	Less than 25 (small)	5		
	26 to 155 (medium)	3	2	1
	Over 155 (large)	13	6	6
7.	Type of organization			
		N	%	
	For profit	10	52	
	Not-for-profit	5	24	
	Government	6	24	
8.	Industry			
		N	%	
	Information technology	4	19	
	Manufacturing	4	19	
	Information and cultural services	3	14	
	Education and research	2	14	
	Entertainment and media	2	10	
	Policy setting and regulatory	2	10	
	Utilities	2	10	
	Professional and technical services	1	10	
	Retail	1	5	

Results from Structured Questions

Parts II and III consisted of both structured questions and open-ended questions. Part II focused on factors that affect hiring co-op students; Part III focused on factors that may cause participants to discontinue hiring co-op students. The results from the structured questions are summarized in Appendix F: Summary of Responses to Structured Questions. Table 10 shows the questions listed in rank order, by mean. To calculate the mean, a response of *extremely important* was assigned a value of 4, *very important* was 3, *somewhat important* was 2, and *not important* was 1. Those are the same values used by Ballinger (1992).

Table 10:

Questions Listed in Rank Order by Mean

Part II:
To determine why employers hire technical communication co-operative education students

Rank	Mean	Mode	Median	S.D.	Statement	Question Number
1	3.29	3	3	0.64	Your organization has jobs that need to be done and you find co-operative students able and enthusiastic workers who are eager to learn.	9
1	3.29	4	4	0.90	TCD co-op students are capable of efficiently and effectively meeting some of a company's short-term documentation needs.	10
3	3.24	3	3	0.63	TCD co-op students are enrolled in college studies directly related to the work they do at our company.	8
4	3.19	3	3	0.75	TCD co-op students generally are productive employees.	2
5	3.00	3	3	0.84	TCD co-op students enable other permanent employees to be more productive.	5
6	2.86	3	3	0.85	TCD co-op allows the employer the possibility of attracting highly qualified students.	15
7	2.67	3	3	0.97	When TCD co-op students become permanent employees, they are almost immediately productive, thus reducing training and orientation costs.	17
8	2.50	3	2.5	0.83	TCD co-op students bring up-to-date ideas and technology to the work site.	4
9	2.38	3	2	0.81	Your organization hires TCD co-op students out of a sense of obligation to the community and as a service.	7
9	2.38	3	3	0.87	TCD co-op students provide a pool from which full-time employees can be hired.	13
11	2.19	2	2	0.98	TCD co-op students generally improve the morale of the permanent employees of the work site.	3

Table 10:

Questions Listed in Rank Order by Mean

12	2.10	2	2	1.00	When a student progresses through a TCD co-op program and becomes a full-time employee, the student is less likely to leave the job than the employee who has not had the TCD co-op experience.	16
13	2.05	2	2	0.87	Employing TCD co-op students allows for increasing communication with Red River College.	11
14	2.00	1	2	1.05	TCD co-op students are less costly to recruit as full-time employees than other permanent full-time employees.	14
15	1.91	2	2	0.70	TCD co-op students can adequately perform a job at a wage rate lower than that of a regular employee.	1
16	1.71	1	1	0.96	TCD co-op increases access to qualified minorities during the recruitment, selection and hiring process.	12
17	1.57	1	1	0.68	Hiring TCD co-op students enables your organization to influence and mould the curriculum of the Technical Communication Program to meet your specific needs.	6

Part III:
To determine why employers would discontinue hiring co-operative education students

Rank	Mean	Mode	Median	S.D.	Statement	Question number
1	2.95	4	4	1.28	There were no longer funds available to hire TCD co-op students.	1
2	2.29	3	2	1.06	The students were not able to do the job.	3
3	1.95	1	1	1.24	Positions budgeted for TCD co-op were filled by permanent employees.	5
4	1.86	1	1	1.01	The work involved in continually reorienting and training new students to the job was not worth the return.	4
5	1.71	1	1	1.10	The corporate policy authorizing co-operative education was changed.	6
5	1.71	1	1	0.96	The student quit.	8
7	1.48	1	1	0.68	The work involved in hiring students was too great.	2
8	1.19	1	1	0.40	The students never became permanent employees.	7

The data from the open-ended questions are discussed in the following sections. For the questions dealing with the factors influencing employers to hire, the questions are discussed under the titles by category in rank order by mean: economic benefits, workplace enhancement, human resource development, community service opportunities, employer/college relations, and affirmative action goals. The rank order of categories is shown in Table 11. The questions dealing with factors that might influence employers to discontinue hiring are discussed in a separate section, beginning on page 96.

Table 11:

Categories listed in Rank Order by Mean

		Mean	Rank	Mode	Median	S.D.
1. Economic Benefits		**2.69**	**1**	**3**	**3**	**1.00**
Q10	TCD co-operative education students are capable of efficiently and effectively meeting some of a company's short-term documentation needs.	3.29	1	4	4	0.90
Q2	TCD co-operative education students are productive employees.	3.19	4	3	3	0.75
Q5	TCD co-op students enable other permanent employees to be more productive.	3.00	5	3	3	0.84
Q17	When TCD co-op students become permanent employees, they are almost immediately productive, thus reducing training and orientation costs.	2.67	7	3	3	0.97
Q16	When a student progresses through a TCD co-operative education program and becomes a full-time employee, the student is less likely to leave the job than the employee who has not had the co-operative education experience.	2.10	12	2	2	1.00
Q1	TCD co-operative education students can adequately perform a job at a wage rate lower than that of a regular employee.	1.91	15	2	2	0.70
2. Workplace Enhancements		**2.66**	**2**	**3**	**3**	**1.22**
Q9	Employers have jobs that need to be done and they find co-operative students from the TCD program able and enthusiastic workers who are eager to learn.	3.29	1	3	3	0.64
Q4	TCD co-operative education students bring up-to-date ideas and technology to the work site.	2.50	8	3	2.5	0.83
Q3	TCD co-op students generally improve the morale of the permanent employees of the work site.	2.19	11	2	2	0.98
3. Human Resource Development		**2.62**	**3**	**3**	**3**	**0.97**
Q8	TCD co-op students are enrolled in college studies directly related to their work assignment.	3.24	3	3	3	0.63
Q13	TCD co-op students provide a pool from which full-time employees can be hired.	2.38	9	3	3	0.87
Q15	The TCD co-op program allows the employer the possibility of attracting highly qualified students.	2.86	6	3	3	0.85
Q14	TCD co-op students are less costly to recruit as full-time employees than other permanent full-time employees.	2.00	14	1	2	1.05
4. Community Service Opportunities		**2.38**	**4**	**3**	**2**	**0.81**
Q7	Organizations hire TCD co-op students out of an obligation to the technical writing community and as a service.	2.38	9	3	2	0.81
5. Employer/College Relations		**1.81**	**5**	**2**	**2**	**1.02**
Q11	Employing co-operative education students allows for increasing communication with Red River College.	2.05	13	2	2	0.87
Q6	Hiring co-operative education students enables organizations to influence and mold the TCD curriculum to meet their specific needs.	1.57	17	1	1	0.68
6. Affirmative Action Goals		**1.71**	**6**	**1**	**1**	**0.96**
Q12	Co-operative education increases access to qualified minorities during the recruitment, selection, and hiring process.	1.71	16	1	1	0.96

Category Rankings by Employer Size and Type

The data for categories were examined by employer size and type. Sector was not used because the groups were so small. However, even for groupings by size and type, observations in this section must be taken with a considerable degree of caution, because the numbers in each subgroup are small. However, analyzing the data in this way allows us to see if there are any trends associated with employer characteristics.

Analysis by employer size. Table 12 summarizes the results of the analysis of categories by employer size. The full analysis is shown in Appendix G: Analysis of Responses to Structured Questions, by Employer Size.

Large companies ranked Community Service as highest, although the mean was modest, less than 3. Small companies placed most emphasis on Economic Benefits, and medium companies placed most emphasis on Human Resource Development. Affirmative Action and Employer/College Relations ranked in the bottom half for all groups.

Analysis by employer type. Table 13 shows the summary of rankings by employer type. The complete analysis of the data is shown in Appendix H: Analysis of Responses to Structured Questions, by Employer Type.

Government, which is also classed as a large employer, ranked Community Service Opportunities first. Not-for-profit organizations ranked Economic Benefits first, and For-Profit organizations ranked Human Resource Development first. Employer/College Relations and Affirmative Action remained at the bottom for all three types.

Table 12:

Summary of Analysis of Categories, by Employer Size

	Mean	Rank	Mode	Median	S.D.
Large Companies (N=13)					
Community Service Opportunities	2.62	1	2	3	0.65
Workplace Enhancements	2.53	2	3	3	0.95
Economic Benefits	2.42	3	3	2	0.92
Human Resource Development	2.37	4	3	3	0.89
Employer/College Relations	1.88	5	1	2	0.86
Affirmative Action	1.54	6	1	1	0.78
Medium Companies (N=3)					
Human Resource Development	3.42	1	3	3	0.51
Economic Benefits	2.94	2	4	3	0.94
Workplace Enhancements	2.78	3	4	3	1.09
Affirmative Action	2.00	4	n/a	2	1.00
Community Service Opportunities	2.00	5	n/a	2	1.00
Employer/College Relations	1.50	6	1	1.5	0.55
Summary by small company (N=5)					
Economic Benefits	3.23		4	4	1.01
Workplace Enhancements	2.93		3	3	0.80
Human Resource Development	2.80		3	3	1.11
Affirmative Action	2.00		1	1	1.41
Community Service Opportunities	2.00		1	2	1.00
Employer/College Relations	1.80		1	2	0.79

Comparison of rankings

	Overall	Large	Medium	Small
Economic Benefits	1	3	2	1
Workplace Enhancements	2	2	3	2
Human Resource Development	3	4	1	3
Community Service	4	1	4	4
Employer/College Relations	5	5	6	6
Affirmative Action	6	6	4	4

Table 13:

Summary of Analysis of Categories, by Employer Type

	Mean	Rank	Mode	Median	S.D.
For-Profit Companies (N=10)					
Human Resource Development	2.85	1	3	3	0.74
Economic Benefits	2.65	2	2	3	0.92
Workplace Enhancements	2.47	3	3	2.5	0.94
Community Service Opportunities	2.30	4	2	2	0.67
Employer/College Relations	1.75	5	2	2	0.72
Affirmative Action	1.40	6	1	1	0.70
Government (N=6)					
Community Service Opportunities	2.83	1	3	3	0.75
Workplace Enhancements	2.82	2	3	3	0.95
Economic Benefits	2.33	3	3	2.5	0.96
Human Resource Development	2.21	4	3	2.5	1.06
Affirmative Action	2.00	5	2	2	0.89
Employer/College Relations	2.00	5	2	2	0.95
Not-For-Profit Organizations (N=5)					
Economic Benefits	3.20	1	4	4	1.03
Workplace Enhancements	2.87	2	3	3	0.92
Human Resource Development	2.65	3	3	3	1.14
Affirmative Action	2.00	4	1	1	1.41
Community Service Opportunities	2.00	4	1	2	1.00
Employer/College Relations	1.70	6	1	1.5	0.82

Comparison of Rankings

	Overall	For-profit	Government	Not-for-profit
Economic Benefits	1	2	3	1
Workplace Enhancements	2	3	2	2
Human Resource Development	3	1	4	3
Community Service	4	4	1	4
Employer/College Relations	5	5	5	6
Affirmative Action	6	6	5	4

Analysis of Responses for Economic Benefits

Economic Benefits ranked first of the six categories overall. It comprised six questions. The results for this category are displayed in Table 14. Two of the questions ranked in the top five; one question ranked in the bottom five.

Table 14:

Summary of Results for Economic Benefits

Q1	TCD co-operative education students can adequately perform a job at a wage rate lower than that of a regular employee.
Q2	TCD co-operative education students are productive employees.
Q5	TCD co-op students enable other permanent employees to be more productive.
Q10	TCD co-operative education students are capable of efficiently and effectively meeting some of a company's short-term documentation needs.
Q16	When a student progresses through a TCD co-operative education program and becomes a full-time employee, the student is less likely to leave the job than the employee who has not had the co-operative education experience.
Q17	When TCD co-op students become permanent employees, they are almost immediately productive, thus reducing training and orientation costs.

	Responses				Descriptive statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Q10	11	6	3	1	3.29	1	4	4	0.90
Q2	8	9	4	0	3.19	4	3	3	0.75
Q5	6	10	4	1	3.00	5	3	3	0.84
Q17	4	9	5	3	2.67	7	3	3	0.97
Q16	2	5	7	7	2.10	12	2	2	1.00
Q1	0	4	11	6	1.91	15	2	2	0.70
Category					2.69	1	3	3	1.00

Analysis by Question

Questions are discussed in the order they were ranked by respondents within the category. Questions 2 and 10 ranked first and second, and they are discussed together. Similarly, Questions 16 and 17 ranked next to each other, and they are discussed together.

Question 2, TCD co-operative education students are productive employees, and Question 10, TCD co-operative education students are capable of efficiently and effectively meeting some of a company's short-term documentation needs. Question 2, which ranked fourth out of 17, and Question 10, which tied for first out of the 17 questions, can be discussed together, for both are concerned with productivity. For both questions, only four respondents gave a response of *somewhat* or *not important*. (Two were the same; two were different.) Thus, there was considerable consistency in the way companies answered these two questions, and the questions generated similar types of discussion.

Those who rated these questions *somewhat* or *not important* were from large companies. However, others of the large companies said productivity was *very important*. All four not-for-profit organizations answered *extremely important* for questions 2 and 10. One small not-for-profit summed it up by saying, "That's extremely important; otherwise, why would you?" (15:70) [4].

Many employers expressed their uncertainty about what to expect, because of the newness of the program and because this was the first time a student from the program had been hired. Many said they expected students to be reasonably productive, but not as productive as regular employees. One respondent, from a publications group where productivity equates to being able to charge time to a customer, said students should be productive 65 to 70 percent of the time, compared to 80 percent for regular employees. The difference was to allow time for training and learning and reworking documents. In other organizations, productivity was measured differently. Completing projects assigned

[4] The reference at the end of quotations from respondents indicates first the number of the interview, then the line numbers in the transcribed script. Thus, this quotation labelled (15:70) is from Interview 15, line 70.

was one measure. Sometimes projects were planned ahead of time; not-for-profits were perhaps the most planned because they have to define the scope of duties to quality for grants. Many worked with the students to establish reasonable goals and deadlines. Completing projects to deadlines was another measure, although "it's not just completing the project but also completing it to standard, writing standards, style standards, getting the technical information correct, doing good research, thorough research, getting the approvals for the technical information" (4:80–83). Other respondents referred to attitudes—asking questions, taking initiative, staying on task, taking criticism well and incorporating suggestions into the next revisions of documents. Still others relied on observation to determine that students were productive, that they were busy working on assigned tasks and not playing Internet games.

Some felt that taking students over the summer helps replace people on vacations. However, as one respondent put it, "Vacations have a small part to play. After all, you're talking about an employee that is on vacation with 15 or 20 years' experience. You're certainly not going to replace a 20-year employee with a student" (6:152–155).

Employers were careful to select discrete projects that could be completed over the summer by students working fairly independently.

Question 5. TCD co-op students enable other permanent employees to be more productive. Question 5, also related to productivity, was another question for this category that ranked in the top 5. Only five respondents said this was *somewhat* or *not important.*

Many respondents referred to the opportunity of offloading some projects that they had not had time for or had been avoiding, thus freeing them to tackle projects of

more complexity. One person in information technology said, “It meant I didn’t have to do all the documentation, too, which made me very happy . . . It’s more of a sharing of the workload and offloading some of the work the developers don’t like to do” (18:167–170).

Staff were also helped to be more productive when students were able to demonstrate better ways of doing things. In one office, the co-op student was able to help staff use Word more efficiently, for example. Finally, staff became more productive because they get help on their own projects, apart from those that the students are working on. One respondent said, “They get so interested in other projects that they want to be helpful to other projects because they have been watching and listening. And this is how they help other employees” (1:120–123). And one respondent interpreted the question uniquely, by observing, “I have seen it happen if you get a real fire-starter. Full-time employees can rise to the occasion, which is a nice environment. Healthy competition, almost” (6:194–196).

Two of those who said this was *somewhat* or *not important* added qualifications to their ratings. “I think that’s a good goal, but . . . I want to offer them the opportunity to have a real-life work experience, over bringing them in simply because I need someone to do these jobs because my employees don’t have time” (5:171–175). And for others the picture was clouded by the need to train co-op students. One said, “I’d say that’s *somewhat important*, because there is the recognition that, when we hire a student, people will be spending some time with them, so there’s a trade off” (4:146–148).

Question 16, When a student progresses through a TCD co-operative education program and becomes a full-time employee, the student is less likely to leave the job than

the employee who has not had the co-operative education experience, and Question 17, When TCD co-op students become permanent employees, they are almost immediately productive, thus reducing training and orientation costs. Questions 16 and 17 have to do with what happens if co-op students are hired as full-time employees—in other words, recruitment activities. Only two of the employers have hired TCD students as full-time employees, so many of the respondents based their answers on their experiences with other co-op students or made educated guesses. Most agreed that hiring a co-op student reduced the time required to make the new employee productive; fewer agreed that co-op students who become full-time employees are more likely to stay with the company.

Two-thirds of respondents rated question 16 as *somewhat* or *not important*. In discussion, however, responses were more varied. Some said they did not expect any more loyalty from co-op students than from any other new hires. As one respondent said, "This is either a stepping stone or a place in their career. I don't think it matters whether they are co-op students or not" (18:436–437). Most felt people should or would take opportunities that arise; for example, "I would hope they wouldn't stay with the same employer if they felt it was limiting—I wouldn't want them to feel obligated" (2:296–297). The issue is complicated. As one respondent said, "So many factors would come into play that would influence whether they stay or go" (5:540–541). Of the 14 respondents who ranked this question as relatively unimportant, however, some did think that co-op students might have higher retention rates "because they've already kicked the tires" (9:401–402) and know what to expect. One likened the situation to that of rehiring—rehires are more likely to stay with the company. A few respondents reflected on the low turnover rate overall at their companies.

For the seven who rated this question as *very* or *extremely important*, the feeling was that people had tried out the company and knew what to expect, so turnover should be less. One respondent said that "when we participate in a co-op program, we do it with the intent that they are going to come back" (21:348–351). One person, who said this was *extremely important*, observed that the organization liked to retain co-op students; however, this was a small, two-person office that had not hired co-op students. Another person added a new twist to the discussion, reflecting on the fact that co-op is like a probationary period, but without the need to have to dismiss an unsatisfactory employee. "I hate doing interviews. It's a fine science which I don't understand. So it gets you an opportunity to try with no obligation" (13:407–408).

Overall, respondents felt that hiring co-op students as full-time employees would reduce the normal training and orientation time for new employees by four months, about the length of the co-op program itself.

Being productive generally means earning money for the company—charging time to projects—not draining resources in training and orientation. In co-op, employers generally arranged projects that students could begin to work on immediately—most expected them to be producing work within the first week or two. However, to become fully productive as a full-time permanent employee, according to the estimates provided by respondents, takes anywhere from three to twelve months. One respondent distinguished between productivity and knowing the organization: four months to be productive, 12 to 18 months to know the organization thoroughly. But all agreed that co-op experience would decrease the time to productivity by at least the length of the co-op

term itself, although many would still have to undergo additional training and orientation programs after they were hired as full-time employees.

Question 1. TCD co-operative education students can adequately perform a job at a wage rate lower than that of a regular employee. Question 1 was the only question in Part II to deal overtly with dollars. Costs are implied in other categories (the cost of training and supervision in the Human Resources Development category, for example), but the wages of the actual student are mentioned only here. Many of the respondents had only a sketchy idea of how the wage rate was determined, and many deferred to Human Resources. Eighty percent of the respondents rated this either *somewhat* or *not important*. Of the four who found it *very important*, two were not-for-profit, one was a small consulting group, and the fourth was a government agency under tight budgets. For large companies, wages were not a significant factor. One not-for-profit rated the question as *not important*, but the organization is well funded. Money is an issue for most small not-for-profits, who have to apply for grants to pay co-op students' wages.

Two people were somewhat surprised at the question, and one respondent even said, "It doesn't make any sense that the student would come in here and expect to get a salary above the full-time employee. It's never been an issue that I've had to worry about. It shocked me" (7:119–122). But overall, respondents were realistic about the amount of money co-op students should earn. One respondent summarized it well. "When you're looking at a recruit from a technical college or something like that, you're expecting a certain level of performance, and they're expecting a certain level of remuneration" (8:87–90).

Summary

Economic Benefits included three questions that ranked in the top five, and one that ranked in the bottom five. The fact that co-op students are productive is very important overall. Productivity is defined in various ways: charging time to clients, completing assigned projects to deadline, or remaining on task. It is also important that students help permanent staff to be more productive, by taking on jobs no one else has had the time or the will to do, by showing them how to do something more efficiently, by helping out with their projects, or by inciting others to perform better. If students are hired as full-time employees following graduation, most respondents do not have an expectation that having been co-op students will affect retention rates. The time for students to be productive as full-time employees is reduced by approximately the length of their co-op term. Overall, the wages paid to co-op students are not a factor in hiring.

Analysis of Results for Workplace Enhancements

Workplace enhancements comprise the three questions shown in Table 15. Although workplace enhancement ranked second of the categories, responses to individual questions ranged widely, but one theme emerged; workplace enhancements, from the employers' perspective, involve being able to get the job done.

Analysis by Question

Question 9. Employers have jobs that need to be done and they find co-operative students from the TCD program able and enthusiastic workers who are eager to learn. Question 9 tied for first place of all the questions overall. The question focuses on the two sides of the co-op experience: getting a job done, and learning. Nineteen of the 21 respondents ranked this question as *very* or *extremely important.*

Table 15:

Summary of Results for Workplace Enhancement

Q3 TCD co-op students generally improve the morale of the permanent employees of the work site.

Q4 TCD co-operative education students bring up-to-date ideas and technology to the work site.

Q9 Employers have jobs that need to be done and they find co-operative students from the TCD program able and enthusiastic workers who are eager to learn.

	Responses				Descriptive Statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Q9	8	11	2	0	3.29	1	3	3	0.64
Q4*	2	8	8	2	2.50	8	3	2.5	0.83
Q3	2	6	7	6	2.19	11	2	2	0.98
Category					2.66	2	3	3	1.22

Overall, respondents felt students finished the work that was expected of them, and then some. One respondent observed, “They are here. They want to write. That’s what they want to do. They want to try out all the stuff they’ve learned. They have great ideas and they are productive” (15:376–378). The discussion about productivity and getting jobs done occurs in the section on Economic Benefits, starting on page 71.

The bulk of the discussion for the question centred on the learning aspect of the co-op experience. Respondents unanimously agreed that it was part of their jobs to help students learn, and they structured experiences to help in that learning. Many respondents said they gave students reasonably challenging assignments within the first week. Several respondents said their role was to teach them about business as practiced in that particular organization. They did not expect to have to teach students about writing and the use of writing software.

Finding time to spend with students was a challenge, although some supervisors said that it was not worse than finding time to spend with any other staff. One respondent

observed, “It’s probably one of the most disappointing things in my whole job, not just the students” (5:336–337). Most respondents communicated with students regularly, usually in a combination of ad hoc consultations and scheduled meetings, either individually or with project teams. But the responsibility can be onerous, and it was taken seriously. One respondent said their company was not taking co-op students in the summer of 2006 because they had landed a big contract with tight deadlines, and they were afraid their staff would burn out if they had the added responsibility of supervising co-op students.

Co-op students were sometimes a bit more work than regular summer students were to supervise and to organize projects for, although experiences varied. If summer students had taken jobs related to their career development, they were motivated and focused. If they were just taking a job to earn money, they tended to be less productive and less willing to learn. On the other hand, summer students could be assigned a wider variety of duties than co-op students could because their job duties were not as narrowly defined. One respondent summed it up thus, “Although it’s not a generalization I like to make, I have found the co-op students more enthusiastic. It’s more than a job—they see it as a learning experience. They see it as a continuum in their education” (9:283–286).

Through co-op, students clarify their career goals. One respondent, who is a writer, said, “There are natural writers and there are people that struggle with it and who are clearly in the wrong profession” (6:349–350). Those who stay identify more closely with their profession as a result of their co-op experience. Those who do not belong for whatever reasons are, as several respondents said, weeded out. This culling process

strengthens the profession as a whole and saves employers the cost of attempting to train employees unsuited to technical writing.

Question 4. TCD co-operative education students bring up-to-date ideas and technology to the work site. Responses to question 4 were evenly split between those who thought it was *somewhat* or *not important*, and those who thought it was *very* or *extremely important*. Although the question asked about both ideas and technology, respondents focused more on the technology than the ideas. In some cases where students were working with writers, the respondents felt that the technological proficiency of the staff was high, the students fit in well, and the question was rated low. In other cases, writing departments were looking for skills with specific software, so respondents rated the question high. In information technology organizations, the importance of technical skills was rated low.

Skills in writing were valued in many workplaces. Many respondents particularly appreciated students' ability to search out information and organize it into coherent, structured documents, and they valued their layout skills. Skills in word processing and presentation software were valued in some offices where staff were less proficient than they would like to be in these skills. In one office, for example, a co-op student conducted training sessions for employees in Word, and he assisted his supervisor in creating PowerPoint presentations. However, one respondent discounted this question, observing, "They learn more than they give back" (1:111).

Question 3. TCD co-op students generally improve the morale of the permanent employees of the work site. Two-thirds of respondents rated Question 3 as *somewhat* or *not important*. Those who ranked it as *very* or *extremely important* seemed to see morale

improvement as a *benefit* of employing co-op students, not as a *reason* to employ them. As one person who rated the question as *very important* said, “Co-op students generally bring in some fresh ideas, and they’ve been in school for eight months or so, and they are ready to do something different. So they are quite often motivated to work, and they work very hard. That rubs off when people see folks working very hard” (2:85–89)

Despite the result that morale improvement was not seen as a reason to hire by the majority of the respondents, respondents thought morale is improved in a number of ways. In some workplaces where most of the employees are older, in their forties and fifties, respondents liked having young people around. In workplaces where people have been together for many years, co-op students add some spice, and their enthusiasm “reminds people that parts of our jobs are fun” (9:110). Said another respondent, who ranked the question as *very important*, “It’s nice to have new people in the workplace in the summer—to organize events around the student—go for lunch, and all that sort of thing. In that sense it gives us a different focus throughout the summer” (11:197–200). Another said,” I felt like I was getting exposure to the outside world” (4:109–110).

Morale is also raised because co-op students take over some of the work that regular staff have not been able to, or have not wanted to, get finished. One respondent commented, “This is a huge generalization, but I would assume that if developers weren’t forced to write help files they would be happier” (13:162–163).

Co-op students also have the potential to decrease morale, especially if the staff are overwhelmed with work and see training a co-op student, who will be there only a short time, as just another duty. In general, respondents felt that regular staff felt no resentment towards co-op students, although some mentioned that they took care not to

have co-op students working with difficult employees, and one person added that, “We are certainly careful not to put the co-op students above regular staff” (9:119–120). In some cases, one respondent said, a co-op student may be the target of resentment because the student is working on a controversial project, and the resentment towards the project transfers to the student.

Summary

Although morale is improved by having co-op students around, it is not a reason to hire. Generally, workplaces do not look for students to bring technology into the workplace, except when staff themselves may be deficient in using writing software. They may appreciate students’ ideas about organizing documents, especially in organizations where people are not writers. Employers do see that they have jobs that need to be done and that co-op students can help them get those jobs done. Co-op students are eager to learn, and, although helping them learn takes time, respondents felt the time spent was worthwhile. As well as learning about the business practices of their employers, co-op students clarify their career goals, so that either they strengthen their identification with the profession of technical communication or they leave the program to seek another career direction. Thus, employers can be sure that graduates of the program have decided technical communication is where they want to be.

Analysis of Results for Human Resource Development

The category Human Resource Development had four questions associated with it. The results are shown in Table 16. The category overall ranked third out of six. One of the questions, relating to the skills of the students, ranked in the top 5. The other three questions, dealing with recruitment, were ranked as less important.

Table 16:

Summary of Results for Human Resource Development

Q8 TCD co-op students are enrolled in college studies directly related to their work assignment.

Q13 TCD co-op students provide a pool from which full-time employees can be hired.

Q14 TCD co-op students are less costly to recruit as full-time employees than other permanent full-time employees.

Q15 The TCD co-op program allows the employer the possibility of attracting highly qualified students.

	Responses				Descriptive statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Q8	7	12	2	0	3.24	3	3	3	0.63
Q15	4	12	3	2	2.86	6	3	3	0.85
Q13	1	10	6	4	2.38	9	3	3	0.87
Q14	2	5	5	9	2.00	14	1	2	1.05
Category 6					2.62	3	3	3	0.97

Analysis by Question

Question 8. TCD co-op students are enrolled in college studies directly related to their work assignment. With question 8, the responses showed remarkable unanimity. The question ranked third out of the 17 questions, with 19 of the 21 respondents rating it as *extremely* or *very important*. Two respondents ranked this question as *somewhat important*. In one of these cases, the job demanded skills students would not learn until their second year, so there may not have been a direct fit, although the respondent was pleased with the student's ability to do research and use software. In the other case, the student was hired specifically for software skills, so it is hard to know why the ranking was only *somewhat important*.

Clearly, employers are interested in the skills TCD co-op students bring to their companies. One respondent put it succinctly, "We hire them to do exactly what you're training them to do" (9:246). Skills mentioned included the ability to ask questions, to do

research, to use software effectively, to analyze information, and to structure information and documents. Some comments included “I think they come very capable in planning and managing, not only their tasks, but their time. They seem to be very conscientious in setting a goal and attaining that goal, and that’s good. In our industry, it’s really good. It’s a profit thing” (5:314–317). Overall, the skills identified were consistent with skills for technical communicators listed in other sources (Alberta Human Resources and Employment, 2002; iseek, 2005; Monster.com, 2005).

Several people switched their rating on this question after some discussion—a few interpreted it as meaning the students had skills related to the primary business, such as engineering or manufacturing. After discussion, they realized that the students were well prepared to do the job they did.

Question 15: The TCD co-op program allows the employer the possibility of attracting highly qualified students. Question 15 was ranked sixth overall. Only five of the respondents ranked this *somewhat* or *not important*. Of those who ranked it *very* or *extremely important*, this comment was typical, “If they have gone through that program, successfully, they have to be better prepared” (5:534–536). Others mentioned that just completing the program was not enough, and that the interview was still a key component in determining whom to hire.

Question 13: TCD co-op students provide a pool from which full-time employees can be hired. Question 13 ranked ninth overall. Ten of the respondents rated this question *somewhat* or *not important*, and 11 rated it as *very* or *extremely important*. Companies for which this is less important have restrictions placed on hiring or are generally not hiring, such as three of the not-for-profits. Several of these companies hire writers only on term

or contract. Although two of the respondents from government ranked this *very important*, in actuality, government departments have to go through a formal hiring process, and they cannot recruit through co-op.

Those who thought it was more important talked about co-op giving people the edge over those who have not experienced co-op through the TCD program. They applauded the combination of theory and practice. One respondent said, “They have demonstrated they can implement the knowledge they have got. Otherwise it’s just memorization and regurgitation” (20:405–407). Another respondent, who manages a large staff of writers, reflected upon the need to build a pool of trained writers in Manitoba and said, “There is not an abundance of skilled writers in Manitoba and that may be something we have to work together to build” (3:243–245). And finally, one respondent who has hired students from the TCD program and whose company actively uses co-op as a recruiting tool said, “The course puts demands on these students that are not unrealistic demands in the workplace” (5:462–463). In effect, the respondent felt, the program is a proving ground for professional writers.

Question 14: TCD co-op students are less costly to recruit as full-time employees than other permanent full-time employees. In keeping with the responses to Question 1, this question was ranked low, 14 out of 17. Fourteen of the respondents ranked this as *somewhat* or *not important*. Overall, respondents were less concerned about costs than about getting the right person. One person said, “If you’ve gone through the process of having a co-op student and you know you need a full-time employee, it’s probably more effective to hire the co-op you’ve had, instead of going through the process of advertising and weeding through resumes and everything” (2:267–270). Another said it is a “very

safe way to recruit" (14:348). In several cases, respondents were uncertain about what the difference in recruiting costs might be, but after some discussion agreed they might be lower because of reduced advertising, interviewing, and selection costs. For those in government, costs were not lower, because all new hires have to go through the same process. Of the two respondents who ranked this *extremely important*, one uses co-op as a recruiting tool. The other talked about the importance of HRDC funding, which is used to hire temporary staff, not full-time.

Summary

The category Human Resource Development ranked third overall, but only one of the questions in the category ranked in the top five. Overall, respondents agreed that students' skills applied directly to the work they were doing for their co-op employers. Skills particularly valued were the ability to ask questions, to do research, to use software effectively, to analyze information, to structure information and documents, and to manage the process of writing. Questions 13, 14, and 15 looked at issues of recruitment. In general, respondents thought using co-op as a recruitment tool could be very effective, offsetting costs and allowing a trial period in which both the student and the employer can try out the potential employee. However, not all would use co-op in that way, perhaps because of organizational policy or because of limited hiring possibilities.

Analysis of Results for Community Service Opportunities

Community service opportunities comprised only one question. The question tied for ninth place overall out of 17; the category ranked fourth out of six overall, although first for large employers and government (Table 12 and Table 13). The results for this category are displayed in Table 17.

Table 17:

Summary of Results for Community Service Opportunities

Q7	Organizations hire TCD co-op students out of an obligation to the technical writing community and as a service.								
	Responses				Descriptive statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Q7	1	9	8	3	2.38	9	3	2	0.81
Category 5					2.38	4	3	2	0.81

Analysis by question

Question 7. Organizations hire TCD co-op students out of an obligation to the technical writing community and as a service. Question 7 did not polarize the group as much as some other questions—only one answered *extremely important*, and only three answered *not important.* Although most representatives viewed their companies as good corporate citizens who contributed a great deal to the community, they did not see hiring a co-op student as part of corporate citizenship. As with Affirmative Action, contributions to the community were a *benefit* of hiring, not a *reason* to hire co-op students.

No one was able or willing to speculate on the reasons that hiring co-op students was not considered as part of giving to community; some people said they would have to think about it. Some people mentioned that it was important to get a payback, perhaps in the form of advertising or increased customer base. Other organizations contributed primarily to community activities related to their customers or to their employees; for example, one medium-sized company contributed to a charity in support of an illness that one of the employee's children had.

Contributing to the community can mean many things beyond charitable contributions. Most respondents agreed that co-op exposed students to opportunities in Winnipeg and increased the possibility that they would stay in the city, or as one respondent said, “I think the work placement gives them an idea of what some of the opportunities are in their own back yard” (5:301–302). One respondent disagreed, however, and said that co-op does not ensure anything, and that whether graduates stay in Winnipeg depends on their personal interests—if they want to ski, they will go to Calgary. Some companies hoped that the co-op students would want to stay to work with them.

Most respondents also agreed that participating in co-op programs enhanced the company image. One respondent said that it was good for people to learn about how companies work. “When you have somebody working for the company, even for a short period of time, all of a sudden they realize that these are human beings who are acting in the best interests of people, so it has that benefit” (12:294–297). One person was less sanguine, however, and commented, “I don’t think people know. I don’t know if anyone knows that we are in this particular program or in engineering. We’ve had co-op students from there for three years. I don’t know if people know. I don’t even know if the university knows” (12:231–234).

A final benefit mentioned was economic. Hiring co-op students “gives the students some money over the summer to contribute to their education, buy a car, or whatever. They buy things and contribute to the economy” (17:134–136).

Summary

Most respondents thought of their companies as good corporate citizens. However, they did not relate being a good corporate citizen to hiring co-op students. Perhaps as a result, this category placed right in the middle. When people think of contributing to the community, they often think of participating in charitable events. Other benefits that may accrue to the community are encouraging graduates to stay in Winnipeg and providing students with income to contribute to the economy. Participating in co-op may enhance a company's image, although it is possible that most people are not aware of the company's activities in this area.

Analysis of Results for Employee/College Relations

Employee/college relations comprise the two questions shown in Table 18. Overall this category ranked five out of six, and one of the two component questions ranked seventeenth out of 17. Although some respondents expressed interest in developing a better relationship with the college or with the TCD program, they did not feel it was an important reason to hire co-op students. As one respondent put it, "It's definitely beneficial, but I'm not hiring them to communicate with you. I'm hiring them because I have a need to hire them" (18:346–347).

Analysis by Question

Question 11. Employing co-operative education students allows for increasing communication with Red River College. Question 11 also invoked some surprise, as many respondents indicated they had never thought in those terms. As one person said, "We don't have a lot of communication with Red River College. All of our communication

Table 18:

Summary of Results for Employee/College Relations

Q6 Hiring co-operative education students enables organizations to influence and mould the TCD curriculum to meet their specific needs.

Q11 Employing co-operative education students allows for increasing communication with Red River College.

	Responses				Descriptive statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Q11	1	5	9	6	2.05	13	2	2	0.87
Q6	0	2	8	11	1.57	17	1	1	0.68
Category 2					1.81	5	2	2	1.02

has been through your program. . . I think we'd welcome that sort of interaction—we've just never thought of doing it" (11:406–415). Some considered they had no relationship with the College, and some focused on relationships with the University of Manitoba instead. However, many felt they had a good relationship with the College; for example, one occasionally called instructors concerning what was on the curriculum, to find out what students are learning now, one has a longstanding friendship with an instructor at the College, and one has attempted to get some joint research programs going. Others have hired co-op students for a number of years from Creative Communications, Mechanical Engineering Technology, and Computer Analyst/Programmer programs. Still others are funding employees to take programs at the College.

As to who should be developing the relationship with the college, respondents were divided. Some felt that establishing such a relationship would be their responsibility. Others were disappointed that the College in general had not responded to their attempts at communication.

Question 6. Hiring co-operative education students enables organizations to influence and mold the TCD curriculum to meet their specific needs. Many respondents expressed surprise at question 6. One comment typified this surprise, “I didn’t know if that ever occurred to me. Can we do that?” (15:215). Some realized that they had been moulding the curriculum to some extent, through membership on the program Advisory Committee, through contact during mid-term co-op evaluation visits, through completing evaluation forms, and just through employing co-op students. One person observed, “It is somewhat important that we do our part to have students learning the things that are real in the workplace. . . So it moulds the curriculum, a little bit” (6:222–227). No one suggested that the instructors in the program would not listen to their suggestions, although most also realized that “You have two years, and you have a lot of ground to cover” (9:322–323). Although many respondents were quite happy with the program, a few offered suggestions for improvement, for the most part reflecting their own particular needs or problems with specific students who were placed with them. One person demurred, saying it was really an HR (Human Resources) issue.

Several respondents showed an awareness of the importance of feedback to the program, and some of the comments perhaps reflected that skepticism that employers have of classroom learning. One respondent, who is also a member of the Advisory Committee, expressed it by saying, “I think my role is to provide advice from the industry about industry’s requirements for students, specific skills or competencies that they might need that should be evaluated and included in the program, marketable skills” (2:138–142). The sense of skepticism that employers may have about classroom learning (Hornsby & Johnson, 1991; Hu, 2003), that classroom learning is abstract and that

workplace learning is real was reflected in yet another comment, “We want the students coming out of college with skills that meet real-world needs, rather than being able to write an essay about abstract things” (6:228–230).

Summary

Having better communication with the College is not a factor in whether these respondents hire co-op students. Although many felt they would like a better relationship with the College overall, others thought they have many opportunities to provide feedback to the TCD program through mid-term visits, completing evaluation forms, hiring co-op students, or sitting on the Advisory Committee. Others felt that, although their organizations have relationships with other educational institutions in Manitoba, they had not cultivated relationships with Red River College, and perhaps should.

Analysis of Results for Affirmative Action Goals

The category Affirmative Action Goals had only one question associated with it, and the results are shown in Table 19. Question 12 ranked sixteenth out of the 17 questions, and the category itself ranked sixth out of six categories. Sixteen of the 21 respondents rated this as *somewhat* or *not important*. However, the sense is that, as one respondent said, “Is that an important thing for us? Yes. It’s just not a reason for hiring in a co-op program” (15:398–399).

Table 19:

Summary of Results for Affirmative Action Goals

Q12 Co-operative education increases access to qualified minorities during the recruitment, selection, and hiring process.

	Responses				Descriptive statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Q12	1	4	4	2	1.71	16	1	1	0.96
Category					1.71	6	1	1	0.96

Analysis by Question

Question 12. Co-operative education increases access to qualified minorities during the recruitment, selection and hiring process. In responding to Question 12, people seemed to have trouble separating their general sense of the importance of this issue and their sense of its relevance to hiring co-op students. For some people, the existence of a corporate policy emphasized the importance of this issue to their organizations. Those who thought that this was *somewhat* or *not important* were divided in their awareness of corporate policies: some knew definitely whether the corporation had a policy; some did not know. In government, for example, there are official employment equity programs, but they apply to full-time employment, not to co-op. Some of the respondents from government were aware of the policies; some were not. In manufacturing, there was little awareness of the existence of policies, but confidence that their companies hired visible minorities—shop floors were a veritable “United Nations” (17:200); however, one respondent in a manufacturing company did express concern that the company was not doing enough. In information technology, hiring visible minorities is not an issue because so many graduates of computer science programs are visible minorities.

The question was kept deliberately silent on the definition of *visible minority*. For some people, this lack of definition was cause for concern, and they wanted to know what *visible minority* meant. For others, it was an opportunity to mention specific groups. Several mentioned hiring First Nations—either because their organizations hired First Nations employees, or they were actively involved in affirmative action programs with First Nations groups, or they recognized the difficulties faced by First Nations people seeking employment As one person said, “It’s hard to break in and be Jackie Robinson” (12:363). One person observed that, although the company actively promoted visible minorities from other countries, women are not well represented in the computer technology world. Another mentioned the problems of accommodating people with disabilities. In one small not-for-profit, men are the visible minority.

Overall, several themes emerged. For some, affirmative action is not an issue, usually because they were concerned about skills sets and whether the applicant fit in. Others said their company hired visible minorities; for some that meant affirmative action was an issue and important; for others, that meant affirmative action was not an issue and not important. Several respondents deferred the responsibility as a Human Resources issue. One respondent was extremely eloquent on this subject, saying that the organization did not do enough to hire minorities, particularly First Nations. Co-op was a way for visible minorities to gain credibility, “Getting somebody into a program like this—they validate themselves in other people’s eyes. They are going through a co-op program and doing something to help them succeed. . . The tough part is breaking in” (12:366–368). Another respondent said that ultimately the company wants skilled

employees, but saw that “If people in the program are of ethnic minorities, it just increases their opportunities” (6:403–404).

Summary

Respondents in this study did not consider the opportunity to hire visible minorities would influence their decision to hire co-op students in technical communication. For most respondents, the important factor was the skill of the student and whether the student “fit in.” Some themes emerged. One respondent saw that being a member of an ethnic minority increased opportunities for employment for both students and full-time employees. A second pointed out that completing a program such as the TCD program helped validate the skills of those who might otherwise have difficulty getting a job because of their ethnic origins. And respondents interpreted “visible minority” differently: as disability, as gender (a lack of either men or women, depending on the context), and as ethnic origin.

Analysis of Responses to Reasons to Discontinue Hiring

Respondents were asked an additional eight questions about what might motivate them to discontinue hiring co-op students from the TCD program. For the respondents, this was largely a hypothetical exercise, as none of them had indicated that they had indeed discontinued hiring co-op students, and their experience with the TCD program was short, a maximum of three years. The results are summarized in Table 20. Six of the questions elicited an overall response of *not* or *somewhat important.*

Table 20:

Summary of Reasons to Discontinue Hiring

Q1	There were no longer funds available to hire TCD co-op students.
Q2	The work involved in hiring students was too great.
Q3	The students were not able to do the job.
Q4	The work involved in continually reorienting and training new students to the job was not worth the return.
Q5	Positions budgeted for TCD co-op were filled by permanent employees.
Q6	The corporate policy authorizing co-operative education was changed.
Q7	The students never became permanent employees.
Q8	The student quit.

	Responses				Descriptive statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Q1	11	3	2	5	2.95	1	4	4	1.28
Q3	3	6	6	6	2.287	2	3	2	1.06
Q5	4	3	2	12	1.95	3	1	1	1.24
Q4	1	6	3	11	1.86	4	1	1	1.01
Q6	3	1	4	13	1.71	5	1	1	1.10
Q8	1	4	4	12	1.71	5	1	1	0.96
Q2	0	2	6	13	1.48	7	1	1	0.68
Q7	0	0	4	17	1.19	8	1	1	0.40

Analysis by Question

Question 1: There were no longer funds available to hire TCD co-op students.

Question 1 ranked first among the statements describing why employers might discontinue hiring co-op students. Over half, eleven of the twenty-one respondents, ranked this as 4, *extremely important.* However, five, almost 25%, also said it was *not important.*

Very few of the respondents indicated that their companies consistently budget for co-op. In most cases, the work has to be there first, and then the employees who want

to hire a co-op student have to make a business case for the funding. Three respondents indicated they were not currently hiring because there was no work available.

Respondents were asked if they would take a student they did not have to pay for; for example, a student sponsored by the Workers Compensation Board or another agency. Only three respondents gave an unqualified *yes*. Two of these had a very strong corporate mandate for hiring co-op students; the other, from a not-for-profit, said that they would find work in such a circumstance, that not-for-profit agencies were skilled at taking advantage of opportunities that fell their way. Most others indicated they would be very interested, but with some qualifications; for example, there would still have to be work, they would still want to interview the candidate, and they would still want to ensure the candidate was qualified. Others wondered if an employee who was not paid would feel valued, or if there would be sufficient accountability. And another group equivocated, saying even a "free" employee cost the company money in terms of training, orientation, and supervisory time.

Question 3: The students were not able to do the job. Although the ranking on this question makes it the second in importance, respondents were unclear about how to answer it. Respondents overall gave the same rationale regardless of how they ranked it. Most indicated they felt the issue was complex. Students might not be able to do the job because the job was poorly defined or inappropriate for their skills, the wrong student had been chosen in the interview, or this particular student was inadequate. After one bad experience, they'd be unlikely to give up taking students. But if the experience occurred one or two more times, they would withdraw their support from the specific program, but not from hiring co-op students in general.

Question 5: Positions budgeted for TCD co-op were filled by permanent employees. Question 5 ranked third of the reasons to discontinue, but the modal and median responses were *not important.* Many of those who said it was *not important* simply said that had never happened in their organizations. Some people responded by saying that there was no budget, and that each year they wanted to hire they had to make a new business case. However, these same people ranked the statement inconsistently, some as *not important* and others as *very* or *extremely important*. Those from the provincial government, all of whom ranked the statement as *not important,* said the same—there was no budget and they had to make a case—but that co-op positions couldn't be filled by permanent employees because of the way employees are categorized. Another factor mentioned by some respondents was workload: With or without a budget, there would be no co-op positions unless the work was there.

Question 4: The work involved in continually reorienting and training new students to the job was not worth the return. For question 4, which ranked fourth out of eight, the answers are somewhat ambiguous. Two-thirds of respondents said this was *not* or *somewhat important,* with a typical comment being, "It might be difficult, but it's always worth it" (15:558). Of those who said it was *very* or *extremely important,* one said, "That's kind of an issue that you have to show them everything each summer, that you have to start over" (17:291–292), but another said it has not been their experience.

Question 6: The corporate policy authorizing co-operative education was changed. Question 6 ranked sixth, with the modal and median responses being *not important.* Only three respondents said this was *very* or *extremely important,* two from the provincial government who commented that government is policy-driven and one

from a not-for-profit where a board sets policy. Of the others, most responses indicated that there was no policy, they weren't aware of a policy, or the policy wouldn't change. As one said, "I can't see a company like ours saying they wouldn't hire co-op" (3:366–367). But one respondent who thought the statement was *somewhat important* observed, "Even if the corporate policy changed, I don't hire the co-op students based on them being co-op students; I hire them based on them being good temporary staff that will do the job" (9:489–491).

Question 8: The student quit. Respondents were divided in their ranking of this question, which ranked fifth out of eight. Responses resembled those made to Question 3, *The student was unable to do the job.* Many said this had never happened in their experience. Regardless of how they ranked the question, various people said that having one student quit wouldn't affect their decision to hire again; they would regard that as an anomaly, a situation with a particular student, one of those things that just happen. If it happened more than once, they would engage in a period of self-reflection, "was it something we did, the student did, the program?" (4:505). And one remarked, "If we'd gone through the hiring process and the student quits, we have to think about whether—especially if we'd gone through the experience several times—and we're offering opportunities for learning and for them to earn some money, and they just quit—is it really worth it or not?" (2:349–353).

Question 2: The work involved in hiring students was too great. Question 2 ranked seventh of the eight reasons to discontinue. Nineteen of the respondents said this was *somewhat* or *not important*. However, some of those said that the work was minimal and certainly easier than hiring full-time employees. Others said there was some work but

the work was worth it. One respondent who said this was *very important* and one who said it was *somewhat important* both said it wasn't a lot of work, but if it had been, they wouldn't have hired.

Question 7: The students never became permanent employees. Question 7 rated lowest of all the questions overall. Every respondent said this was *somewhat* or *not important.* Many said there was no expectation to hire. Especially for government, co-op is not a recruitment tool. One respondent had hoped the student would become a permanent employee after graduation, remarking, "We hope to attract them to other jobs at the company" (3:168). Two students were offered full-time jobs after co-op: One elected to complete the diploma; one did not. One respondent didn't like the question. But the final word goes to one respondent who has hired co-op students after graduation, who said, "This is an ongoing, supportive program. I know in the spring these students are looking for placements, and, you know, I just think that the program needs to be supported as much as the program supports" (5:647–650).

Summary

Overall, the only question to receive a strong response was question 1, *There were no longer funds available to hire TCD co-op students.* Over 50% found this to be *very important*, whereas nearly 25% of respondents found this *not important.* Most organizations do not have a regularized financial process for hiring co-op students; most respondents have to make a business case if they wish to hire. Respondents overall do not think the work involved in hiring, orienting and training co-op students is a deterrent to hiring: either they think there is little work involved, or they feel the payback makes the work worthwhile. If one student could not do the job or quit, respondents would not be

concerned; however, if a pattern emerged, they would look at all the possible contributing factors: the individual student, the job, the organization, or the program, before deciding whether to continue hiring co-op students. Responses varied as to whether co-op positions would be taken by regular employees: in government, this cannot happen. Policy does not seem to be a driving factor in deterring hiring. Some organizations had no policy, some respondents were unaware of a policy, and some felt the company policy was supportive. There was little expectation that co-op employees would become permanent employees, and if a student chose not to continue with a company, respondents did not feel that would influence their decision to hire future co-op students. One question that was not asked was about available work for students; many respondents observed that it was unlikely they would hire if there was no work that students could do.

Summary of Chapter IV

Overall, economic benefits, workplace enhancements, human resource development, and to some extent, community services opportunities are more important reasons to hire. Improving employer/college relations and affirmative action are not as important.

Economic Benefits, with three of its component questions ranked in the top five, was the most important category overall, although of less importance, perhaps, for government and for large organizations. Wages are not the determining factor, however; productivity is. It is also important that students help permanent staff to be more productive. If students are hired as full-time employees following graduation, the time required for them to be productive is reduced by approximately the length of their co-op

term. Retention rates for such students will not necessarily be higher than for other employees.

Workplace Enhancements are a close second in importance overall. Enhancements come in terms of the skill sets that students bring to the specific jobs and in terms of getting jobs done. They may help improve morale and they may bring new ideas and technology into the workplace, but these are not reasons to hire. Co-op students are eager to learn, and, although helping them learn takes time, respondents felt the time spent doing so was worthwhile. As well as learning about the business practices of their employers, co-op students clarify their career goals, so that either they strengthen their identification with the profession of technical communication or they leave the program to seek another career direction. Thus, employers can be sure that graduates of the program have decided technical communication is the career for them.

Human Resource Development ranked third overall, although it may be of more importance to for-profit organizations and for medium-sized organizations. Students bring valuable skills to their jobs; skills particularly valued were the ability to ask questions, to do research, to use software effectively, to analyze information, to structure information and documents, and to manage the process of writing. In terms of recruitment, respondents thought using co-op as a recruitment tool could be very effective; however, not all would use co-op in that way.

Community Services Opportunities ranked fourth overall, although ranked first by large employers and by government employers. Most respondents thought of their companies as good corporate citizens. However, they did not relate being a good corporate citizen to hiring co-op students. Other benefits that may accrue to the

community are encouraging graduates to stay in Winnipeg and providing students with income to contribute to the economy. Participating in co-op may enhance a company's image, although it is possible that most people are not aware of the company's activities in this area.

The final two categories were discounted by respondents as reasons to hire co-op students. Improved Employer/College Relations could be a benefit of participating in a co-op program, but not a reason to hire students. Similarly, meeting Affirmative Action goals through co-op might be beneficial, but it is not a reason to hire co-op students.

The only clear reason that might cause some respondents to discontinue hiring co-op students was money. Respondents overall do not think the work involved in hiring, orienting and training co-op students is a deterrent to hiring: either they think there is little work involved, or they feel the payback makes the work worthwhile. Whether the student could not do the job or quit might be a factor if a pattern emerged. Responses varied as to whether co-op positions would be taken by regular employees: in government, this cannot happen. Policy does not seem to be a driving factor in deterring hiring. There was little expectation that co-op employees would become permanent employees. Some respondents mentioned having work that students could do was also important.

Chapter V: Discussion and Recommendations

In this study, 21 representatives of employers who had hired co-op students from the Technical Communication Diploma (TCD) program at Red River College in Winnipeg were asked to respond to questions about factors that influenced their decisions to hire or cease hiring students. The questions were of two types; there were 25 objective questions to be rated on a Likert scale, and there were supplementary open-ended questions that allowed respondents to reflect on their ratings of the objective questions.

In Chapter V, I look first at the employer profile, the reasons employers hire co-op students, and the reasons employers may discontinue hiring co-op students. Second, I examine some of the questions that seem to arise out of the current TCD study and other similar studies. Third, I propose a model of employer involvement in co-op education. Finally, I suggest some recommendations for research and for practice.

Comments on the Studies

Employer Profile

Employer data are summarized in Table 9 on page 63. Because the current study is based on the Ballinger study (1992), a brief comparison between the two employer populations is shown in Table 21. A direct comparison is not totally possible because the two studies asked somewhat different questions. In addition, caution must be used in making any generalizations because of the small number of employers in the TCD study, and the limited geographical area from which both sets of participants were drawn. However, respondents in both studies had a wide variety of responsibilities with respect to co-op students, although the respondents in the TCD study were more frequently supervisors. Respondents had a variety of experience with other institutions, although

slightly more respondents in the Ballinger study did not hire co-op students from other institutions, and slightly fewer hired from only one. They had a variety of years of experience with co-op programs, although those from the Ballinger study had fewer with less than one year's experience and more with 10 or more years' experience. They supervised different numbers of students. Ballinger did not ask about organization size, and he used a different classification of organization type. Both studies had a wide representation of industry types.

Ballinger notes that the study was done with employer-supervisors in the vicinity of Greater Cincinnati, and that "This region of the United States has a tradition of co-operative education dating back to 1906. This limited geographic sample may have resulted with respondents who had some bias about co-operative education" (Ballinger, 1992, 18–19). Herman Schneider introduced co-op education to the United States, and to the University of Cincinnati, in 1906.

Table 21:

Comparison of Employer Population Demographics

Position of the employer with respect to co-operative education students		
	TCD study (%)	Ballinger (%)
Supervised TCD students	91	n/a
Supervised other students	48	35
Coordinated the program	38	20
Both coordinated and supervised	29	33

Number of other programs from which students came			
	Other RRC programs	Other institutions	
	%	TCD study (%)	Ballinger (%)
0	62	43	55
1	29	48	20
2	10	5	10
3 or more	0	5	7

Table 21:

Comparison of Employer Population Demographics

Number of years of respondents' involvement with co-operative education			
	TCD	Ballinger	
	%	N	%
1 year or less	81	38	14
2 to 5 years	19	43	51
6 to 9 years		10	12
10 or more years		10	21

Number of years of employers' involvement with co-operative education			
		General	
	TCD %	TCD study (%)	Ballinger (%)
1 year or less	81	14	n/a
2 to 5 years (0 to 4 years for Ballinger)	19	24	32
6 to 9 years		19	17
10 or more years		24	39
Uncertain		19	

5. Number of co-operative education students the respondent supervises at any one time				
	TCD		Other	
	N	%	N	%
1	21	100	52	36
2			29	36
3 or more			19	20

Reasons to Hire Co-op Students

The two studies are compared in Table 22. The Ballinger study had 17 pairs of questions, and the current study used only one of each pair. The second of each pair from the Ballinger study was dropped, and the remaining questions were re-assigned rankings out of 17 so that a comparison was possible. The Pearson Correlation Coefficient for the correlation between the rankings of the 17 questions in the current study and the rankings

of the same 17 question in the Ballinger study was 0.670, which is considered to be strong (Salkind, 2003).

Table 22:

Comparison of Rankings of Questions from TCD and Ballinger Studies on Why Employers Hire Co-op Students

TCD Study		Question		Ballinger study		
Rank	Mean	Number	Question	Rank	Mean	Category
			Economic Benefits			
1	3.29	10	TCD co-op students are capable of efficiently and effectively meeting some of a company's short-term documentation needs.	7	3.039	4
4	3.19	2	TCD co-op students generally are productive employees.	6	2.923	4
5	3.00	5	TCD co-op students enable other permanent employees to be more productive.	9	2.608	4
7	2.67	17	When co-op students become permanent employees, they are almost immediately productive, thus reducing training and orientation costs.	1	3.238	4
12	2.10	16	When a student progresses through a TCD co-op program and becomes a full-time employee, the student is less likely to leave the job than the employee who has not had the TCD co-op experience.	8	2.768	4
15	1.91	1	TCD co-op students can adequately perform a job at a wage rate lower than that of a regular employee.	15	1.977	4
			Workplace Enhancements			
1	3.27	9	Your organization has jobs that need to be done and you find co-operative education students able and enthusiastic workers who are eager to learn.	4	2.885	1
8	2.50	4	TCD co-op students bring up-to-date ideas and technology to the work site.	12	2.148	1
11	2.19	3	Co-op students generally improve the morale of the permanent employees of the work site.	17	1.711	1
			Human Resources Development			
3	3.24	8	TCD co-op students are enrolled in college studies directly related to the work they do at our company.	5	3.008	6
9	2.38	13	Co-op students provide a pool from which full-time employees can be hired.	3	3.056	6
6	2.86	15	Co-op allows the employer the possibility of attracting highly qualified students.	2	3.141	6
14	2.00	14	TCD co-op students are less costly to recruit as full-time employees than other permanent full-time employees.	10	2.273	6

Table 22:

Comparison of Rankings of Questions from TCD and Ballinger Studies on Why Employers Hire Co-op Students

TCD Study		Question		Ballinger study		
Rank	Mean	Number	Question	Rank	Mean	Category
			Community Service Opportunities			
9	2.38	7	Your organization hires co-op students out of a sense of obligation to the community and as a service.	16	1.823	5
			Employer/College Relations			
13	2.05	11	Employing TCD co-op students allows for increasing communication with Red River College.	11	2.217	2
17	1.57	6	Hiring TCD co-op students enables your organization to influence and mould the curriculum of the Technical Communication Program to meet your specific needs.	13	2.145	2
			Affirmative Action Goals			
16	1.71	12	TCD co-op increases access to qualified minorities during the recruitment, selection and hiring process.	14	1.984	3

There is little one-to-one correlation in the rankings. However, out of the top eight questions, six are the same. Out of the bottom eight questions, seven are the same. So it appears that the questions divided nicely into two categories of less important and more important. Although these are specific populations and the TCD study in particular is a small population, this similarity is interesting.

The next thing to do is to examine each of Ballinger's categories individually.

Economic benefits. The category called Economic Benefits comprised six questions which fall into three categories: the cost of the wages of co-op students (Question 1), the productivity of co-op students (Questions 2, 5, 10), and the effects of the co-op experience on those who become full-time employees (Questions 16, 17).

The cost of wages for co-op students ranks in the bottom half in both the TCD and Ballinger studies. Metzger (2002) found a similar result. The statement that *Participation*

in an internship program is cost-effective for an employer ranked 14 out of 21 statements. Wages, therefore, do not seem to be an issue for co-op employers, except if the budget disappears, and then wages become the primary reason for discontinuing participation in co-op programs.

The three questions on productivity ranked in the top half for both studies, and the statement *TCD co-operative education students are capable of efficiently and effectively meeting some of a company's short-term documentation needs* ranked first with respondents in the TCD study. Co-op employers in the TCD study carefully crafted work assignments to ensure productivity, and, for the most part, students are able to complete their projects in the 14-week co-op term. Productivity is clearly a motivating factor for employers of TCD co-op students in Winnipeg. The productivity of students is well documented in the literature (Ballinger, 1992) and therefore deserves better promotion by co-op programs.

If students become full-time employees, respondents in the TCD study seem to indicate that the costs of training and orientation are reduced by a factor equivalent to the time the students spent in their co-op term. Those who can hire their co-op students do not really save money; they redistribute the costs of training new employees into co-op. Questions 16 and 17 were responded to more positively in the Ballinger study than the TCD study. Some of the difference may be the higher proportion of government employers in the TCD study, as government employers cannot automatically turn co-op terms into full-time employment. The question of retention was placed in the top half by the respondents in the Ballinger study, and in the bottom half by the TCD study. A similar statement ranked 18 out of 21 in importance in the Metzger (2002) study. More

study is needed to determine if co-op students do indeed stay longer when they are hired by their co-op employers.

Workplace enhancements. Ballinger (1992) grouped three factors under the general category of workplace enhancements. These were improving morale (Question 3), bringing up-to-date ideas and technology to the workplace (Question 4), and having jobs that need to be done by co-op students who are eager to learn (Question 9).

Improving the workplace in terms of improving morale or bringing up-to-date ideas and technology to the work site is not important in either the TCD study or the Ballinger study. These are seen as benefits of hiring co-op students, not as reasons to hire.

Both studies ranked Question 9 in the top half. In the TCD study, it ranked first; for the Ballinger study, it was somewhat lower. The importance of this question is related to the productivity issues rated high for Economic Benefits. This question was somewhat compromised because it really combines two questions, one about learning and one about productivity. In the discussion with respondents in the TCD study, two themes emerged. First, co-op students are eager to learn, and, although helping them learn takes time, respondents felt the time spent was worthwhile. Second, during their co-op term, co-op students clarify their career goals, so that either they strengthen their identification with the profession of technical communication or they leave the program to seek another career direction. Thus, employers can be sure that graduates of the program have decided technical communication is the right career for them. Ballinger (1992) did not touch on the professional winnowing function of co-op.

Metzger (2002), in a study of “opinionnaires” about internship programs, returned from 223 employers in Boise, found that the statement, *Internship students positively*

affect staff quality by providing fresh perspectives, ranked 15 out of 21 statements. Metzger's focus was on perceived benefits of internship or co-op programs, not on what motivates employers to hire.

Human resource development. The category Human Resource Development comprised four questions, which can be placed into two groupings, the first dealing with the skills of students (Questions 8 and 15), the second dealing with the recruitment potential of co-op placements (Questions 13 and 14).

In both the Ballinger and TCD studies, the questions of skills placed in the top six, so it appears that employers are hiring co-op students for specific skill sets.

In terms of recruitment, respondents in the TCD study ranked the questions in the bottom half, whereas respondents in the Ballinger study ranked one near the top, and the other in the bottom half. Three statements in the Metzger study relating to recruitment also ranked in the top half. In fact, the statement *Students gain marketable skills from participating in internship programs* ranked number 1. Why recruitment is a less important factor for employers hiring TCD co-op students in Winnipeg warrants further research. Several possible explanations could be tested: for example, the TCD program is relatively new so that people still do not quite trust the quality of the graduates; employers still do not see the value of having full-time technical communicators on staff; employers in Winnipeg overall have less experience with co-op than employers in the Ballinger study and do not yet see the recruitment potential of co-op.

Community service opportunities. Of the reasons to participate in co-op programs, opportunities for community service are ranked as very much in the middle: The question

was in the bottom half for the respondents to the Ballinger study, in the middle for the TCD study, and in the bottom half for the Metzger study (2002).

This lack of interest begs an important question: Why do companies not see participating in co-op programs as part of their community outreach programs? Most respondents in the TCD study thought of their companies as good corporate citizens—they contribute to United Way and other charitable causes. Respondents also indicated that part of their function as a co-op employer is to teach students. But not one of the respondents indicated recognizing hiring co-op students as part of community outreach. This lack of awareness warrants further investigation.

Employer/college relations. In both studies, the two questions associated with the category of improving employer/college relations (Questions 6 and 11) ranked in the bottom half. Although employers seem to value a good relationship, when they are asked to think about it, having such a relationship is not a reason to hire co-op education students. However, it is clear from the discussions with respondents in the current study that employers have valuable things to say to educational institutions about what students are or should be learning. Metzger (2002) found that most employers believed that internship programs help link academia and the workplace.

In the co-op model of education, the relationship between employers and academic institutions is vital. However, it is likely that the initiative to strengthen the relationship will come from colleges, not from employers. This is a critical factor in the success of co-op programs, and it is somewhat worrisome that it ranks so low as a motivating factor in the minds of employers. As one of the respondents in the TCD study said, “I don’t think we are really used to [co-op], either. We are still more comfortable

with summer students than co-op students, even after 25 years. It's not easy to relate to co-op programs. I feel that many professionals feel that co-op is quite foreign to their thinking. You get educated, and then you go to work. Here we are saying you go back and forth. More is required to make everybody comfortable with it" (1:301–306).

Perhaps colleges and universities that run co-op programs should be more active in promoting co-op as part of a community outreach and lifelong learning strategy in employers' vision statements.

Affirmative action goals. In the TCD study, the Ballinger study (1992), and the Metzger study (2002), affirmative action as a benefit or motivator to employers was close to or absolutely dead last. In the TCD study, which included an opportunity for discussion, respondents agreed that affirmative action is an important goal for their companies, but that they do not see that co-op provides an opportunity for fulfilling these goals. It may be, then, that including affirmative action as a potential factor in influencing employers to hire co-op students is not productive.

Reasons to Discontinue Hiring Co-op Students

The Pearson coefficient for the rankings of the Ballinger and TCD studies was 0.857, which is considered to be very high (Salkind, 2003). And a look at the results shows that the first two questions are ranked the same, the next three include the same questions in slightly different orders, and the last three are also similar.

Table 23:

Comparison of Rankings of Questions from TCD and Ballinger Studies on Why Employers May Discontinue Hiring Co-op Students

TCD Study		Question		Ballinger Study	
Rank	Mean	Number	Question	Mean	Rank
1	2.95	1	There were no longer funds available to hire TCD co-op students.	2.500	1
2	2.29	3	The students were not able to do the job.	2.495	2
3	1.95	5	Positions budgeted for TCD co-op were filled by permanent employees.	2.390	4
4	1.86	4	The work involved in continually reorienting and training new students to the job was not worth the return.	2.364	5
5	1.71	8	The student quit.	2.458	3
5	1.71	6	The corporate policy authorizing co-operative education was changed.	2.038	7
7	1.48	2	The work involved in hiring students was too great.	1.491	8
8	1.19	7	The students never became permanent employees.	2.057	6

It appears that the number one reason employers may discontinue hiring co-op students is lack of money. Question 3 on the students' ability to do the job ranked second, although discussions with TCD employers indicated some reluctance to stop participating if just one student couldn't do the job: two or three years' experience of poor students would be required before they would discontinue hiring. In other words, it seems that once people start hiring, there is little to induce them to stop. The only real deterrent is the lack of money, and perhaps lack of work, a factor mentioned by some respondents.

The diversity of responses to the question about the existence of a corporate policy may bear some examination. Government is policy-driven, and yet some government respondents were unaware of a policy or thought there was no policy. Policies that apply to full-time employees may not apply to co-op employees. Other

respondents said their companies had no policy, or they could not imagine a policy forbidding the employment of co-op students, or, regardless of the policy, co-op students are hired because they can accomplish work, not because they are co-op students.

Comments on the Studies

Wording of the questions. The questions used in the TCD study were adapted from the Ballinger (1992) study. The questions in Ballinger's study were delivered on paper. The questions in the TCD study were delivered orally, with a supplementary paper copy made available. Several issues arose with questions during the interviews. First, people did not always focus on whether they were answering the questions in terms of what they *valued* about co-op students or in terms of what *motivated* them to hire a student. In many cases, the discussion revealed t*h*at the respondents had misinterpreted the questions. In a large study, perhaps the effects of such misunderstandings are factored out in the statistical analysis. In a small study, it is hard to say what the effect might be on the quantitative results. Certainly, the possibility of confusion makes a definitive interpretation of the data problematic. Second, some people did not understand some questions. As one rather frustrated respondent said at one point, "I almost need an interpreter to understand these questions" (20:484-486). Third, some respondents changed their quantitative ranking during the discussion, as a result of their changed understanding of the question.

The researcher made no attempt to explain questions, unless someone was having difficulty with the question or asked for clarification. This allowed a closer replication of the first study where people were responding on paper and could interpret questions as they liked.

Terminology: Benefits vs. motives. There might be some value in having employers rank the statements as both a *benefit* of hiring co-op students and as a *motive* for hiring co-op students. It was clear from discussions that people separated the two concepts: For example, it's a *benefit* to have morale boosted in the workplace—perhaps to find the gold threads among the silver, to misquote a famous song—but it's not a *reason* to hire co-op students. If you want people to feel better, it would be more cost-effective, perhaps, to organize a party or take everyone out to dinner. Asking people to differentiate explicitly between the two would help them clarify in their minds whether something was a benefit or a motivator.

Taxonomy. Ballinger (1992) developed a fairly extensive taxonomy surrounding employment of co-op students: 34 questions, 17 factors, and 6 categories. It is likely that, if future studies were to be based on his findings, this taxonomy should be modified. This current study and the Ballinger study both found that in some categories, some factors or questions were important, and some were not. The spread in rankings among questions in a category may have the effect of reducing the significance of the aggregate rankings.

A more useful classification system might centre on the following areas: economics (economic benefits), recruitment (human resource development), policy, productivity (workplace enhancements) and skills (human resource development). Economics includes the costs of hiring, training, supervising, and wages. Recruitment includes whether companies see co-op placements as a recruiting tool: Do such placements reduce the cost of recruiting and improve retention rates? Policy includes corporate citizenship, lifelong learning, and other aspects that are perhaps "softer" and need to be exploited more by institutions selling co-op programs. Productivity focuses on

the jobs that co-op students can complete. Skills refer to the specific skill sets co-op students bring as a result of their academic program.

The voices of the participants. Participants in the study were selected as a result of their being identified as the contact person on the job offer form for the co-op position. Some participants, especially those in Human Resources, clearly understood company policies and attitudes; they were speaking on behalf of their organizations. In many of these cases, the companies had long histories of participation in co-op programs, although not necessarily with technical communication students. Some participants, especially those with limited experience with co-op in their organizations, spoke from their own perspectives and their own passion for the co-op process. In some cases, participants were the first to bring co-op students into their organizations, and the organization did not have a clear policy on hiring co-op students. It is not always clear whether the participant spoke from an individual or a corporate perspective, or whether these two perspectives coincided.

The question of the perspective or authority of the respondent is an interesting one. It is something that other researchers have not raised as an issue. There is a possibility that the statements in the questionnaire might be ranked differently by respondents with different levels of authority in their organizations or with different knowledge of company policies and procedures.

Toward a Model of Employer Involvement in Co-op Education

The few studies that have looked at employers' motivation for participating in co-op programs have tried to find a single answer—a one-size-fits-all solution. It is likely such a solution is too simplistic. I would like to propose an alternative model that seems

to emerge from observations made in the current study. It is introduced with some caution, because the Technical Communication program at Red River College is still new, and because there are limitations to the study as discussed above. This model arises from several observations made as a result of conducting this research, of developing and teaching in the Technical Communication Diploma program at Red River College for the past five years, and of my long experience as a technical communicator.

First, it is clear that the initiation point for involvement in co-op programs comes from a variety of sources—from a corporate commitment to co-op, from Human Resources, from supervisors and managers, from individuals who just need a job done, and from individuals with a deep commitment to the co-op experience and the TCD program.

Second, Question 7, *Your organization hires co-op students out of a sense of obligation to the community and as a service,* ranked tenth overall, and fourth as a category. However, large companies and government employers ranked the category of Community Service Opportunities first. Ten of the respondents in the TCD study, just slightly less than 50%, ranked this question as *very* or *extremely important.*

Third, in general, respondents seemed to fall into two categories. A large group hires co-op students in technical communication for their specific skills to do specific jobs. However, a small group is dedicated to hiring co-op students because they believe in the process, and they may act as change agents in their organizations to promote co-op. A typical comment from a respondent who fit into this group is

> In the grand scheme of things, you should always look in before you look out. If you're not giving people coming up the visions of opportunity, they are going to get an education and they are going to go, and your economy is

> going to suffer because all of your talent is going to other places. You want to be able to foster that, you want to be able to show people in the community that you are here, and that you are supporting them, and that you are hiring local people. And the colleges can, conversely, start looking at industry specifically, and say, How do I go about doing this? You just create a dialogue. It works better (8:263–271).

Fourth, once people have hired a co-op student, their prime motivation for not hiring again is money—either nothing in the budget, or there is not enough work to justify the cost of hiring a co-op student. Past co-op employers, at least in the TCD program, are enthusiastic about the experience, even if the specific placement had its problems.

Thus, I propose a model that has three main components. First, there is both an individual and a corporate component to employers' motivations to participate in co-op programs. Second, the awareness of co-op that organizations and individuals have ranges from *unaware* (these people of course did not participate in our study), to *emerging* (individuals or corporations that have jobs that need doing) to *committed* (this is a good process and it is something our company and I should do). These two sets of components (Individual:Unaware/Emerging/Committed, Corporate:Unaware/Emerging/Committed), can be arranged to form a matrix. Third, for each cell in the matrix, the willingness of the individual and the corporation to participate in co-op programs can be described in terms of economics, recruitment, policy, productivity, and skills, as defined earlier. The model is summarized in Table 24.

Table 24:

A Model of Employers' Motivation to Participate in Co-op Programs

Employers		Individuals: Attitude to Hiring Co-op Students		
		Unaware	Emerging	Committed
Attitude to Hiring Co-op Student	Unaware	Individual has work to be done.	Individual has work to be done and looks for solutions.	Individual looks for work to be done by co-op students with appropriate skill sets.
		No budget.	Individual submits business case to hire co-op student. No budget.	Individual submits business case to hire co-op student. May be able to influence department budget.
		No company policy.	No company policy.	No company policy.
		No recruiting.	Individual sees potential for recruiting but focuses on short-term needs. Individual initiates and coordinates co-op hiring.	Individual initiates and coordinates co-op hiring. May wish to recruit but limited by corporate restrictions.
	Emerging	HR solicits departments for work to be done. HR does most of the work and coordinates the program.	Individual has work to be done. HR or individual initiates and coordinates co-op hiring.	Individual looks for work to be done. HR or individual initiates and coordinates co-op hiring.
		Individuals unaware of funding possibilities. Money available ad hoc.	Money available ad hoc. Individual aware of funding possibilities.	Budgets develop in individual departments. Money available ad hoc.
		Policies develop in some departments; individuals unaware of policies	Policies develop in some departments. Individuals may be aware of policies.	Policies develop in some departments. Individuals aware of policies.
		Co-op not viewed as a recruiting tool.	Occasionally, a co-op student may be hired full-time.	Co-op is used as a recruiting tool by an individual department.
	Committed	Individuals must be sought out to hire and supervise co-op students. HR process to be followed.	Individual departments still look for work to be done before they take co-op students. HR process to be followed.	Regular hiring of co-op students; committed to development of workers of the future. Meaningful work is found for co-op students. HR process to be followed.
		Funds are allocated for co-op students in budget process.	Funds are allocated for co-op students in budget process.	Funds are allocated for co-op students in budget process.
		Policies exist on corporate involvement in co-op programs.	Policies exist on corporate involvement in co-op programs.	Policies exist on corporate involvement in co-op programs.
		Co-op used for recruiting.	Co-op used for recruiting.	Co-op used for recruiting.

The model helps to explain the wide range of responses to many questions. Individuals who are the point of contact for co-op in organizations find out about co-op in various ways and, because they have work to do, will hire a co-op student for that one time. They are willing to continue hiring as long as they have work and can get the funding. A few, after some years' experience with co-op, will move to the Committed stage and each year will get projects organized so that co-op students can be hired. However, as long as the organization itself is in either Unaware or Emerging stage, each year the individual has to develop a business case, seek out the funds to hire, and go through the hiring process without any assistance from others in the company.

Organizations move from Unaware to Committed as increasing numbers of individuals within the organization begin to hire, and have success with, co-op students. Gradually, Human Resources may be involved and take over some of the administrative work. Only rarely, if an organization moves into the Committed phase, does the organization develop a permanent policy concerning hiring co-op students as part of their community outreach programs. At that time, the organization will also allocate funds for co-op positions as part of its annual budget process. Because the results of the current study show that large organizations are more likely to hire co-op students as a Community Service Opportunity, it is possible that only larger organizations have the resources to reach the fully committed stage.

A model such as this helps to explain why many questions had such a wide variety of responses, and sometimes polarized responses. People were responding from different positions along the awareness continuum. It helps to explain why some individuals were very devoted to hiring co-op students but were not aware of what the

company as a whole thought. It helps to explain why the Ballinger (1992) study, done in Cincinnati where co-op programs are well established, found that recruitment possibilities were the most important factor in influencing employers to participate in co-op programs. In Winnipeg, where co-op is still relatively new, companies view co-op programs from the short-term view of getting work done.

Recommendations for Further Research

Several directions for further research suggest themselves.

Test the model. Many questions can be investigated, including the relationship between size of the organization and level of commitment.

Study those who have never participated in co-op. Metzger's study (2002) included employers who had not hired co-op students. It can be used as a starting place.

Study the value of co-op as a winnowing tool for professional programs. Professional organizations without any certification processes may be willing to support co-op programs if they see that such programs help ensure high standards of professional practice.

*Study retention patterns for co-op students hired by their co-op employers***.** If the model works, then, as corporations mature in their approach to co-op, they will be using co-op increasingly as a recruitment tool. If co-op students who are hired by their co-op employers do become more loyal employees, programs can use this data for marketing their co-op programs.

Study the reasons why employers do not view community service as a reason to participate in co-op programs. The results of the current study show a small preference for government and large organizations to see participation in co-op as a Community

Service Opportunity. Should co-op opportunities be marketed differently to large organizations and to government, especially seeing that government, in Manitoba, cannot use co-op as a recruiting tool?

Study reasons why employers of TCD co-op students in Winnipeg overall do not rate it highly as a recruitment tool. The results from the current study were affected by the fact that, in Manitoba, government employers, who comprised approximately 30% of the participants, cannot use co-op as a recruitment tool. It is suggestive that, in the current study, medium-sized and for-profit companies ranked Human Resource Development as their most important category.

Study the difference in ranking statements as a benefit instead of a motive. If further research is done on the motives for participating in co-op programs, researchers must find a way to ensure that participants are answering from the correct perspective: what motivates them to hire, not what are the benefits of hiring.

Recommendations for Practice

Recommendations for the College as a Whole

Encourage and actively initiate good employer/college relationships. Clearly, employers have strong opinions about what students should be learning. Good communication should be encouraged with co-op employers in particular. It is likely more in the interest of the College to initiate these relationships. Many respondents observed that they had never thought about developing a relationship with the college until they were asked the question through this research, and they thought it was a good idea.

Encourage and promote participation in co-op programs as a way to donate to the college. Why is hiring for co-op not seen as part of the community service mandate of all employers? The college needs to make a bigger deal out of co-op employers overall, perhaps with an annual plaque for service, or an honours list displayed conspicuously in the College.

Support research initiatives as described in the previous section. "There has been a continuing need for more study of co-operative education. Research findings are needed to enable leaders in colleges and universities to make decisions about co-operative education based on sound evidence, rather than emotions and feelings" (Ballinger, 1992, 4-5). Co-op programs attract students, and they generate needed income for students. Although exact data are not available, approximately 1000 students from Red River College in 25 or so programs are involved with co-op each year, each earning an estimated $6000 to $8000 (students earn $10 to $16 hourly over a four-month term). Overall, the co-op program generates $6 000 000 to $8 000 000 annually into Winnipeg's economy.

Pool information on co-op employers. Information on which companies consistently hire co-op students should be made available to all co-op coordinators.

Provide training session for HR departments. One point of contact for co-op employment is HR departments, who may or may not be aware of all the programs at the college offering co-op terms. In addition, they may not understand the value of co-op overall in the development of professional skills. They may need to be informed about the purpose of co-op.

Place occasional—perhaps quarterly—full-page ads in the Winnipeg Free Press *listing programs, skills sets, and other key information for employers.*

Recommendations for the TCD program

Respond to employers about their end-of-term evaluations. Employers may not see evaluation forms as an opportunity to offer feedback to the program, or they do not want to take the time to fill them out completely, so instructors should be following up. Human beings like to be rewarded, so reward the employers for their feedback.

Promote the productivity and skills of TCD co-op students in communication with potential employers. Skills particularly valued were the ability to ask questions, to do research, to use software effectively, to analyze information, to structure information and documents, and to manage the process of writing.

Provide an award for co-op employers. Even if the College as a whole does not wish to have a recognition program, the TCD program itself can institute one.

Promote the skills of TCD students. Overall, respondents agreed that students' skills applied directly to the work they were doing for their co-op employers.

Investigate the STEP program and how it works. Money is available through STEP for government departments to hire co-op students, but individuals need to apply. Many individuals who might have work for co-op students are likely unaware of the process.

In promotional materials, diversify the approach. To reflect the different levels of commitment and awareness of individuals and employers involved in co-op, ensure that promotional materials focus on the skills and productivity of TCD students, and on recruitment aspects.

Concluding Remarks

The objectives of this research were to identify the perceived factors that influence employers to participate in co-operative education programs for technical communication and that cause or would cause employers to cease their participation in co-operative education programs in technical communication.

University and college Web sites frequently include reasons to hire co-op students, and include items like the following: Co-op students are an ideal source of workers to fill temporary human resource needs during staff leaves or for short-term projects; employing co-op students can reduce future recruiting costs—co-op employment aids in the vetting of students for future hiring of motivated and skilled employees; co-op students can help create a bridge between the employer and the student's academic institution, and employers can provide valuable feedback about course curricula and content (Canadian Association for Co-operative Education, n.d.). The current study found that the list of reasons to hire co-op students commonly listed on college and university Web sites are not substantiated, at least in the hiring of co-op students from the Technical Communication Diploma program from Red River College in Winnipeg.

The current study shows that identifying the factors is complicated, and there is no clear agreement among the few studies that have been conducted as to what key factors are. A Model of Employers' Motivation to Participate in Co-op Programs is proposed. The model suggests that there is a continuum of factors, and that the state of awareness of the organization as a whole and of individual employees within that organization affects which factors motivate a specific employer.

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Appendix A: Courses in the Technical Communication Diploma Program

T13W100 WHMIS Workshop

Students are introduced to the three primary components of the WHMIS program (Labeling System, Material Safety Data Sheets, and Training of Workers). Specific information about health hazards, chemical handling, chemical fires, and explosives is covered.

T13W103 General Safety Training

Students are given the core information necessary for them to protect themselves in workplaces.

TECH104 Introduction to Technical Communication Forms

Students write basic business correspondence and technical reports in letter, memo, and email formats. They examine the use of email as a communication medium. Documents are submitted for peer reviews.

TECH105 Writing and Editing 1

In this introductory course on writing and editing, students learn to write clearly, concisely, and correctly, applying rules of grammar. Students study rules of grammar and discuss why it is important to write grammatically. Students are introduced to proofreading and editing marks.

TECH106 Tools of Technical Communication 1

Students learn the basics of communication technologies, word-processing, and spreadsheets. They learn to: describe how computers work, including networks, hardware, software, operating systems, and platforms; manage documents and folders; use word-processing functions required to create easy-to-maintain documents, such as automatic numbering, headers, footers, and styles; use basic spreadsheet operations including the creation of charts and tables; and create PDF files from Excel and Word.

TECH107 Survey of Technical and Scientific Areas

Students get an overview of industries that employ technical communicators, such as engineering, computer science, environmental industry, and manufacturing. They learn to describe the services and products of industries, the key types of jobs in each industry, and the services and products of businesses within industries. They discuss key trends in the industries and business and industry issues as they apply to technical communication.

TECH108 Understanding Your Audience

Students study how adults read and learn information, both electronically and on paper.

TECH109 Presentation Skills

Students learn how to prepare and deliver effective presentations through application of rhetorical principles. They create presentations they deliver themselves, and they learn to create presentations that others deliver. They also learn to use presentation software.

TECH110 Critical Thinking and Problem-Solving

Critical thinking is a disciplined approach to analyzing and synthesizing information to help students determine their own beliefs and values. In this course students learn to examine purposes of documents and assumptions made by writers and use these skills to solve problems and create logical arguments. Emphasis is placed on class discussion.

TECH201 Tools of Technical Communication 2

Students learn to create documents using desktop publishing and graphics software. They are introduced to HTML and structured authoring.

TECH202 Document Layout and Design

Students learn the principles of designing and developing effective pages and screens. They learn the best practices and standards in technical communication to structure information for easy access by readers.

TECH203 Writing Manuals

Students learn to write manuals following a standard document development process. They develop a manual for a client, learning to analyze their audience, analyze tasks, interview subject matter experts, create outlines, tables of contents, indexes and glossaries, and write in drafts.

TECH204 Organizational Behaviour

Students learn about how people behave in organizations. They study organizational issues such as motivation, career processes, organizational change, organizational structure and climate, and leadership and power. They also study issues that affect them more personally, such as negotiating for resources, listening actively, questioning effectively, managing conflict, and participating in meetings.

TECH205 Research and Interviewing Skills

Being able to conduct research, especially online and through interviews, is a vital skill for technical communicators. In this course, students learn to conduct research in libraries, on the Internet, through listservs and other professional networks, and by interviewing experts.

TECH206 Newsletter Production

Students development newsletters in teams for clients. They learn to follow an existing template, create new layouts, and research, write, and edit articles.

TECH207 Electronics for Technical Communicators

Students are introduced to the electronics industry. They learn the principles of electricity, DC and AC circuits, and solid state electronics. They learn how the electronics industry is organized, what the basic products of the industry are, and the state of the industry in Manitoba.

TECH208 Manufacturing Processes for Technical Communicator

Students are introduced to the manufacturing industry. They learn about key industry sectors such as tool and die, aerospace, and machining, what the basic products of the industry are, and the state of the industry in Manitoba.

TECH300 Co-op

During the co-operative work education term, students complete 14 weeks of paid work in a technical writing work placement.

TECH400 Writing and Editing 2

Students learn about the role of the editor, choosing a level of edit, and editing the documents of others.

TECH401 Tools of Technical Communication 3

Students learn to create online help, to create effective interfaces, hyperlinks, indexes, and browse sequences.

TECH402 Introduction to Instructional Design

Students plan and deliver a short training program by following the steps of instructional design: define skills, knowledge and abilities required; develop course objectives; develop course content.

TECH403 Project Management for Documentation Projects

Students learn to conduct a needs analysis, conduct audience analysis, define the scope of a project, develop estimates, negotiate for resources, create a schedule, and keep to a schedule. They conduct walkthroughs and usability tests, and produce the final document on paper, online, on the Internet, or in some other medium.

TECH404 Proposals and Persuasive Writing

Students learn to describe and apply the principles of rhetoric—invention, arrangement, expression, and delivery—to develop persuasive documents. They learn about the proposal process—how requests for proposal (RFPs) are developed and responded to.

TECH405 Strategic Planning

Students learn to undertake strategic planning. They learn to identify the current situation, identify the desired future situation, and create a plan to close the gap.

TECH406 Applied Research Methods

In this course, students study basic kinds of quantitative and qualitative research methods and basic statistical tests. This is a consumer course, helping students to understand research methods in the context of the kind of research and reading they might have to do as technical communicators.

TECH407 Journal Production 1

Students participate in the development of a journal of applied research at Red River College.

TECH500 Tools of Technical Communication 4

Students learn to create documents for use on the Internet. They develop their own Web site and a Web site for a client.

TECH501 Biosciences for Technical Communicators

Students study industries such as the healthcare industry, environmental industries, biotechnology, agricultural research, and government laboratories. They learn what the basic products of the industry are, key issues facing the industry, and the state of the industry in Manitoba.

TECH502 Software Development for Technical Communicators

Students receive an overview of computer software used in the industry. They learn what software is used in which applications. They learn about systems analysis and design, file structures, database management systems, and networking.

TECH503 Developing Business Skills

Technical communicators need to understand the operation of the business they work in. This course looks at forms and organization of businesses. Students examine the skills required to start their own technical writing business. Students also undertake a job search by identifying businesses that employ technical communicators, determining ways to approach employers, writing effective resumes and covering letters, and participating in an interview process.

TECH504 Current Issues in Technical Communication

Students explore current issues in technical communication, such as ethical behaviour, single-source documentation, and knowledge management, by examining professional journals and other current writings. This course is run in seminar format.

TECH505 Journal Production 2

Students develop a journal of applied research at Red River College.

TECH506 Independent Project

Students develop a major research project related to a technical communication topic of personal interest.

(adapted from Red River College, 2004)

Appendix B: Recruitment Letter to Potential Respondents

The text of the recruitment letter follows. The letter was printed on Faculty of Education letterhead.

Dear

Because your organization has hired co-operative education students from the Technical Communication Diploma program in recent years, I am requesting your participation in a research study I am doing concerning co-op employers as part of a master's thesis I am completing at the University of Manitoba.

I am requesting approximately one hour of your time for an interview consisting of a series of questions about reasons employers hire co-operative education students, specifically in technical communication. The interview will take place at a time that is convenient to you at your workplace, unless you wish to select another interview site.

I look forward to hearing from you in the next two weeks. Please call me at 949-8455 or email me at acampbell@rrc.mb.ca for more information or to arrange an interview time.

Sincerely

Alexa Campbell

Appendix C: Relationship among Categories, Factors, and Questions

The following table shows the relationship among categories, factors and questions as used in the Ballinger study on which this current study was based (Ballinger, 1992).

Category 1: Workplace enhancement	
Factor 1: Students from the Technical Communication Diploma (TCD) program are good employees with positive attitudes.	
Q13	Employers have jobs that need to be done and they find co-operative students from the TCD program able and enthusiastic workers who are eager to learn.
Q18	Students in the TCD co-operative education program are positively inclined toward the work because of its relationships to their educational objectives and career interests as technical writers.
Factor 7. Students bring new ideas and technology to the work site.	
Q5	TCD co-operative education students bring up-to-date ideas and technology to the work site.
Q21	The infusion of students from the TCD program can provide an organization with many new ideas and fresh viewpoints.
Factor 9. TCD students improve the morale of the workplace.	
Q4	TCD co-op students generally improve the morale of the permanent employees of the work site.
Q6	TCD co-op students are a positive influence on permanent employees.

Category 2: Employer/College Relations	
Factor 4: The relationship between the employer and Red River College are improved.	
Q14	Co-operative education helps to develop a strong relationship between Red River College and the employer.
Q23	Employing co-operative education students allows for increasing communication with Red River College.
Factor 5. The relationship between the employer and Red River College enables the employer to influence the TCD curriculum.	
Q8	Hiring co-operative education students enables organizations to influence and mold the TCD curriculum to meet their specific needs.
Q17	The employer, as a partner in the co-operative education endeavour, can offer advice and suggestions for important changes or needed innovations in the college curriculum through contacts with instructor-coordinators.
Category 3. Affirmative action goals	
Factor 6. Increases chances for hiring women and minorities.	
Q12	Hiring TCD co-operative students allows employers to introduce women and other minorities into jobs not usually undertaken by them.
Q24	Co-operative education increases access to qualified minorities during the recruitment, selection, and hiring process.
Category 4. Economic benefits	
Factor 2: Students are good employees who are productive.	
Q3	TCD co-operative education students are productive employees.

Q22	TCD co-operative education students provide needed staff assistance on ongoing or special projects.
Factor 3: Students from the TCD program are an excellent source of temporary workers.	
Q15	TCD co-operative education students are capable of efficiently and effectively meeting some of a company's short-term documentation needs.
Q19	The TCD co-op program provides a highly motivated source of temporary or seasonal part-time employees.
Factor 8. Students cost less to hire than regular employees.	
Q1	TCD co-operative education students can adequately perform a job at a wage rate lower than that of a regular employee.
Q2	TCD co-operative education students are more economical to retain than regular employees because they do not receive full fringe benefit packages.
Factor 12. Hiring students allows permanent employees to be more productive.	
Q7	TCD co-op students enable other permanent employees to be more productive.
Q10	Hiring TCD co-op students enables more highly trained and skilled employees to be released from basic and elementary tasks.
Factor 14. When students become new employees they are more productive and less costly to orient and train than new employees with no prior company experience.	
Q32	Employers find that recruitment of permanent staff from their co-operative education students assures them of employees who are experienced in the company and have already established a record of constructive work.
Q34	When TCD co-op students become permanent employees, they are almost immediately productive, thus reducing training and orientation costs.

Factor 17. TCD co-operative education students who become full-time employees have less turnover than other permanent employees who were not.

Q30 When a student progresses through a TCD co-operative education program and becomes a full-time employee, the student is less likely to leave the job than the employee who has not had the co-operative education experience.

Q31 Studies of employment records consistently show that employees who worked for an employer as co-operative education students typically remain longer and are better employees than those who had no previous connection with the company.

Category 5. Community Service Opportunities

Factor 11. Co-operative education enables employers to provide a community service.

Q9 Organizations hire TCD co-op students out of an obligation to the technical writing community and as a service.

Q20 The employer, by participation in the TCD co-op program, assists in the development of the community's youth. The employer achieves good will for actions and contributions in a socially responsible way to the community.

Category 6. Human Resource Development

Factor 10. TCD students have some training and/or interest in the type of work to be performed.

Q11 TCD co-op students are enrolled in college studies directly related to their work assignment.

Q16 The TCD co-op program provides students who already have some related occupational experience and who may eventually become permanent employees.

Factor 13. Employers are able to recruit the most desirable students as permanent employees.	
Q28	The TCD co-op program allows the employer the possibility of attracting highly qualified students.
Q29	The TCD co-op program provides the company with a nucleus of graduates who are well qualified and highly motivated to assume positions of responsibility and leadership.
Factor 15. Co-operative education is an efficient way to recruit permanent employees.	
Q26	TCD co-op students are less costly to recruit as full-time employees than other permanent full-time employees.
Q33	Employers find the TCD co-op program a very effective recruiting device, as compared to the traditional methods used in collegiate recruiting efforts.
Factor 16. Co-operative education provides employers a reservoir of students from which permanent personnel can be hired.	
Q25	TCD co-op students provide a pool from which full-time employees can be hired.
Q27	Co-op education is a useful device for the recruitment of permanent personnel.

Adapted from Ballinger (1992)

Appendix D: Structured Questions Given to Participants

This series of structured questions was emailed to participants before the interview. In addition, copies were made available at the interview.

Part II:

To determine why employers hire technical communication co-operative education students

	Extremely important	Very important	Somewhat important	Not important
18. TCD co-op students can adequately perform a job at a wage rate lower than that of a regular employee.	❑	❑	❑	❑
19. TCD co-op students generally are productive employees.	❑	❑	❑	❑
20. TCD co-op students generally improve the morale of the permanent employees of the work site.	❑	❑	❑	❑
21. TCD co-op students bring up-to-date ideas and technology to the work site.	❑	❑	❑	❑
22. TCD co-op students enable other permanent employees to be more productive.	❑	❑	❑	❑
23. Hiring TCD co-op students enables your organization to influence and mould the curriculum of the Technical Communication Program to meet your specific needs.	❑	❑	❑	❑
24. Your organization hires TCD co-op students out of a sense of obligation to the community and as a service.	❑	❑	❑	❑
25. TCD co-op students are enrolled in college studies directly related to the work they do at our company.	❑	❑	❑	❑
26. Your organization has jobs that need to be done and you find co-operative students able and enthusiastic workers who are eager to learn.	❑	❑	❑	❑
27. TCD co-op students are capable of efficiently and effectively meeting some of a company's short-term documentation needs.	❑	❑	❑	❑
28. Employing TCD co-op students allows for increasing communication with Red River College.	❑	❑	❑	❑
29. TCD co-op increases access to qualified minorities during the recruitment, selection and hiring process.	❑	❑	❑	❑
30. TCD co-op students provide a pool from which full-time employees can be hired.	❑	❑	❑	❑

Part II:

To determine why employers hire technical communication co-operative education students

	Extremely important	Very important	Somewhat important	Not important
31. TCD co-op students are less costly to recruit as full-time employees than other permanent full-time employees.	❑	❑	❑	❑
32. TCD co-op allows the employer the possibility of attracting highly qualified students.	❑	❑	❑	❑
33. When a student progresses through a TCD co-op program and becomes a full-time employee, the student is less likely to leave the job than the employee who has not had the TCD co-op experience.	❑	❑	❑	❑
34. When TCD co-op students become permanent employees, they are almost immediately productive, thus reducing training and orientation costs.	❑	❑	❑	❑

Part III:

To determine why employers who once hired co-operative education students have discontinued or would discontinue hiring

	Extremely important	**Very important**	**Somewhat important**	**Not important**
9. There were no longer funds available to hire TCD co-op students.	❑	❑	❑	❑
10. The work involved in hiring students was too great.	❑	❑	❑	❑
11. The students were not able to do the job.	❑	❑	❑	❑
12. The work involved in continually reorienting and training new students to the job was not worth the return.	❑	❑	❑	❑
13. Positions budgeted for TCD co-op were filled by permanent employees.	❑	❑	❑	❑
14. The corporate policy authorizing co-operative education was changed.	❑	❑	❑	❑
15. The students never became permanent employees.	❑	❑	❑	❑
16. The student quit.	❑	❑	❑	❑

Appendix E: Semi-Structured Interview Schedule

Name of person interviewed _____
Company _____
Position _____
Date and time _____

Hello. My name is Alexa Campbell and I am a graduate student at the University of Manitoba. As one of the requirements for my degree, I am interviewing representatives of employers who hire co-op students from the Technical Communication Diploma program at Red River College.

Thank you for agreeing to participate in this interview. As you are aware, you are free to withdraw from this study at any time. These results will be kept confidential and will be used only for the purposes of writing my dissertation to fulfill the requirements for my master's degree or of writing any publications that may result from this research. Neither your name nor your company's name will be used in any such publications and all names will be kept confidential. Do you approve of both of these uses?

Do you have any objections to my taping the interview? *(Turn on the tape here.)*

Now the tape is on, I would appreciate it if you would confirm your willingness to participate in this research and your understanding that the results will be used only for completing my dissertation and for any publication that may result from this research.

The Interview has three parts. The first part provides me with some background on your company and your involvement in Co-op programs. The second part looks at reasons why employers hire co-op students. The third part looks at reasons why employers discontinue hiring co-op students.

To begin, then, I would like to ask you a few questions about your company.

Part I: Background information on employers

1. Which response best describes your position with respect to co-operative education students.
   ___I supervise technical communication co-operative education students.
   ___I supervise other co-operative education students.
   ___I coordinate the co-operative education program within my company.
   ___I am both a coordinator of the program and a direct supervisor of co-operative education students.
   ___Other _____

2. How many other programs at Red River College, besides technical communication, provide co-operative education students that you coordinate or supervise?
   Number of programs ____
   Other ____

3. How many other colleges or universities, besides Red River College, provide co-operative education students that you coordinate or supervise?

Number of schools ____
Other ____

4. How many years have you personally been involved with co-operative education students as either an employer or supervisor?
   Number of years for co-op in general____
   Number of years for TCD co-op ____
   Other ____

5. How long has your organization been employing co-operative education students?
   Number of years for co-op in general____
   Number of years for TCD co-op ____
   Other ____

6. How many co-operative education students do you usually supervise at any given time?
   Number of students in all programs____
   Number of TCD students ____
   Other ____

7. How many employees does your company have
   in Winnipeg _____
   nationally _____
   internationally _____

8. What is the major product your organization sells? _____

9. Is your organization
   __ Government __ Not for profit __ For profit

10. Finally, please take a minute to describe how your company makes the decision to first recruit and then hire a co-operative education student in technical communication?

    Who are involved in the decision and then the placement and supervision of the co-op student?

Part II: Factors that influence hiring of co-op students

I am about to go through with you a list of 17 statements to consider as reasons employers participate in co-operative education programs by hiring students. Please listen as I read each statement and then tell me which response you feel best describes why YOUR ORGANIZATION hires co-operative education students.

Please indicate if the statement is

- Extremely important in determining why employers hire co-op students
- Very important
- Somewhat important, or

- Not important.

You will have an opportunity at the end of each question to offer other suggestions or to comment on the question.

Part II:

To determine why employers hire technical communication co-operative education students

	Extremely important	Very important	Somewhat important	Not important
1. TCD co-op students can adequately perform a job at a wage rate lower than that of a regular employee.	❑	❑	❑	❑

Supplementary questions:

Describe how you go about determining the wage rate for co-op students.

2. TCD co-op students generally are productive employees.	❑	❑	❑	❑

Supplementary questions:
What are your expectations for the productivity of students?

How do you determine productivity?

Are you more likely to hire co-op students when regular staff are overworked?

3. TCD co-op students generally improve the morale of the permanent employees of the work site.	❑	❑	❑	❑

Supplementary questions:

In what ways is morale improved?

Are there any cases where permanent employees are resentful of the co-op students?

4. TCD co-op students bring up-to-date ideas and technology to the work site.	❑	❑	❑	❑

Supplementary questions:

What new ideas did the students bring?

How accepting is your workplace of their new ideas?

5. TCD co-op students enable other permanent employees to be more productive.	❑	❑	❑	❑

Part II:

To determine why employers hire technical communication co-operative education students

	Extremely important	Very important	Somewhat important	Not important
Supplementary questions: What did the students do to help others be more productive? How do you determine what projects co-op students work on?				
6. Hiring TCD co-op students enables your organization to influence and mould the curriculum of the Technical Communication Program to meet your specific needs.	❑	❑	❑	❑
Supplementary questions: Do you feel that the TCD program adjusts or would adjust to meet your needs? In what ways could it do better? What suggestions do you have for improvement? Are you aware of the existence and membership of the TCD Advisory Committee?				
7. Your organization hires TCD co-op students out of a sense of obligation to the community and as a service.	❑	❑	❑	❑
Supplementary questions: What is your company's policy on contributing to the community? Would you feel personally this was an important reason for you even if your company did not approve? What benefits to the community do you see result from companies' participation in co-op programs? For example, do you think students learn more about their community? Are more likely to stay in Winnipeg?				
8. TCD co-op students are enrolled in college studies directly related to the work they do at our company.	❑	❑	❑	❑
Supplementary questions: What aspect of their studies has been most relevant to their job at your company?				
9. Your organization has jobs that need to be done and you find co-operative students able and enthusiastic workers who are eager to learn.	❑	❑	❑	❑

Part II:

To determine why employers hire technical communication co-operative education students

	Extremely important	Very important	Somewhat important	Not important

Supplementary question:

Do you feel that part of your job as a co-op employer is to help students learn?

Is it difficult to find time to spend with students to help them?

Did you feel that students developed a stronger identity with technical communication as a result of their experience in your workplace?

How do co-op students work in comparison to non-co-op summer students?

10. TCD co-op students are capable of efficiently and effectively meeting some of a company's short-term documentation needs. ❑ ❑ ❑ ❑

Supplementary question:

Are co-op students considered temporary employees? Summer employees? Or are they in a special category in your company?

Does your company generally hire other summer students?

How do you determine what projects students should work on?

What types of projects do they typically do?

11. Employing TCD co-op students allows for increasing communication with Red River College. ❑ ❑ ❑ ❑

Supplementary question:

What is your company's relationship with RRC?

What should it be? How could it be better?

12. TCD co-op increases access to qualified minorities during the recruitment, selection and hiring process. ❑ ❑ ❑ ❑

Supplementary questions:

Does your company have a policy on hiring minorities? Can you talk a bit more about this?

13. TCD co-op students provide a pool from which full-time employees can be hired. ❑ ❑ ❑ ❑

Part II:

To determine why employers hire technical communication co-operative education students

	Extremely important	Very important	Somewhat important	Not important

Supplementary questions:

Would you rather hire someone who has been in a co-op program or someone who has not?

Describe how you use co-op as a recruitment tool.

14. TCD co-op students are less costly to recruit as full-time employees than other permanent full-time employees. ❑ ❑ ❑ ❑

Supplementary questions:

What methods does your company use to recruit from colleges/

In what ways do costs of recruiting co-op students differ from the costs of other recruiting methods?

15. TCD co-op allows the employer the possibility of attracting highly qualified students. ❑ ❑ ❑ ❑

Supplementary questions:

What do you look for in terms of qualifications among co-op students?

Are co-op students better prepared for full-time work upon graduation than students who have not experienced co-op? In what ways?

16. When a student progresses through a TCD co-op program and becomes a full-time employee, the student is less likely to leave the job than the employee who has not had the TCD co-op experience. ❑ ❑ ❑ ❑

Supplementary questions:

Do former co-op students have a hire or lower turnover rate than other employees?

What do you think causes this difference in retention pattern?

17. When TCD co-op students become permanent employees, they are almost immediately productive, thus reducing training and orientation costs. ❑ ❑ ❑ ❑

Part II:

To determine why employers hire technical communication co-operative education students

	Extremely important	Very important	Somewhat important	Not important
Supplementary question: What is the normal time it takes for employees to become productive? What is the difference in time for co-op students?				

Part III: Factors that influence employers to discontinue hiring co-op students

Now we move to the third part of this Interview. I will read you a series of eight statements that MIGHT influence your organization to discontinue participating in co-operative education programs. Please listen to each statement and tell me whether you think the statement is

- Extremely important
- Very important
- Somewhat important, or
- Not important.

As before, you will be given an opportunity to offer other suggestions.

Part III:

To determine why employers who once hired co-operative education students have discontinued or would discontinue doing so

	Extremely important	**Very important**	**Somewhat important**	**Not important**
1. There were no longer funds available to hire TCD co-op students. Supplementary question: Would you have continued hiring if funds were available? Would you have hired if someone were available at no cost to your organization?	❑	❑	❑	❑
2. The work involved in hiring students was too great.	❑	❑	❑	❑

Part III:

To determine why employers who once hired co-operative education students have discontinued or would discontinue doing so

	Extremely important	Very important	Somewhat important	Not important

Supplementary question:
Is there anything the College can do to simplify the process for your organization?

3. The students were not able to do the job. ❑ ❑ ❑ ❑

Supplementary question:
How were they not able to do the job?
What should the TCD program do to improve the student's ability?
Is there something your organization should have done to make their training and orientation of co-op students more effective?

4. The work involved in continually reorienting and training new students to the job was not worth the return. ❑ ❑ ❑ ❑

Supplementary question:
What extra burden does orienting and training co-op students place on your organization?

5. Positions budgeted for TCD co-op were filled by permanent employees. ❑ ❑ ❑ ❑

Supplementary question:
How does the budgeting process work for co-op students? In many companies, there is a separate budget for co-op and that money is not available for hiring permanent staff.

6. The corporate policy authorizing co-operative education was changed. ❑ ❑ ❑ ❑

Supplementary question:
How did it change?

7. The students never became permanent employees. ❑ ❑ ❑ ❑

Supplementary question:
Was it an expectation that students would become permanent employees?

How many of your co-op students have become permanent employees?

8. The student quit. ❑ ❑ ❑ ❑

Part III:

To determine why employers who once hired co-operative education students have discontinued or would discontinue doing so

	Extremely important	Very important	Somewhat important	Not important

Supplementary question:
What were the reasons the student quit?

Is there anything else you'd like to add about the subject of this Interview?

I will be sending you a copy of the results, both the results of the answers to the structured questions and the analysis of the open-ended questions. When I am finished my thesis, I will inform you and will let you know how you can obtain a copy, if you wish.

Thank you for participating in this survey.

Appendix F. Summary of Responses to Structured Questions

Part II	Responses				Descriptive Statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Q1	0	4	11	6	1.91	15	2	2	0.70
Q2	8	9	4	0	3.19	4	3	3	0.75
Q3	2	6	7	6	2.19	11	2	2	0.98
Q4*	2	8	8	2	2.50	8	3	2.5	0.83
Q5	6	10	4	1	3.00	5	3	3	0.84
Q6	0	2	8	11	1.57	17	1	1	0.68
Q7	1	9	8	3	2.38	9	3	2	0.81
Q8	7	12	2	0	3.24	3	3	3	0.63
Q9	8	11	2	0	3.29	1	3	3	0.64
Q10	11	6	3	1	3.29	1	4	4	0.90
Q11	1	5	9	6	2.05	13	2	2	0.87
Q12	1	4	4	2	1.71	16	1	1	0.96
Q13	1	10	6	4	2.38	9	3	3	0.87
Q14	2	5	5	9	2.00	14	1	2	1.05
Q15	4	12	3	2	2.86	6	3	3	0.85
Q16	2	5	7	7	2.10	12	2	2	1.00
Q17	4	9	5	3	2.67	7	3	3	0.97
Part III									
Q1	11	3	2	5	2.95	1	4	4	1.28
Q2	0	2	6	13	1.48	7	1	1	0.68
Q3	3	6	6	6	2.29	2	3	2	1.06
Q4	1	6	3	11	1.86	4	1	1	1.01
Q5	4	3	2	12	1.95	3	1	1	1.24
Q6	3	1	4	13	1.71	5	1	1	1.10
Q7	0	0	4	17	1.19	8	1	1	0.40
Q8	1	4	4	12	1.71	5	1	1	0.96

*Totals add up to 20; one response was not recorded for this question.

Appendix G: Analysis of Responses to Structured Questions, by Employer Size

Workplace Enhancement

Q3 TCD co-op students generally improve the morale of the permanent employees of the work site.

Q4 TCD co-operative education students bring up-to-date ideas and technology to the work site.

Q9 Employers have jobs that need to be done and they find co-operative students from the TCD program able and enthusiastic workers who are eager to learn.

	Responses				Descriptive Statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Overall (N=21)									
Q9	8	11	2	0	3.29	1	3	3	0.64
Q4*	2	8	8	2	2.50	8	3	2.5	0.83
Q3	2	6	7	6	2.19	11	2	2	0.98
Category					2.66	2	3	3	2.66
Large companies (N=13)									
Q9	4	7	2	0	3.15		3	3	0.69
Q4*	1	5	4	2	2.41		3	2.5	0.90
Q3	0	5	3	5	2.00		3	2	0.91
Category					2.53		3	3	0.95
Medium companies (N=3)									
Q9	2	1	0	0	3.67		4	4	0.58
Q4	1	0	2	0	2.67		2	2	1.15
Q3	0	1	1	1	2.00		n/a	2	1.00
Category					2.78		4	3	1.09
Small companies (N=5)									
Q9	2	3	0	0	3.40		3	3	0.55
Q3	2	0	3	0	2.80		2	2	1.10
Q4	0	3	2	0	2.60		3	3	0.55
Category					2.93		3	3	0.80

*One response was not recorded for this question.

Employee/College Relations

Q6 Hiring co-operative education students enables organizations to influence and mould the TCD curriculum to meet their specific needs.

Q11 Employing co-operative education students allows for increasing communication with Red River College.

	Responses				Descriptive statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Overall (N=21)									
Q11	1	5	9	6	2.05	13	2	2	0.87
Q6	0	2	8	11	1.57	17	1	1	0.68
Category					1.81	5	2	2	1.02
Large (N=13)									
Q11	1	3	6	3	2.15		2	2	0.90
Q6	0	2	4	7	1.62		1	1	0.77
Category					1.88		1	2	0.86
Medium (N=3)									
Q11	0	0	2	1	1.67		2	2	0.58
Q6	0	0	1	2	1.33		1	1	0.58
Category					1.50		1	1.5	0.55
Small (N=5)									
Q11	0	2	1	2	2.00		1	2	1.00
Q6	0	0	3	2	1.60		2	2	0.55
Category					1.80		1	2	0.79

Affirmative Action Goals

Q12 Co-operative education increases access to qualified minorities during the recruitment, selection and hiring process.

	Responses				Descriptive statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Overall (N=21)									
Q12	1	4	4	2	1.71	16	1	1	0.96
Category 3					1.71	6	1	1	0.96
Large (N=13)									
Q12	0	2	3	8	1.54		1	1	0.78
Category 3					1.54		1	1	0.78
Medium (N=3)									
Q12	0	1	1	1	2.00		n/a	2	1
Category 3					2.00		n/a	2	1
Small (N=5)									
Q12	1	1	0	3	2.00		1	1	1.41
Category 3					2.00		1	1	1.41

Economic Benefits

Q1 TCD co-operative education students can adequately perform a job at a wage rate lower than that of a regular employee.

Q2 TCD co-operative education students are productive employees.

Q5 TCD co-op students enable other permanent employees to be more productive.

Q10 TCD co-operative education students are capable of efficiently and effectively meeting some of a company's short-term documentation needs.

Q16 When a student progresses through a TCD co-operative education program and becomes a full-time employee, the student is less likely to leave the job than the employee who has not had the co-operative education experience.

Q17 When TCD co-op students become permanent employees, they are almost immediately productive, thus reducing training and orientation costs.

	Responses				Descriptive statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Overall (N=21)									
Q10	11	6	3	1	3.29	1	4	4	0.90
Q2	8	9	4	0	3.19	4	3	3	0.75
Q5	6	10	4	1	3.00	5	3	3	0.84
Q17	4	9	5	3	2.67	7	3	3	0.97
Q16	2	5	7	7	2.10	12	2	2	1.00
Q1	0	4	11	6	1.91	15	2	2	0.70
Category					2.69	1	3	3	1.00
Large (N=13)									
Q10	5	4	3	1	3.00		4	3	1.00
Q2	2	7	4	0	2.85		3	3	0.69
Q5	1	8	3	1	2.69		3	3	0.75
Q17	1	7	3	2	2.54		3	3	0.88
Q16	0	2	6	5	1.77		2	2	0.73
Q1	0	1	7	5	1.69		2	2	0.63
Category					2.42		3	2	0.92
Medium (N=3)									
Q2	3	0	0	0	4.00		4	4	0.00
Q5	2	1	0	0	3.67		4	4	0.58
Q10	1	2	0	0	3.33		3	3	0.58
Q1	0	1	2	0	2.33		2	2	0.58
Q17	0	1	2	0	2.33		2	2	0.58
Q16	0	1	1	1	2.00		n/a	2	1.00
Category					2.94		4	3	0.94

Economic Benefits

Small (N=5)								
Q10	5	0	0	0	4.00		4	4	0.00
Q2	3	2	0	0	3.60		4	4	0.55
Q5	3	1	1	0	3.40		4	4	0.89
Q17	3	1	0	1	3.20		4	4	1.30
Q16	2	2	0	1	3.00		4	3	1.22
Q1	0	2	2	1	2.20		3	2	0.84
Category					3.23		4	4	1.01

Community Service Opportunities

Q7 Organizations hire TCD co-op students out of an obligation to the technical writing community and as a service.

Overall (N=21)									
	Responses				Descriptive statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Q7	1	9	8	3	2.38	9	3	2	0.81
Category 5					2.38	4	3	2	0.81
Large (N=13)									
Q7	1	6	6	0	2.62		2	3	0.65
Category 5					2.62		2	3	0.65
Medium (N=3)									
Q7	0	1	1	1	2.00		n/a	2	1.00
Category 5					2.00		n/a	2	1.00
Small (N=5)									
Q7	0	2	1	2	2.00		1	2	1.00
Category 5					2.00		1	2	1.00

Human Resource Development

Q8 TCD co-op students are enrolled in college studies directly related to their work assignment.

Q13 TCD co-op students provide a pool from which full-time employees can be hired.

Q14 TCD co-op students are less costly to recruit as full-time employees than other permanent full-time employees.

Q15 The TCD co-op program allows the employer the possibility of attracting highly qualified students.

	Responses				Descriptive statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Overall (N=21)									
Q8	7	12	2	0	3.24	3	3	3	0.63
Q15	4	12	3	2	2.86	6	3	3	0.85
Q13	1	10	6	4	2.38	9	3	3	0.87
Q14	2	5	5	9	2.00	14	1	2	1.05
Category					2.62	3	3	3	0.97
Large (N=13)									
Q8	1	10	2	0	2.92		3	3	0.49
Q15	1	8	3	1	2.69		3	3	0.75
Q13	1	5	5	2	2.38		2	2	0.87
Q14	0	1	4	8	1.46		1	1	0.66
Category					2.37		3	3	0.89
Medium (N=3)									
Q8	3	0	0	0	4.00		4	4	0.00
Q14	1	2	0	0	3.33		3	3	0.58
Q15	1	2	0	0	3.33		3	3	0.58
Q13	0	3	0	0	3.00		3	3	0.00
Category					3.42		3	3	0.51
Small (N=5)									
Q8	3	2	0	0	3.60		4	4	0.55
Q15	2	2	0	1	3.00		4	3	1.22
Q14	1	2	1	1	2.60		3	3	1.14
Q13	0	2	1	2	2.00		1	2	1.00
Category					2.80		3	3	1.11

Order of Categories, by Mean, for Companies by Size

	Mean	Rank	Mode	Median	S.D.
Order of Categories, by Mean, for Large Organizations					
Community Service Opportunities	2.62	1	2	3	0.65
Workplace Enhancements	2.53	2	3	3	0.95
Economic Benefits	2.42	3	3	2	0.92
Human Resource Development	2.37	4	3	3	0.89
Employer/College Relations	1.88	5	1	2	0.86
Affirmative Action	1.54	6	1	1	0.78
Order of Categories, by Mean, for Medium Organizations					
Human Resource Development	3.42	1	3	3	0.51
Economic Benefits	2.94	2	4	3	0.94
Workplace Enhancements	2.78	3	4	3	1.09
Affirmative Action	2.00	4	n/a	2	1.00
Community Service Opportunities	2.00	4	n/a	2	1.00
Employer/College Relations	1.50	6	1	1.5	0.55
Order of Categories, by Mean, for Small Organizations					
Economic Benefits	3.23	1	4	4	1.01
Workplace Enhancements	2.93	2	3	3	0.80
Human Resource Development	2.80	3	3	3	1.11
Affirmative Action	2.00	4	1	1	1.41
Community Service Opportunities	2.00	4	1	2	1.00
Employer/College Relations	1.80	6	1	2	0.79

Comparison of Ranking of Categories, by Company Size

	Overall	Large	Medium	Small
Economic Benefits	1	3	2	1
Workplace Enhancements	2	2	3	2
Human Resource Development	3	4	1	3
Community Service	4	1	4	4
Employer/College Relations	5	5	6	6
Affirmative Action	6	6	4	4

Appendix H: Analysis of Responses to Structured Questions, by Employer Type

Workplace Enhancement

Q3 TCD co-op students generally improve the morale of the permanent employees of the work site.

Q4 TCD co-operative education students bring up-to-date ideas and technology to the work site.

Q9 Employers have jobs that need to be done and they find co-operative students from the TCD program able and enthusiastic workers who are eager to learn.

	Responses				Descriptive Statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Overall (N=21)									
Q9	8	11	2	0	3.29	1	3	3	0.64
Q4*	2	8	8	2	2.50	8	3	2.5	0.83
Q3	2	6	7	6	2.19	11	2	2	0.98
Category					2.66	2	3	3	2.66
For-profit companies (N=10)									
Q9	3	6	1	0	3.20		3	3	0.63
Q4	1	3	5	1	2.40		2	2	0.84
Q3	0	2	4	4	1.80		1	2	0.79
Category					2.47		3	2.5	0.94
Government (N=6)									
Q9	3	2	1	0	3.33		4	3.5	0.82
Q4*	1	2	1	1	2.60		3	3	1.14
Q3	0	4	1	1	2.50		3	3	0.84
Category					2.82		3	3	0.95
Not-for-profit organizations (N=5)									
Q9	2	3	0	0	3.40		3	3	0.55
Q3	2	0	2	1	2.60		2	2	1.34
Q4	0	3	2	0	2.60		3	3	0.55
Category					2.87		3	3	0.92

*One response was not recorded for this question.

Employee/College Relations

Q6 Hiring co-operative education students enables organizations to influence and mould the TCD curriculum to meet their specific needs.

Q11 Employing co-operative education students allows for increasing communication with Red River College.

	Responses				Descriptive statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Overall (N=21)									
Q11	1	5	9	6	2.05	13	2	2	0.87
Q6	0	2	8	11	1.57	17	1	1	0.68
Category					1.81	5	2	2	1.02
For-profit companies (N=10)									
Q11	0	2	6	2	2.00		2	2	0.67
Q6	0	1	3	6	1.50		1	1	0.71
Category					1.75		2	2	0.72
Government (N=6)									
Q11	1	1	2	2	2.17		1	2	1.17
Q6	0	1	3	2	1.83		2	2	0.75
Category					2.00		2	2	0.95
Not-for-profit organizations (N=5)									
Q11	0	2	1	2	2.00		1	2	1.00
Q6	0	0	2	3	1.40		1	1	0.55
Category					1.70		1	1.5	0.82

Affirmative Action Goals

Q12 Co-operative education increases access to qualified minorities during the recruitment, selection, and hiring process.

	Responses				Descriptive statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Overall (N=21)									
Q12	1	4	4	2	1.71	16	1	1	0.96
Category					1.71	6	1	1	0.96
For-profit companies (N=10)									
Q12	0	1	2	7	1.40		1	1	0.70
Category					1.40		1	1	0.70
Government (N=6)									
Q12	0	2	2	2	2.00		2	2	0.89
Category					2.00		2	2	0.89
Not-for-profit organizations (N=5)									
Q12	1	1	0	3	2.00		1	1	1.41
Category					2.00		1	1	1.41

Economic Benefits

Q1 TCD co-operative education students can adequately perform a job at a wage rate lower than that of a regular employee.

Q2 TCD co-operative education students are productive employees.

Q5 TCD co-op students enable other permanent employees to be more productive.

Q10 TCD co-operative education students are capable of efficiently and effectively meeting some of a company's short-term documentation needs.

Q16 When a student progresses through a TCD co-operative education program and becomes a full-time employee, the student is less likely to leave the job than the employee who has not had the co-operative education experience.

Q17 When TCD co-op students become permanent employees, they are almost immediately productive, thus reducing training and orientation costs.

	Responses				Descriptive statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Overall (N=21)									
Q10	11	6	3	1	3.29	1	4	4	0.90
Q2	8	9	4	0	3.19	4	3	3	0.75
Q5	6	10	4	1	3.00	5	3	3	0.84
Q17	4	9	5	3	2.67	7	3	3	0.97
Q16	2	5	7	7	2.10	12	2	2	1.00
Q1	0	4	11	6	1.91	15	2	2	0.70
Category					2.69	1	3	3	1.00
For-profit companies (N=10)									
Q5	3	6	1	0	3.20		3	3	0.63
Q10	4	4	2	0	3.20		4	3	0.79
Q2	4	3	3	0	3.10		4	3	0.88
Q17	1	5	4	0	2.70		3	3	0.67
Q16	0	2	5	3	1.90		2	2	0.74
Q1	0	1	6	3	1.80		2	2	0.63
Category					2.65		2	3	0.92
Government (N=6)									
Q2	0	5	1	0	2.83		3	3	0.41
Q10	2	2	1	1	2.83		4	3	1.17
Q5	1	3	1	1	2.67		3	3	1.03
Q17	0	3	1	2	2.17		3	2.5	0.98
Q1	0	1	3	2	1.83		2	2	0.75
Q16	0	1	2	3	1.67		2	1.5	0.82
Category					2.33		3	2.5	0.96

Economic Benefits

Not-for-profit organizations (N=5)								
Q10	5	0	0	0	4.00	4	4	0.00
Q2	4	1	0	0	3.80	4	4	0.45
Q17	3	1	0	1	3.20	4	4	1.30
Q5	2	1	2	0	3.00	2	3	1.00
Q16	2	2	0	1	3.00	4	3	1.22
Q1	0	2	2	1	2.20	3	2	0.84
Category					3.20	4	4	1.03

Community Service Opportunities

Q7 Organizations hire TCD co-op students out of an obligation to the technical writing community and as a service.

Overall (N=21)									
	Responses				Descriptive statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Q7	1	9	8	3	2.38	9	3	2	0.81
Category 5					2.38	4	3	2	0.81
For-profit companies (N=10)									
Q7	0	4	5	1	2.30		2	2	0.67
Category 5					2.30		2	2	0.67
Government (N=6)									
Q7	1	3	2	0	2.83		3	3	0.75
Category 5					2.83		3	3	0.75
Not-for-profit organizations (N=5)									
Q7	0	2	1	2	2.00		1	2	1.00
Category 5					2.00		1	2	1.00

Human Resource Development

Q8 TCD co-op students are enrolled in college studies directly related to their work assignment.

Q13 TCD co-op students provide a pool from which full-time employees can be hired.

Q14 TCD co-op students are less costly to recruit as full-time employees than other permanent full-time employees.

Q15 The TCD co-op program allows the employer the possibility of attracting highly qualified students.

	Responses				Descriptive statistics				
	Extremely important (4)	Very important (3)	Somewhat important (2)	Not important (1)	Mean	Rank	Mode	Median	S.D.
Overall (N=21)									
Q8	7	12	2	0	3.24	3	3	3	0.63
Q15	4	12	3	2	2.86	6	3	3	0.85
Q13	1	10	6	4	2.38	9	3	3	0.87
Q14	2	5	5	9	2.00	14	1	2	1.05
Category					2.62	3	3	3	0.97
For-profit companies (N=10)									
Q8	4	4	2	0	3.20		3	3	0.79
Q15	1	7	2	0	2.90		3	3	0.57
Q13	1	6	3	0	2.80		3	3	0.63
Q14	1	4	4	1	2.50		2	2.5	0.85
Category					2.85		3	3	0.74
Government (N=6)									
Q8	1	5	0	0	3.17		3	3	0.41
Q15	1	3	1	1	2.67		3	3	1.03
Q13	0	2	2	2	2.00		2	2	0.89
Q14	0	0	0	6	1.00		1	1	0.00
Category					2.21		3	2.5	1.06
Not-for-profit organizations (N=5)									
Q8	2	3	0	0	3.40		3	3	0.55
Q15	2	2	0	1	3.00		4	3	1.22
Q14	1	1	1	2	2.20		1	2	1.30
Q13	0	2	1	2	2.00		1	2	1.00
Category 6					2.65		3	3	1.14

Order of Categories, by Mean, for Companies, by Type

	Mean	Rank	Mode	Median	S.D.
Order of Categories, by Mean, for For-Profit Companies					
Human Resource Development	2.85	1	3	3	0.74
Economic Benefits	2.65	2	2	3	0.92
Workplace Enhancements	2.47	3	3	2.5	0.94
Community Service Opportunities	2.30	4	2	2	0.67
Employer/College Relations	1.75	5	2	2	0.72
Affirmative Action	1.40	6	1	1	0.70
Order of Categories, by Mean, for Government					
Community Service Opportunities	2.83	1	3	3	0.75
Workplace Enhancements	2.82	2	3	3	0.95
Economic Benefits	2.33	3	3	2.5	0.96
Human Resource Development	2.21	4	3	2.5	1.06
Affirmative Action	2.00	5	2	2	0.89
Employer/College Relations	2.00	5	2	2	0.95
Order of Categories, by Mean, for Not-For-Profit Organizations					
Economic Benefits	3.20	1	4	4	1.03
Workplace Enhancements	2.87	2	3	3	0.92
Human Resource Development	2.65	3	3	3	1.14
Affirmative Action	2.00	4	1	1	1.41
Community Service Opportunities	2.00	4	1	2	1.00
Employer/College Relations	1.70	6	1	1.5	0.82

Comparison of Ranking of Categories, by Company Type

	Overall	For-profit	Government	Not-for-profit
Economic Benefits	1	2	3	1
Workplace Enhancements	2	3	2	2
Human Resource Development	3	1	4	3
Community Service	4	4	1	4
Employer/College Relations	5	5	5	6
Affirmative Action	6	6	5	4