REQUIRED JOB SKILLS TODAY AND TEN YEARS FROM NOW: EXPECTATIONS OF EMPLOYERS, ADULT STUDENTS, AND EDUCATORS

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ABSTRACT

The purpose of this study was to discover the impressions various educational and non-educational groups have of workplace changes as they are currently taking place and their potential importance ten years from now regarding career and educational planning. The sample was comprised of 640 respondents which included 106 adult ESL students and 274 regular adult students at the Scarborough Centre for Alternative Studies, 29 teachers at the Scarborough Centre for Alternative Studies, 42 secondary guidance counsellors in Scarborough, 28 human resource professionals from a wide range of industries in Ontario, 115 job seekers on welfare taking a job search courses located in all of the other Toronto boroughs, and 46 participants at the 1997 National Consultation on Career Development conference held in Ottawa. Surveys were administered during the fall of 1996 and first month of 1997. The results were analyzed using SPSSPL Version 6.0 and included descriptive statistics for group comparative purposes.

The results reveal that the group differences acted as means of highlighting areas in need of further research clarification and identified possible areas of concern. Strategic interventions such as stressing the importance of thinking of career opportunities in terms of skill dimensions and skill transferability would seem to be validated by the results which showed agreement in these areas across all groups. In

addition, the use of career scenario planning as a career strategy is recommended because of the significant differences with respect to career areas most likely affected by a variety of change factors and the relative impression differences regarding the importance or influence of various employment-related criteria. The prospect of graduating students having six careers which might include running their own businesses before retiring also would support a scenario planning approach that builds in a developmental perspective. Moreover, the fact that all the professional groups felt that a significant percentage of the workforce would not be able to acquire the skills required over the next ten years clearly suggests a need for contingency planning and appropriate educational and counselling interventions. That the majority of respondents did not feel well prepared for the anticipated changes over the next ten years suggests that much work remains to be done if adult students are to develop the motivation and sense of self-efficacy needed to prosper amidst the many anticipated changes. The study concludes with a series of recommendations.

One recommendation involves helping students address the need for a more robust sense of self-efficacy to take on the prospect of six careers or self-employment by focusing on people, idea, and technology skill transferability. Given the undefined nature of these future events a broad career strategy that keeps options open would seem indicated. A second recommendation concerns the need to regard career indecision as a natural outcome of trying to make choices in an environment that is undergoing significant and unpredictable changes. Strategic indecision or an openness to change would involve constantly monitoring the changing environment for emerging opportunities of interest and constantly evaluating options accordingly. A third

recommendation concerns the need for additional research to further clarify the reasons behind how the various groups responded to the survey questions where there were significant differences of opinion. This would also help evaluate the initial study's on-going relevance insofar as changes have taken place since the original survey's administration.

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CHAPTER ONE: INTRODUCTION

In a world where technological change is revolutionizing the workplace, job descriptions and organizational structures are having to change in order to take full advantage of the productivity enhancements now possible. As jobs and organizational structures change, so do the skills needed to carry out the revised job descriptions change. Technology is changing workers' relationship to their job, other workers, the organizations that employ them, and even the world outside the realm of employment. The pace of change has accelerated to the point that innovation is constantly required in order for competitiveness to be maintained. In such a world, where the only constant is change, it is necessary for career counsellors to coach their clientele in the need for personal flexibility in the widest possible sense. In order to do so effectively, they must have insight in the nature of change process and to the way in which required skills are changing both in a broad sense and in relation to specific occupations. In other words, it has become necessary for career counsellors to be able to forecast the ways in which the work environment is changing so as to offer career related information that will both be pertinent at the completion of a client's training and will facilitate subsequent career transitions.

Many career instruments which are used to help guide career planners in their decision making are based on a job analysis which typically consists of breaking down job descriptions according to the skill, temperament, and interest levels required with respect to data, people, things, and ideas. As job descriptions change significantly, so do the relative proportions of the factors mentioned in connection with any given area of

employment. Effective career counselling requires not just a better grasp of what the current job environment and congruent personnel requirements are, but a strong sense of future developments in each of the job family areas. Counsellors are no longer counselling for employment in a stable work environment, but one which is dynamic and increasingly complex in ways which are both new and challenging and which demand ever greater personal involvement on the part of the worker. The blurring of boundaries between personal and working environments is forcing career planning to become a merging of life and career planning which must be seen as an on-going transformational process in an evolving context.

Counselling as a means of preparing people for future eventualities that will significantly impact on both their working and personal lives, requires that counsellors develop an awareness of the perceptions held by their clients regarding future job descriptions and of the estimates that have been made by people directly involved in industries or work settings who are more informed about actual workplace trends. Moreover, counsellors need to be better informed about the changes which are changing the workplace and the likely long term implications of these changes. In order to make the future an important aspect of the career planning process, it is necessary to have people consider the ways in which job descriptions are likely to be different ten years from now. The purpose of this research study is to determine what are the workplace and job description perceptions held by students planning for the future, counsellors who are advising them, and people more directly involved in the respective career areas so as to see what kinds of disparities in perception exist. In addition, it is necessary to see the extent to which the perceived changes differ from the current realities commonly

accepted within career counselling research in order to get a better sense of the magnitude and importance of the changes likely to take place. The results obtained will provide the basis for making suggestions regarding their counselling implications.

Over the past decade, manufacturing and service industries (utilities, banks, and trust companies, for example) have undergone major restructuring as a result of technological change and global competition. Many employees have lost their jobs and a number of functions traditionally done in-house have been contracted out or automated (Drucker, 1993). Moreover, the walls separating departments are vanishing as companies assess their departments for efficiency and productivity and focus on how best to serve their customers. According to Don Tapscott and Art Caston (1993) in their book, *Paradigm Shift,* "Paper-based systems, bureaucratic approval processes, labor-intensive clerical activities, batch processing cycles and multilayered decision-making processes are being replaced by source data capture, integrated transaction processing, electronic data interchange, real-time systems and expert systems" (pp.6-7).

Traditionally, companies were structured hierarchically, with different departments in charge of specific areas such as marketing, finance, accounting, information services, operations, or purchasing. Each department had computers with software designed specifically for the unique functions of a department, and the software in one department was usually incompatible with what was being used in another department. So, although computers may have helped reduce costs and made better use of a company's resources, access to the technology was often restricted to a few people, overlap of systems and function components led to inefficiency, and lack of integration resulted in time delays, communication problems and excessive focus on specific aspects

of a job while the goals of a project were often overlooked, all at the expense of the customer (Tapscott & Caston, 1993). Local area networks (LANs) helped overcome some of these limitations by connecting many computers to a single mainframe, thereby allowing people to share equipment, printers and information. LANs made it easier for people within and across departments to form working groups.

Networking technologies such as LANs are eliminating the traditional hierarchy as a means of organizing job descriptions and coordinating how work is done. The traditional hierarchy is a command-and-control model (Drucker, 1989). Many layers of management enforce company policies and procedures, and information is transferred up and down the ladder. This system flourished when markets were stable and in economies where competition was not too intense. According to Vance Peavey (1993), "organizational structures are moving from linear, hierarchical and fixed structures to fluid, organic structures with a good deal of plasticity between organizational structure and worker activity and between workers themselves" (p. 131).

Three computer-related developments, combined with increasingly intense global competition, began the process of toppling hierarchies:

- Personal computers became powerful enough to replace mainframes;
- Computer prices fell as clones entered the market; and,
- Computer hardware and software moved toward "open-system architecture,"

allowing computers to "talk" to another computer which was capable of accessing and processing all necessary information as desired and allowed workers to communicate their activities to one another over the computer for all to see (Senge, 1990). Once

workers in one division were able to see what was happening in other departments, the walls between departments began to diminish.

In addition, management can better monitor the company's activities, and becomes more efficient in making decisions; for example, expert system software allows for "what-if" simulations to assist in decision making (Tapscott & Caston, 1993). With departments sharing information, it makes sense to organize workers into teams. Once team members are given a clearly defined mandate, they work together on a customer-related project. With technology's opening the lines of communication, everyone involved both inside and outside the organization becomes more responsive to what needs to be done to complete a job. And since information is more accessible to executives, middle management is increasingly disappearing (Hammer & Champy, 1993).

Employees accustomed to working in hierarchies need to learn how to operate as team members (Clemmer, 1992). In companies restructuring to teams, employees are encouraged to make their own decisions and to contact anyone in the organization who could help them complete a project. Since all members of a team are evaluated and rewarded on the group's performance, it is in everyone's interests to work together. Thus, the group must understand the goals of a project, set objectives and assign responsibilities. This is best done with the assistance of an executive to monitor the group's performance and make sure the team gets the resources it needs to get the job done. Team members must be supplied with appropriate information technology so that there is a coordinated flow of information between team members and outside contacts.

Every member of the team is expected to solicit feedback from the customer so that necessary customer feedback is forthcoming on an ongoing basis (Neef, 1998).

The development of the neural network processor dramatizes the idea that companies must become "learning organizations" (Senge, 1990). Modeled on the human brain and designed to process information, this technology actually learns from past decisions and results. The technology requires that companies learn on an ongoing basis, and so as to use the technology competitively, companies must be prepared to re-engineer the workplace when required (Tapscott, 1996). Thus the learning organization is capable of transforming itself to meet changing customer needs, technological developments and new opportunities.

How will these developments change the way business is conducted? First, the boundaries that traditionally defined organizations and countries will continue to fade. Second, collaboration among companies will become even more commonplace. In fact, it is predicted that many companies will create a new corporate position of vice-president of external operations (Tapscott & Caston, 1993). This position would involve developing, monitoring, and encouraging the many alliances that will be formed with other companies, and ensuring that technology and corporate interests are not compromised in the process. Thus the notion of teamwork is even extending to corporations and eventually countries themselves in the form of trade agreements.

According to Peter Senge (1990), author of *The Fifth Discipline: The Learning Organization*, "The 20th century will be seen as a revolution--from seeing the world as one primarily made up of *things* to one that is fundamentally made up of *relationships*. ... I maintain the most obvious [advantage] is that the Eastern countries have a different

understanding of interdependency [in organizations.] That should be a cornerstone of any learning organization--understanding interdependency. The organization should actually have systemic theories about how the various parts of its business interrelate as a grounding for its strategy. It represents a totally different basis for designing strategy and policy" (p. 52).

Third, customers and suppliers will be provided with more direct access to a company's computer system. This succeeds in strengthening the relationships with both and also reinforces the relationships within the company by encouraging a freer flow of information. Kmart linked up its computer system with 200 suppliers providing sales and warehousing information online in exchange for improved delivery service. Now its suppliers can better estimate future demand for the products shipped, Kmart reduces inventory through faster, more frequent deliveries, and customers are ensured that the products they want are available (Tapscott & Caston, 1993). Similarly, the Price Club has been able to use electronic data interchange to link itself up intimately with its suppliers. As soon as any item is purchased the information is automatically transferred from the cash register at the point-of-sale to the appropriate product suppliers computer which is constantly tracking sales rates so as to prepare for estimated time for product replacement production and sends off more inventory when some reorder trigger point is reached. The company supplying Price Club will likely have a similar system in place with its own suppliers ; indeed, over 4 000 Canadian companies use electronic data interchange and usage is growing at an annual rate of 21% (Heinzl, 1992, December 15). Aside from integrating companies through a vast web of computer-based information transfer, the process eliminates countless jobs since all inventory monitoring, ordering, invoicing, and

bill payment is conducted by computer with no human intermediary entering into any aspect of the entire information exchange process. The jobs which replace the ones lost involve more complexity and training, such as software design and maintenance (Power & Hage, 1992).

Thus the blurring of all boundaries is taking place at all levels whether it be individuals electronically communicating worldwide via Internet; workers operating in teams that converse both with suppliers, company executives, other departments, and customers; companies with one another within and across borders; and countries working together with other countries through trade agreements (Davis & Meyer, 1998).

An example of the changing work environment would be Shell Canada's recently built lubricant plant in Brockville, Ontario, which combines large-scale computerization and work groups (Little, 1993, February 2). There are five integrated computer systems which join production, supplies, warehousing, delivery and scheduling, and marketing. Of the total 75 employed, 60 are team operators who are divided into three self-managed "job families" responsible for bulk handling, warehousing and packaging. Each worker or "team operator" has computer access to all plant operation information and is required to learn all the skills necessary in his or her job family as well as one skill in each of the other two "families." Team members are expected to solve problems as they arise even if this requires their complaining to suppliers. The teams hold responsibility for cost control (including absenteeism), discipline, and scheduling of vacations and training. Annual salary, based on number of skills acquired, ranges from $26,196 for new team members to $45,588 for operators with six skills regardless of seniority.

All team members were subjected to an elaborate screening process that tested them for ability and willingness to learn, technical skills and aptitude for teamwork as well as a battery of written tests, role-playing sessions, and problem-solving exercises. Only 20 of the 46 production workers of the old plant were accepted in the new plant; the rest were chosen from 1,200 "outside" applicants. The 26 who were not accepted did not possess the necessary work skills to make the required transition.

The restructuring of the workplace is dramatically altering the relationship between employer and employee. Traditionally, employers and employees had a cradle-to-grave commitment to one another in what was largely a feudal arrangement (Boyett & Conn, 1991). Loyal time-servers were allowed to go up "the ladder of success," meeting challenges as they reached each new level. Normally if the company asked employees to move, they did; there was no such thing as saying no. When the ladder of success is removed and structures flatten, managers cease to have any purpose and are let go. According to Harvard Business School professor Michael Yoshino, "You're going to see middle managers laid off who are 30, 40, and 50 years of age. All these well-educated, talented people will suddenly find themselves with nothing to do and no one willing to hire them....They will [have] to become self-employed business people" ("Major Layoffs",1993, April 6, B7). This viewpoint is echoed by Gregory Schmid, a consultant at the California-based Institute for the Future, "Job security will become a thing of the past for white-collar workers, including managers and professionals. Computers have eliminated the need for many managers because machines are more productive and less expensive than people" ("Major Layoffs", 1993, April 6, B7).

If managers and professionals no longer have job security, will anyone have job security? For most workers, the answer is likely to be no. This prognosis is not necessarily depressing, especially for those who are well trained and enjoy freedom, change and challenge.

Laid off employees may become workers in the "virtual organization." According to futurist Frank Ogden (1993), a virtual organization has no permanent employees; it consists of a core group of experts who are hired for a short period of time to complete a project or until a new set of competitive skills is needed for the company to maintain its competitive edge, and lower-skilled workers who are hired for an even shorter term as the need arises. A movie crew is a good example of the virtual organization: it comprises camera people, makeup artists, set designers, and actors who collaborate on a single project, then disperse upon its completion (Drucker, 1993). In other words, workers will need to move from team to team and learn how to adjust quickly.

George Handy (1989), management professor at the London Business School and author of the *Age of Unreason*, foresees a shamrock- shaped or three-leafed structure for the corporation of the future:

- One leaf comprises "insiders" or well-paid knowledge workers who are also the head office decision makers;
- The next leaf comprises the specially trained workers and self-employed professionals who are hired on contract for the length of a project and then let go when their job is complete;

• The final leaf or hired-help division comprises the "technopeasants" or just-in-time work force, a group that will experience short periods of employment and long periods of unemployment.

Companies are well on their way toward hiring more part-timers. In 1975, only 6% of the Canadian work force was part-time; today, part-timers comprise 20-25% of the work force, with the number of involuntary part-timers having risen to 24% (Hurst, 1993, April 24). Statistics Canada estimates that 30% of workers fall into the "non-standard work" category: part-time, contracts, self-employment, or anything other than full-time employment (Williamson, 1993, January 15).

A lot of people are going to be freelancers in the future. Everyone will have to excel at marketing themselves given high job turnover likely in the future. A 1992 U.S. Labor Market report (Gibb-Clark, 1992, April 13) forecasts that college graduates will change jobs 7.5 times over the course of their working lives, with four of the changes involuntary. Everyone will need to continually refine their interview skills, improve their business network connections and expand their resumes. Assertiveness and hustle will have to become second nature.

Technology is rapidly turning the home into an office. Ryerson Institute researchers (McHale, 1993, April 20) found that 23% or 2 million of Canadian households run home-based businesses. Approximately one-third of these workers had either been fired or encouraged to leave companies under early retirement plans. Thus even the boundaries between work and home are in transition.

IBM Canada Ltd. recently introduced their "flexiplace" program which allowed 900 of its 10,000 employees to work from their cars, homes, mini-neighbourhood offices,

and, in some cases, even from the offices of customers (Corelli, 1993, May 14). Consequently, IBM saved $40 million in annual real estate costs and reduced its need for such facilities as cafeterias, meeting rooms, and boardrooms. The company now rents two floors of the Toronto Dominion Tower instead of the 14 needed prior to implementing the flexiplace program. Although most of these IBM employees spend much of their time away from the office, communal offices are available in different metropolitan locations, with one workstation for four employees. With videoconferencing costs likely dropping to much less than $10,000 within 10 years, the need for office workstations will begin to disappear. There is a distinct advantage of this to people who run a home business, since customers can be solicited on the screen itself.

For some jobs, "home" can be anywhere in the world. It is easy to imagine many highly qualified professionals locating in very pleasant, even exotic, surroundings. With long-distance costs decreasing and companies going global, home may be located in whichever country has workers skilled enough or willing to work for low wages out of their homes (Thurow, 1996). Unless workers are trained to work in the high-skill or high-value-added end of this market, they may find worldwide competition intensifying as the number of home workers grows in an increasingly crowded world.

These substantial structural changes that are currently in progress will have significant implications for the skill requirements of prospective employees and the working conditions they will be expected to work well under. The next chapter reviews some of the literature that is only now beginning to address these changes in terms of the new skills likely to be increasingly in demand.

CHAPTER TWO: REVIEW OF THE LITERATURE

Introduction

The skills required of workers in the technological, team-oriented workplace, regardless of specialization skills, will pose a formidable challenge for many future job seekers. Unfortunately, there is a paucity of studies in this important area, particularly where the future is concerned. This chapter will build upon the literature already cited in the rationale for the study by examining the current literature with respect to the broad skill requirements as outlined by large Canadian and U.S. government studies for educational purposes, the career concerns surrounding these changing skill requirements, the broad-based skill dimensions that are commonly used to classify occupational areas and how they may be in the process of changing, and the literature that summarizes specific aspects of skill requirements for knowledge workers and the new economy.

Changing Work Skill Requirements

According to "Learning Well, Living Well" (1991), the following are basic skills that are necessary for lifetime learning:

- the ability to learn;
- reading, writing, and computation skills;
- speaking and listening skills;
- skills and values needed to achieve high self-esteem, motivation, and goal setting;
- career development skills;
- interpersonal skills; and
- understanding how the organization functions

The following advanced skills are required in a globally competitive work environment:

•the ability to apply mathematical and scientific principles;

•the ability to adapt to and operate comfortably in a rapidly changing technological environment;

•the ability to operate effectively in team environments, which often comprise people of different social and cultural backgrounds;

•the ability to work effectively in both official languages and in the languages of competitor nations, and to be sensitive to the history and culture of other countries, and other parts of Canada; and

•the ability to be entrepreneurial and innovative in many areas--not only in design and R&D, but in the management of people and information.

According to the U.S. Congress' Office of Technology Assessment (1988), the following qualitative skills vital to the employment environment are:

1. Skills of Problem Recognition and Definition:

* Recognizing a problem that is not clearly presented:

* Defining the problem in a way that permits clear analysis and action;

* Tolerating ambiguity.

2. Handling evidence:

* Collecting and evaluating evidence;

* Working with insufficient information:

* Working with excessive information.

3. Analytical Skills:

* Brainstorming;

* Hypothesizing counter arguments;

* Using analogies.

4. Skills of implementations:

* Recognizing the limitation of available resources:

* Recognizing the feedback of proposed solution to the system;

* The ability to recover from mistakes.

5. Human Relations:

* Negotiation and conflict resolution;

* Collaboration in problem solving.

6. Learning Skills:

* The ability to identify the limits of your own knowledge;

* The ability to ask pertinent questions;

* The ability to penetrate poor documentation;

* The ability to identify sources of information.

What the foregoing illustrate is the high level of problem recognition and problem solving that require high levels of abstract intellectual analysis, interpersonal and cross-cultural skills, and technical, scientific, business or mathematical application ability that are needed on an on-going basis in the face of constant change, ambiguity and insufficient or overwhelming information. According to Peavey (1993), "The transformation to post-industrial society means that more and more work tasks will be defined in terms of information gathering, problem solving, creation of new ideas and products, and the ability to respond flexibly to new situations and interact in new and adaptive ways. In general, both physical labour and routine labour will be replaced by various forms of mental, symbolic activity. Service and tourist industries will continue to be human labour intensive, but even these will call for higher quality symbolic and interactional skills and attitudes" (p.129). He notes the blurring of family roles as more team effort is used in both areas, raising children now requires more flexibility and adaptation to each child's individuality, the tendency to take more symbolic work problems home, and ever increasing emphasis on interpersonal skills in all settings.

Hage and Powers (1992) in their book, *Post-Industrial Lives: Roles and relationships in the 21st century*, point to the ever increasing need to negotiate roles in all aspects of life. Marriage and marriage roles tend to be negotiated on an on-going basis,

authority and tradition are giving way to notions of empowerment and choice. Interpersonal relationships and lives in general have become more complex with the advent of single parents, multiple parents, two career families, and multicultural plurality. The authors feel that in the future almost all roles will tend to become more ambiguous and uncertain in response to change, so that conflicts, misunderstandings, and role definition will need to become an on-going negotiation process. They estimate that in one to two decades most post-industrial jobs will require university level literacy and numeracy skills.

With technology facilitating and accelerating the rate of change in the work world, skills related to technology will become increasingly required. Hull and Pedrotti (1983, pp. 28-31) have identified key aspects associated with all technological occupations to be general knowledge of computers, math, chemistry, physics, electricity, electronics, electromechanical devices, and fluid flow; continual computer usage; lifelong learning; systems orientation and understanding; and flexibility and adaptability. With most jobs likely to have a substantial technological component attached to them, all workers will require varying levels of competency at least in all usage and systems aspects of the technology, something which will entail lifelong learning as the systems, software, and hardware continue to change and find new application.

The net effect of technology has not been to make job descriptions simpler, but to broaden them. Hage and Powers (1992) explain that while information technology is capable of automating and assuming responsibility for the repetitive simpler and even complex processes, workers are now required to co-ordinate their efforts in a more complex manner with other workers, customers, suppliers, and the technology itself. The shift away from a market or hierarchical system to one comprised of networks and complex organic relations requires an extremely large role-set to be assumed by those involved in the workflow: "In mechanical-bureaucratic organizations role-sets are small, person-sets are large, role scripts abound, and there is little communication and thus little

emotion. In professional organizations role-sets are large, person-sets are small, scripts lose their power, and relationships are personalized" (p. 180). The large role-sets are a result of the need for teamwork, task interdependence, and the need for high communication rates. Secretaries are now having to become office systems managers coordinating the computer-based flow and processing of large amounts of information which requires extensive software application expertise that must be continually upgraded. In addition, they must oversee customer relation functions which allow customers and suppliers to interact directly with a company's information technology at a rate faster than any human can process information or take an order. In other words, they are largely assuming managerial functions; liaison functions; and internal coordination functions as opposed to order taking, order filling, record processing, record keeping, record maintenance, and record retrieval functions (Cortada, 1998). Computers now perform these functions and anyone in the organization can access this any of the data on their desk computer. There is no longer even a need to key information into computers thanks to bar codes, optical scanners, and fax-modems.

With technology assuming more and more of the mundane aspects of work, workers must now learn how to communicate at a rate dictated by the expanding potential inherent in the information technology and figure out how to make better use of the technology so as to remain competitive. Whereas before work was limited by the speed which humans could complete a task much like a juggler is limited in the number of balls he or she can keep in the air at once, technology now allows individuals within companies to juggle thousands of balls at once. The emphasis has shifted from just keeping the balls in the air to making strategic and competitive decisions regarding which balls a company wants in the air and how to best help the company, whose ball is being juggled by this particular company, out with its own juggling act. With technology allowing more and more companies to become electronically interconnected with one another, complex networks, alliances, and joint ventures (Yoffie, 1993) become possible

that hitherto where were inconceivable. All of these arrangements or partnerships must be managed in a decentralized manner given the large number of networked companies, each with individual, customized needs. Within organizations, everyone has had become part of interconnecting teams to coordinate and manage the ever growing number of obligations limited only by a company's ability to communicate and make decisions as fast as possible (Kelly, 1998).

Not surprisingly, the next information technological advancement is neural networks or expert systems which assume much more of the decision making role and are even better than humans at detecting patterns or trends given sufficient information and feedback on performance. Thus neural networks will only serve to push decision making and communication to an even higher level of abstraction and refinement which will necessitate even greater levels of corporate flexibility and adaptability as the speed of business interaction and technological change quickens (Tapscott, 1996). All of these changes will penetrate the personal realm as business increasingly can be conducted from anywhere and at any time. The growth in 24-hour services and business functions is in part a recognition of the growing globalization of trade and the need to solve problems without delay. As contexts and roles are changing rapidly, the need for personal flexibility and adaptability increases proportionately.

From a career counselling perspective, Super's (1977, 1985) five factors of career maturity and adaptability (planfulness, exploration, information, decision making, and reality orientation) will need to be incorporated into a model of flexibility, according to Herr (1993a). The blurring of borders between work and personal life fits well into London and Stumpf's (1986) model of career motivation which necessitate "being resilient in the face of change, having insight into one's self and the environment, and identifying with one's job, organization, and/or profession as career goals" (p.25). Building on the needed competencies stressed by Danish, Galambos, and Laquatra (1983), Herr (1993a) sees the following competencies as necessary for career survival:

"*cognitive or physical skills*, that is to say, alternative models of conceiving problems, problem solving, or reasoning about the self or others or ways of performing or doing certain tasks; *interpersonal skills* such as initiating, developing, and maintaining relationships, e.g., self-disclosing, communicating feelings accurately and unambiguously, being supportive, and being able to resolve conflicts and relationship problems constructively; and *intrapersonal skills* such as development self-control, tension management and relaxation, setting goals, taking risks" (p.162).

Amundson (1989) views competence as referring "to a state of being as well as a state of doing. A competent person is one who has the capacity (or power) to adequately deal with emerging situations." Such a view holds implicit within it an on-going need for adaptability. In a world where the change process is increasingly accelerating, personal flexibility will become of paramount importance. Many people may not be able to make this transition to such a demanding work world and will likely need considerable personal and career guidance in order to acquire the necessary skills needed for survival in the work context that is emerging. As Herr, Amundson, and Borgen (1990) note, "Some persons may view the changes in terminology, work organization, management styles and other artifacts of changing economic configurations as signaling a loss of personal control, a breaching of psychological order and certainty, a shifting of expectations and values to which they cannot adapt, about which they respond with demoralization, depression, or aggression" (p. 300).

The globalization of trade is increasing due to the advances in information and telecommunication technology which are making it possible to work from any location geographically (Feather, 1989). These same technologies are speeding up the pace of chance by facilitating teams located around the globe to effectively work 24 hours per day (Kennedy, 1993). The subsequent effect has been to speed up the pace of change,

innovation, and knowledge growth and dissemination; and to restructure workflow in ways which take full advantage of the communication potential that seems to grow with each new information and technological innovation (Tapscott & Caston, 1993). Increasing rates of change tend to foster greater amounts of insecurity and uncertainty regarding the implications of future changes on any company's competitiveness (Toffler, 1991). In the interests of increasing flexibility and adaptability and maximizing communication potential, one might expect that companies would likely change their hiring policies to reflect these new exigencies

The change factors are unavoidably overlapping since it is the rapid introduction of newer technologies which is both creating the need for more flexibility and adaptability and which is providing the means to achieve increased communication and to deliver customized product or service— both of which are required in order to adapt quickly and appropriately.

Improving flexibility and adaptability during on-going uncertainty is likely to demand that hiring and employment practices change in the following ways:

- employers are likely to increase the number of people hired on contract since future employment and employee skill requirements are not known (Carnevale, 1991)
- communication and learning skills will become the more important skills since they are the most transferable skills of all (Coates, Jarratt & Mahaffie, 1990; Danish et al., 1983)
- creative problem solving and role negotiation skills are likely to increase in importance during times of change and with culturally diverse co-workers (Carnevale, Gainer, & Meltzer, 1990)

- the number of roles people will be asked to play will likely increase so that they can fill in for others or offer assistance as the need arises (Hage & Powers, 1992)
- ability to adapt is likely to be influenced by the amount of accurate information or feedback available regarding changes taking place (Economic Council of Canada, 1987)
- employers are likely to seek employees who are capable of monitoring and anticipating changes taking place and who can make appropriate decisions and strategic plans (Drucker, 1989, 1993).
- flexibility and adaptability intrinsically implies being able to work well in groups or alone or in any geographical location (Economic Council of Canada, 1992)
- people may be expected to have numerous careers or jobs whose descriptions change frequently (Kurtzman, 1994)
- retirement plans may need to become more flexible and subject to change (Popcorn, 1991)
- many workers may be unable to become as flexible as employment opportunities may demand (Perelman, 1993)

The implementation of new knowledge and technologies is likely to initiate the following employment-related changes:

- increased on-going professional development or training activities on the part of employees demanded (Premier's Council Report, 1990; Stewart, 1989)
- more facility with technology in all relevant application areas expected (Abrams & Bernstein, 1991; Employment and Immigration Canada, 1989)

- spread of sophisticated technology into all areas of employment will increase the need for mathematical and scientific knowledge as means of maximizing the productivity capabilities of the technology (Bretsicker, 1992; Hammer & Champy, 1993)
- growth of information and knowledge will likely require a broadening of everyone's knowledge base so that the interconnections between proliferating areas of expertise are more apparent and the interdependent activities can be better coordinated (*Change in the global economy, 1991*; Henderson, 1991; Pratzner & Ashley, 1985)
- increasing automation of lower-skilled repetitive functions (Forester, 1988)
- more information processing and decision-making ability will likely become embedded into newer technologies freeing up workers to engage in a wider variety of activities (Keen, 1991)
- decision making and responsibility will likely be increasingly delegated to whomever is the most knowledgeable (Mansell, 1987)
- supervision becomes more of a coordination and coaching role since individual workers likely to know more about their area of expertise than others (Saaty & Boone, 1990)
- with new knowledge and technology comes uncertainty and stress regarding the implications for change (Giddens, 1991; Office of Technology Assessment, 1988)
- workers will focus more on future trends and make career decisions based on them (Celente & Milton, 1990; Makridakis, 1990; Watt, 1992)
- newer technologies and expanding knowledge bases will lead to job elimination and creation which will increase the need for both personal and career counselling (Herr, 1989a, 1989b, 1993a, 1993b)

- jobs will require higher levels of education in most cases and will be more challenging in nature as levels of responsibility increase at all employment levels (Economic Council of Canada, 1990)
- the proliferation of knowledge is likely to result in the service continuing to provide most of the new jobs, while the other sectors (e.g., government, manufacturing, and natural resource) are more likely to decline in relative importance (Beck, 1992; Crane, 1992; Economic Council of Canada, 1991)
- pay will increasingly be tied to market value of employment skills and experience (*America's choice: high wages or low wages, 1990*; Clemmer, 1992)
- many workers may be unable or unwilling to master the learning skills required for keeping up with the latest developments (Hull & Pedrotti, 1983)

Improved communication typically results from revising corporate structures and employing newer technological communication solutions, both of which may increase the following tendencies:

- increasing use of cross-functional teams to accomplish tasks (Drucker, 1989; Fisher & Fisher, 1998)
- displacement of many middle management functions by devolving responsibility down to team level and using technology to process information for upper management decision making (Conway, 1992)
- change in the role of middle managers to project managers as hierarchies flatten and work becomes more contractual or project-based (Centron & Owen, 1989)
- increasing importance placed on communication skills of all kinds (Ogden, 1993)

- much communication will involve creative problem solving and role negotiation as a means of managing change (Barker, 1992; Coates & Jarratt, 1989)
- more emphasis will be placed on communicating with customers, suppliers, outsourcers, and other external parties involved with the business (Feather, 1989; Kelly, 1998)
- work will take place wherever necessary to the point where there will be a blurring of personal and work boundaries, especially as many employees work more out of their homes (Corelli, 1993; McHale, 1993)
- workers will need to be comfortable with using newer communication technologies (OECD, 1991)
- interpersonal skills will play a much larger role in employment settings (*A lot to learn*, 1992; Perelman, 1985)
- employment opportunities will be subject to global competitiveness given that communication technologies allow for work to be conducted 24 hours a day and from anywhere around the world (Lipsey, 1991; Porter, 1990; Schlosstein, 1989; Thurow, 1993, 1996; Yoffie, 1993)
- improved communication will spawn a growth in smaller companies that can orchestrate their efforts together given greater communication potential (Cohen & Stanley, 1993)
- many workers will need to learn much better self-marketing skills as a means of promoting their abilities to employers as a means of gaining employment (Leeds, 1991; Naisbitt & Aburdene, 1990)

- restructuring of organizations into smaller entities and the outsourcing of non-competitive functions implies that people will be working more in small business environments, perhaps even in their own company in many cases (Kennedy, 1993)
- workers lacking appropriate communication skills may find the adjustment process stressful enough to require considerable training and counselling in this area (London & Stumpf, 1986)

Changing Job Descriptions

The World-of-Work Map (American College Testing, 1988) as found in the Vocational Interest Experience and Skill Assessment (VIESA) was last revised in 1983 based on job analysis data concerning 12 099 occupations in the Fourth Edition DOT (1977) and in conjunction with the interest scores for 421 other occupational and educational groups. It divides careers according along bipolar ratings of data versus ideas and people versus things scales as a means of identifying the skill interests of people in the various occupations. In 1988, the American College Testing produced a World-of-Work Map which contained Holland's hexagon in the middle so that it was possible to see how a job families position on the map was related to the various Holland codes based on the work of Lamb and Prediger (1981) who outlined the connection between the Holland Codes and the underlying bipolar dimensions (Prediger, 1982). Prediger (1981) provided a formula for translating Holland codes into Data/Idea and People/Thing axis coordinates so that one could see the how close or far apart the 23 job families across 6 job clusters (ACT, 1988) are on the World-of Work Map. This provided a better means of seeing how closely related job families are to one another as opposed to estimating similarities or differences based on the order and nature of the top three Holland codes (Prediger & Vansickle, 1992; Prediger et al., 1993).

When a group of grade 12 students and adults in the various job families were given 1989 revised version of Unisex Edition of the ACT Interest Inventory (UNIACT),

the results (Mau et al., 1990) show that the grade 12 students' who indicated certain occupations as definitely being the choice they were committed to had scores that matched up well with the 1983 World-of-Work Map; however, adults in the actual occupations now indicated interests which in many cases showed significant movement from the former occupation testing used to locate the appropriate place for job families. Although Prediger et al. (1993) make a slight mention of some movement in certain instances, no attempt has been made to elucidate the underlying significance of the difference between the adult and grade 12 results or the overall trend common to both groups.

It would seem that the grade 12 students have a more traditional or stereotypical view of occupations as described by the 1977 DOT, whereas the adults more directly involved in the actual occupations results likely reflected changes that have been taking place within the various job families. Nonetheless both the adult and grade 12 results, when examined, reveal a significant shift toward the centre of the World-of-Work Map for most of the job families studied, with some changes greater than others. These changes would seem to suggest that most job families are tending to converge over time as more and more, each of the opposite skill areas becomes more important; in other words, technical workers are having to improve their communication skills, just as people in communication jobs are having to learn the more technical aspects of operating computer equipment and other technology (Boyett & Conn, 1991; Fisher & Fisher, 1998). The difference in perceptions between younger people aspiring toward occupations and those directly involved in the professions acts as an indicator of the rate at which occupational job descriptions are changing. In ten years time, were current trends to continue, most of the job families will migrate closer together on the World-of

Work Map suggesting that most people will have to be able to carry out a wider variety of functions as part of their jobs. This should make it easier for people to learn one another's jobs and should increase the transferability of skills generally speaking. On the other hand, the need to learn a wider variety of skills in what are supposedly opposing skill dimensions will pose a considerable challenge both for those currently employed and those choosing a career based solely on their interests and inclinations. Undoubtedly, many will find the challenge beyond their current personal predisposition and their capacities in general, necessitating the need for more comprehensive career counselling interventions that would assist people in developing the flexibility and motivation necessary to continually learn such diverse skills whose proportions are changing over time. The ability to adapt to change will become an essential aspect of all vocations so long as job descriptions continue to change at their current rate. Given that technology would seem to be accelerating the rate of change and playing an instrumental role in restructuring almost all aspects of life, the challenge is likely to prove to be an extremely formidable one for those more comfortable operating under the more traditional assumptions of the past.

One of the effects of technology is to automate many of the "data" and "thing" functions via software and robotics (Caudill, 1992; Zuboff, 1988). Thus one would expect to see "people" and "idea" skill dimensions rising in importance along with technology skills. Also with the rise of the service economy and the decline of manufacturing one would expect "data" skills to exceed "thing" skills in importance and to widen the spread between them over time. As result, occupational descriptions and areas of employment are likely to be in a constant state of flux over the next ten years and

beyond. Career counsellors must therefore "be in the forefront of a movement to help individuals and organizations adapt constructively to the changing workplace. If career counsellors see their job as merely matching individuals to existing occupations, they will rapidly become obsolete because stable occupations as we know them are on the way out" (Krumboltz, 1996, p. 58).

Summary

The changing workplace is making many difficult demands in terms of the breadth and depth of skills required by everyone for employment purposes. Aside from the need to master a long list of skills in many different areas, the workforce is expected to become good at quickly adapting to changing circumstances as the need arises. The greater the amount of change undergone, the greater amount of communication skills required of everyone in the workforce so as to make the changes and transitions as smoothly as possible. In addition, people and idea skills are anticipated as rising in importance as technology increasingly automates data and skill components of many jobs. As technology continues to pervasively permeate all aspects of the economy by becoming the economy's central infrastructure, everyone is having to become adept at making productive use of these current technologies and learn newer applications on an on-going basis. These same technologies are also continually altering job descriptions and career paths. As a result, career counselling theory and practice must focus on developing models and interventions that help people adapt and make flexible decisions based on the changes taking place and likely to take place rather than just focusing on

matching people to suitable career areas based on current or past job descriptions and interests.

CHAPTER THREE: RESEARCH QUESTIONS AND RESEARCH METHODOLOGY

Introduction

The purpose of this study was to compare the impressions and expectations of various educators, adult students, and human resource professionals regarding employment and workplace demands as they currently exist and as they might exist in ten years time. A survey was designed to capture many of the relevant specific skill requirement changes noted in the literature and to discern the potential effect of the broader skill dimension change factors on various career areas and employment sectors. This survey formed the basis for group comparison with respect to significant differences and overall trends.

Research Questions

The research questions tend to fall into three categories regarding employment-related expected changes. This study examines the expectations of the various groups sampled regarding how the various change factors are likely affecting current employment realities and the work environment over next ten years with respect to: a) general skill requirements, b) the kinds of working conditions likely to be encountered, and c) the possible effects on various career areas and industry sector job growth opportunities.

With respect to changing general skill requirements, the research questions were designed to elicit the extent to which the ability to learn, communicate, use technology, apply knowledge, integrate well within the organization, and stay motivated and career focused are and will be important over the next ten years. It was expected that most respondents would rate these areas highly and would indicate an increase in all areas over

the next ten years. In addition, there were three questions included to determine the extent to which the current workforce and the workforce in ten years time are likely to find these skills mandatory and the percentage of people capable of acquiring these skills. By using this approach, it was hoped that it would be possible to determine both the relative importance of these skills areas both now and ten years from now and the extent to which these skills would be required and the potential of people to acquire these skills.

The working condition questions focused on the changes in progress with respect to job security, the terms of employment, job and role descriptions, educational and technological requirements, global influences, and empowerment. Questions regarding the degree to which these changes were affecting and would affect workers' career and personal life were also included. It was anticipated that respondents would indicate the following: a)that there was a diminishing of job security, b) that the number of roles and responsibilities was increasing, c) that higher levels of educational and technological training would grow in importance, d) that globalization influences were on the rise, and e)that the combined effects of the foregoing would increase the need for career and personal counselling.

The research questions concerning the affects on career areas and industry sector employment growth were aimed at identifying the five career areas most likely to be affected by the changes in skill requirements and working conditions described above and the industry sectors and career areas most likely to offer growing or declining employment opportunities. Skill requirements were elicited using the data, people, thing, and idea skill dimensions so as to offer an overall sense of how skills and their transferability are undergoing changes and so that the various career areas most likely experiencing changes could be compared according to these same dimensions. It was expected that respondents would indicate there was an increasing need for people and idea skills and a lessening in the demand for data and thing skills which are likely to be performed increasingly by newer technologies. These skill changes were also expected to

be reflected in the choosing of the five career areas most likely to be affected by one of the change factors or in terms of their opportunities for employment.

These same skill requirements were also expected to be reflected in the responses to the research questions that required rank ordering industry sectors according to current and future employment opportunity. Given the long standing rise in the service economy at the expense of public sector/government, manufacturing and the natural resource economy, it was anticipated that respondents would indicate the rising importance of the service sector relative to the others. By doing so, they would be again confirming the growing importance of both people and idea skills since most careers in the service sector are largely people- or idea-oriented.

Additional research questions were included to summarize the foregoing changes on career areas in terms of number of careers held over a lifetime, number of years of education likely required, and influence of future trends. It was assumed that declining job security and significant changes likely in the career descriptions themselves would increase the need for education and training and lead to more changes in number of careers pursued prior to retirement. Declining employment in all but the service sector would also reinforce these effects. Given the foregoing, it was assumed that career planning that took the various trends or change factors into account would be necessary. Thus respondents were expected to indicate an increase in all of these areas.

The research questions were therefore designed in such a way as to allow for comparison among the various skills and working conditions regarding their relative importance both now and ten years from now. In addition, career areas and industry sectors were examined regarding some of the individual and overall effects of these same skills and working condition changes. Moreover, the use of data, people, thing, and idea skill dimensions allowed for broader comparisions of both industry sectors and the careers themselves. Finally, questions summarizing the overall effects of the individual changes in skills, working conditions, and employment and career opportunities were

used to establish the degree of career and personal counselling likely required both now and ten years from now.

Methodology

Sample

An informed consent survey (see Appendix A and B) was given in the fall of 1996 and January of 1997 to 640 people divided into the following groups: i) 274 regular adult students, ii) 106 adult ESL students (taking level seven and eight ESL), iii) 29 adult education teachers, iv) 42 adult education and regular high school guidance counsellors, v) 28 senior hiring personnel from a random collection of industries in Ontario who were attending a Human Resource Professionals Association of Ontario convention in Toronto, and vi) two supplementary groups discussed below. By choosing these target groups, it was possible to explore the extent to which the various groups share similar impressions and expectations and use this as an indicator of the extent to which effective communication exists among the various groups with respect to relevant career information.

The regular adult and adult ESL students were surveyed in a systematic fashion by having students in English or ESL classes fill out the survey. Since no student was allowed to take more than one English or ESL course at a time (nor could an ESL student take an English course at the same time as an ESL), surveying English or ESL students avoided the possibility of surveying the same person twice. In addition, the first classes to be tested were grade 11 and grade 12 students in the fall of 1996 and grade 10 and grade 9 students in the spring of 1997 so as to avoid surveying students who had already been surveyed in the previous semester. Since all students normally take an English or ESL course each semester, this method allowed for the surveying of a random collection of both English and ESL students at all grade levels in the reentry program.

All teachers in the Scarborough Centre for Alternative Studies were asked to fill out and return the survey leading to a return rate of approximately 50% for regular teachers and 100% for guidance staff. The guidance co-ordinator for the Scarborough Board of Education sent the survey to all other guidance teachers in Scarborough requesting they return the surveys to her. By combining the guidance responses from the Scarborough Centre for Alternative Studies with forms filled out and returned to the guidance co-ordinator a 40% return rate among guidance counsellors in the Scarborough board of education was obtained.

The two supplementary groups sampled consisted of: i) 115 welfare recipients in all of the other boroughs of Toronto outside Scarborough who signed up for a job search course who were asked to complete the survey (with a 95% return rate), and ii) 46 participants (an 80% return rate) in a seminar session held at the 1997 National Consultation on Career Development (or NATCON, a conference held in Ottawa where career counsellors from across Canada and the U.S. were in attendance). The job seekers were only used to get a general sense of how other adults preparing for work in Toronto compare with Scarborough adult students at the Scarborough Centre for Alternative Studies who were upgrading their education in order to find work. Most of the adult education students surveyed were also on welfare. The NATCON participants were used to give us a sense of how a somewhat random gathering of career counsellors from a broad spectrum of educational institutes primarily in Canada compares to the guidance counsellors in Scarborough who filled out the survey.

Instrumentation

Originally the survey was pilot tested with 17 staff members at the Scarborough Centre for Alternative Studies and 80 adult students from two English and one ESL class. The original survey was significantly longer and took too long to complete because of repetitive questions regarding each career area. Suggestions received regarding the survey frequently mentioned shortening the survey and eliminating the survey's repetitive aspects. The wording of some of the questions also required further clarification. The layout of the questions also was in need of some improvement. All of the above suggestions were incorporated into the existing survey which is approximately half the length of the original. Rather than ask repetitive questions regarding each career area, the revised survey asks respondents to select the five career areas most likely to be affected by the changes indicated in each case.

The survey requiring 114 responses (see Appendix B) which took anywhere from half-an-hour to an hour to complete was given to 640 respondents. The research questions in Parts A and B took the form of asking respondents to indicate their impressions on a nine-point Likert importance scale, a nine-point percentage importance or applicability scale (10-90%), or in terms of an importance scale to indicate a relative ranking of importance. The same format was used in numerous working condition-related questions which followed in the next section and in other career-related questions interspersed throughout the rest of survey.

The first section, Part A, addressed the importance of certain employment-related skills both now and ten years from now and the percentage of people likely to require these skills and able to acquire these skills as necessary. Specific questions were asked regarding the relative importance of certain personality and skill factors as mentioned in the "Learning Well, Living Well" Consultant Paper (1991). In Part B, respondents were asked to rate the importance of various emerging working-condition trends in a way

similar to Part A. In the third section, Part C, questions were asked regarding the relative transferability of data, people, thing, and idea skills and the relative ranking of each's importance now and ten years from now. In Part D respondents were asked to rank order the top five career areas most likely to be affected in a particular manner such as increase or decline in employment, increase in education or technology training requirements, increase in automation or opportunities for advancement, change in job description, etc.

Rather than ask respondents to indicate their overall impressions regarding a wide range of occupations within a job family in Part D, they were given one job from each job family which they were likely to have considerable familiarity with and which typically required an average amount of training or education compared with other careers in each job family. By choosing this approach, respondents were expected to respond more quickly and their responses were likely to be more valid and generally representative of the job family given their familiarity with each occupation chosen. Although the various occupations within each job family will not all be equally affected by current and future trends, the research was focused more on examining any differences in the impressions of the various respondent groups than on making any broad generalizations regarding any particular job family. Respondents were asked to indicate their impressions regarding numerous factors likely affecting many professions now and ten years from now. By asking respondents to rank order the top and bottom five jobs most likely influenced by specific job-related factors, it was hoped that certain occupations would be mentioned repeatedly by each group so that there would be an additional basis for comparison of impressions among the groups.

Similarly, at the end of Part D, respondents were asked to rank order their impressions of which areas of the economy both now and ten years from now are the major sources of job growth for group comparative purposes. The four industry sectors were the service sector, public sector/government, manufacturing, and natural resources.

In Part E, respondents were also asked to complete some questions regarding their background and their sense of how well prepared they are for the upcoming changes they envision, including their inclination toward starting a business of their own.

Analysis

The results of the survey were used to statistically compare the perceptions of the five main groups: i) regular adult education students, ii) adult ESL students (taking levels seven and eight ESL), iii) adult high school teachers, iv) adult and regular high school guidance counsellors, and v) people directly involved in hiring. The adult job seekers and NATCON participants were included as supplementary groups for broader comparative purposes. The Scheffé multiple comparison method was used to assess the statistical significance between the groups on their responses to each question given the large number of a priori contrasts pairwise and complex planned, and the potential need for unanticipated post hoc comparisons depending on the data obtained.

Overall frequency mean trends were used for a more global comparison of survey questions independent of the groups. However, on those questions where there were significant multiple comparison differences, tables were drawn up that compare frequency means on a group basis. These tables use "now" and "ten years from now" as comparative categories, including a table which combines both. By this means, it was possible to identify general group trends.

The career area question tables include the top five career areas chosen by each group as potentially experiencing the greatest change in some respect. These tables were used to discern the degree of agreement of groups regarding career areas most likely affected in the manner described. In addition, the career areas chosen were converted to their data, thing, people, and idea dimensions for comparison purposes.

The rank ordering of industry employment areas was examined at the group and overall level to see if any clear differences seemed indicated.

Chapter Four: Research Findings

The purpose of this study was to find the extent to which there were significant differences among the various groups sampled with respect to their impressions and expectations of skill requirements and workplace changes taking place now and ten years from now. In addition, broader skill dimension, career, and industry questions were used as a way of examining larger trends. The survey responses have been aggregated in various ways in order to explore the possibility of group and overall trends existing across numerous questions where significant differences existed and, more generally, across all of the questions.

Overview

This chapter provides a description of the results of the research. In Appendix C are Tables C-1 to C-49 which represent the individual questions on which there was a significant difference among the groups in their responses. Rather than examine the significant questions on a question by question basis, Tables 1 through 5 were used to organize the information found in Appendix C for overall group comparison purposes (e.g., regular adult students versus adult high school teachers and guidance counsellors) across all the questions of significant difference. Next the relative ranking of means of all the groups in each of the "now" and "ten years from now" questions in Appendix C are compared in Tables 6 through 11 so as to indicate overall relationships among the groups so as to get a sense of which groups tended to have lower or higher means in general on the "now" or "ten years from now" questions. In Tables 12 through 31, the overall frequencies to all the survey questions are provided along with information that indicates and summarizes survey question response differences of research interest such

as the difference between "now" versus "ten years from now" responses to the same question or the rank ordered responses when multiple responses where required. Finally, Tables 32 through 39 include a breakdown of respondents by group and provide background information on the survey respondents.

The "now" versus "ten years from now" questions are roughly divided into two sections. Part A consists of skill related questions scored on a nine-point scale indicating increasing importance (with the exception of the last three questions). The remaining "now" and "ten years from now" questions (including the last three questions from Part A were scored on a nine-point percentage scale ranging from ten to ninety percent. These questions (with the exception of the last three questions in Part A represent working condition questions.

Survey Results

Human Resources versus Adult ESL Students, Adult Students, Guidance Counsellors, and Teachers

The survey questions where there was a significant difference between Human Resource professionals (with an overall average mean score on Part A significant difference questions of 7.3) and those involved in adult education displayed an overwhelming positive skew with respect to the latter with very few exceptions (Table 1). In other words, those involved in adult education had a pronounced tendency to provide higher scores in the "now" and "ten years from now" questions while Human Resource professionals consistently scored lower. In the Part A skill section, almost all of the differences were concentrated in the "now" questions. Most of the differences were among the Human Resource professionals and adult ESL (five survey question significant differences out of 22 questions: 11 "now" questions and 11 "ten years from now" questions) and regular adult students (six survey question differences). Regular adult students had average significant mean differences of approximately +1.3 while adult ESL students had an average mean difference of only +0.3 (their positively skewed responses were offset by negatively skewed responses; otherwise, the average of their positively skewed responses is comparable to regular adult students). Adult ESL students provided the only negative mean difference responses: they had lower mean scores regarding "the ability to learn in ten years (-1.1)" and "the ability to operate in team environments with people of different social and cultural backgrounds now (-1.4)". The two survey questions that had noticeably higher means for educational groups were the "skills and values needed to achieve self-esteem, motivation and goal setting (now)" question (all educational groups differed significantly) and "career

Table 1

Human Resources

SURVEY QUESTIONS PART A	MEAN	SIGNIFICANT DIFFERENCE FROM HUMAN RESOURCES MEAN			
		ADULT ESL	ADULT STUDENT	GUIDANCE	TEACHERS
1A-B ABILITY TO LEARN IN (10 YEARS)	8.8605	- 1.123			
1B-A READING, WRITING , COMPUTATION (NOW	7.6296		- 0.7742		
1C-A SPEAKING AND LISTENING SKILLS (NOW)	7.3704	+ 1.0334	+ 1.016		+ 1.4867
1D-A SKILLS VALUES NEEDED TO ACHIEVE HIGH SELF-ESTEEM, MOTIVATION, AND GOAL SETTING (NOW)	6.8148	+ 1.3697	+ 1.555	+ 1.7852	+ 1.9352
1E-A CAREER DEVELOPMENT SKILLS (NOW)	6.2593	+ 1.7022	+ 1.8089		
1G-A UNDERSTANDING HOW THE ORGANIZATION FUNCTIONS (NOW)	6.5185		+ 1.2126		
1J-A ABILITY TO OPERATE IN TEAM ENVIRONMENTS, WITH PEOPLE OF DIFFERENT SOCIAL AND CULTURAL BACKGROUNDS (NOW)	6.5926		+ 1.3311		+ 1.6217
1J-B ABILITY TO OPERATE IN TEAM ENVIRONMENTS, WITH PEOPLE OF DIFFERENT SOCIAL AND CULTURAL BACKGROUNDS (IN TEN YEARS)	8.4643	- 1.406			
AVERAGE	7.3138	+ 0.3153	+ 1.2830	+ 1.7852	+ 1.6812
WORKING CONDITIONS	MEAN PCT.				
PB-2A TO SOME EXTENT WORKING OUT OF THEIR HOMES (NOW)	28.2143	+ 28.8731	+ 25.466		
PB-2B TO SOME EXTENT WORKING OUT OF THEIR HOMES (IN TEN YEARS)	50.0000		+ 14.9814		
PB-3A WHO ENJOY JOB SECURITY (NOW)	38.1481		+ 11.9451		
PB-3B WHO WILL ENJOY JOB SECURITY (IN TEN YEARS)	24.0741	+ 25.6289	+ 25.7358		
PB-4A EMPLOYED PART-TIME (NOW)	34.4444	+ 19.0507	+ 18.4879		
PB-5A WORKING FOR THEMSELVES (NOW)	22.2222	+ 22.5351	+ 21.6124		
PB-6A WORKING ON A CONTRACT BASIS (NOW)	27.0370	+ 22.1863	+ 21.9364		
PB-7A FINDING THEIR PAY AND OPPORTUNITY GOVERNED AT THE MOMENT BY GLOBAL COMPETITION (NOW)	38.5714	+ 15.3062	+ 15.6815		
PB-8A HAVING TO LEAVE CANADA TO FIND WORK IN THEIR WORK AREA OF INTEREST OR EXPERTISE (NOW)	18.2143	+ 24.6983	+ 26.1466		
PB-8B HAVING TO LEAVE CANADA TO FIND WORK IN THEIR WORK AREA OF INTEREST OR EXPERTISE (IN TEN YEARS)	35.3571		+ 17.3045		
PB-10B RECEIVING CLOSE SUPERVISION ON THE JOB (IN TEN YEARS)	29.6429	+ 22.4725	+ 19.8389		
PB-11A RECEIVING SUPERVISION THAT IS ENCOURAGING, ENRICHING, COLLABORATIVE, AND EMPOWERING (NOW)	28.1481	+ 17.483	+ 16.3093		
PB-12A REQUIRED TO PLAY A LEADERSHIP ROLE IN THEIR JOB (NOW)	29.6296	+ 16.584	+ 19.4892		
PB-14A VARIETY PLAYS A SIGNIFICANT ROLE ON THE JOB (NOW)	33.7037	+ 17.5963	+ 22.2123		
PB-15A NUMBER OF JOB DUTIES OR RESPOSIBILITIES IS LARGE (NOW)	37.4074	+ 17.1926	+ 20.1398		

PB-16A REQUIRE POST SECONDARY DIPLOMAS OR DEGREES FOR EMPLOYMENT (NOW)	43.3333	+ 16.0842	+ 25.6567		
PB-17A REQURE CAREER COUNSELLING (NOW)	39.2857	+ 16.2483	+ 17.3308		
PB-19A FIND THEIR JOBS CHALLENGING (NOW)	35.3571	+ 20.4121	+ 18.7628		
PB-20A FORCED TO LEARN SKILLS THEY ARE NOT INTERESTED IN (NOW)	38.5714		+ 17.6084		
PB-20B FORCED TO LEARN SKILLS THEY ARE NOT INTERESTED IN (IN TEN YEARS)	45.0000		+ 17.6316		
PB-21A FUTURE TRENDS INFLUENCE CURRENT CAREER DECISIONS (NOW)	27.8571	+ 28.8756	+ 32.4091		
PB-21B FUTURE TRENDS INFLUENCE CURRENT CAREER DECISIONS (IN TEN YEARS)	51.0714		+ 17.1796		
PB-22A FIND WORK AND PERSONAL LIFE BOUNDARIES BEGINNING TO BLUR	50.0000		+ 10.0386		
AVERAGE	35.0126	+ 22.5064	+ 19.7359		
INDUSTRY SECTOR JOB GROWTH	**MEAN**				
Q-29A AREAS OF JOB GROWTH IN THE PAST TEN YEARS (SERVICE ECONOMY)	1.3214	+ 1.2555	+ 1.0508		
Q-29B AREAS OF JOB GROWTH IN THE NEXT TEN YEARS (PUBLIC / GOVERNMENT)	3.3571	- 0.8625	- 0.8441		
Q-29B AREAS OF JOB GROWTH IN THE NEXT YEARS (SERVICE ECONOMY)	1.1786	+ 1.2124	+ 1.1032		

development skills (now)" questions (adult ESL and regular adult students differed significantly).

Only adult ESL and regular adult students displayed any significant differences with respect to working condition-related survey questions which were responded to using percentage estimates. Once again, most of the significant differences were associated with "now" questions and the two adult student groups had higher mean average responses (adult ESL, +23%; regular adult students, +20%) than the human resource professional overall average mean score of 35% for questions with significant differences. Regular adult students had more significant differences in their responses than adult ESL students (23 versus 16 survey questions with significant differences out of 45 questions: 21 "now" questions, 21 "in ten years" questions, and 3 skill requirement questions). There were four common survey questions among the two student groups where the means were 25% or higher: "To some extent working out of their homes (now)", "who will enjoy job security (in ten years)", "having to leave Canada to find work in their work area of interest or expertise" and "future trends influence career decisions (now)." Regular adult students also had a 26% higher mean on the question, "require post-secondary diplomas or degrees for employment (now)."

Significant differences were also evident with adult ESL and regular adult students with respect to areas of job growth. Adult ESL and regular adult students were far less likely to indicate that the service economy was the main area of job growth over the past ten years. Out of a possible ranking of one to four, both ranked the service economy between 2nd and 3rd as a job growth area (i.e., they had means between one to two points higher than human resource professionals) versus 1st choice for human resource professionals (whose mean was 1.3214). With respect to job growth over the next ten years, adult ESL and regular adult students rated the service economy between 2nd and 3rd (versus 1st for human

resource professionals) and the public sector/government between 2nd and 3rd choice (versus 4th choice for human resource professionals).

Except for two skill "in ten years" questions where only adult ESL students differed significantly in a negative way, all of the other education groups differed significantly in positive manner from human resource professionals.

Regular Adult Students versus Adult ESL Students, Guidance, and Teachers

Regular adult students (see Table 2) only significantly differed from adult ESL students with respect to the Part A skill questions and all but one of these differences were connected with "in ten years" questions. There were significant differences on 6 out of 11 "ten years from now" questions with regular adult students having an average mean response +0.7 higher than adult ESL students (with an overall average mean of 8.2 on these 7 questions). All significant response means were higher for regular adult students with the questions, "the ability to operate in team environments with people of different social and cultural backgrounds (now and ten years from now)", having the highest mean differences (-0.8 and –1.0).

Guidance and teachers significantly differed from regular adult students with respect to the working condition questions with average mean differences of –15% and –18% (from the regular adult student average mean of 52%). On all of the questions with significant differences (16 for guidance, 13 for teachers, and 1 for adult ESL out of 42 survey questions), regular adult students had higher percentage mean scores. There were only 3 "ten years from now" questions that had significantly different responses in total from these educational groups. Adult ESL differed only with respect to the question concerning the need for "post-secondary diplomas or degrees (now)" by –9% (versus –17% for guidance and –17% for teachers). A mean difference of greater than 20% was evident in connection with teachers on the following survey questions: "having to leave Canada to find work in their work area (now)." For teachers, a mean difference of greater than 20% was found on

Table 2

Adult Students

SURVEY QUESTIONS PART A	MEAN	SIGNIFICANT DIFFERENCE FROM ADULT STUDENTS MEAN		
		ADULT ESL	GUIDANCE	TEACHERS
1A-A THE ABILITY TO LEARN (IN TEN YEARS)	8.3434	- 0.6152		
1B-B READING, WRITING, COMPUTATION SKILLS (IN TEN YEARS)	8.3636	- 0.6354		
1C-2 SPEAKING AND LISTENING SKILLS (TEN YEARS)	8.4847	- 0.6206		
1D-B SKILLS AND VALUES NEEDED TO ACHIEVE HIGH SELF-ESTEEM, MOTIVATION, AND GOAL SETTING (IN TEN YEARS)	8.3422	- 0.6265		
1J-A THE ABILITY TO OPERATE IN TEAM ENVIRONMENTS, WITH PEOPLE OF DIFFERENT SOCIAL AND CULTURAL BACKGROUNDS (NOW)	7.9237	- 0.7699		
1J-B THE ABILITY TO OPERATE IN TEAM ENVIRONMENTS, WITH PEOPLE OF DIFFERENT SOCIAL AND CULTURAL BACKGROUNDS (IN TEN YEARS)	8.0758	- 1.0175		
1K-B THE ABILITY TO BE ENTREPRENEURIAL AND INNOVATIVE IN MANY AREAS (IN TEN YEARS)	7.8077	- 0.7177		
AVERAGE	8.1916	- 0.7147		
WORKING CONDITIONS	**MEAN PCT.**			
PB-2A TO SOME EXTENT WORKING OUT OF THEIR HOMES (NOW)	53.6803		- 19.8708	- 23.6803
PB-3B WHO WILL ENJOY JOB SECURITY (IN TEN YEARS)	49.8099		- 17.1909	- 18.0858
PB-4A EMPLOYED PART-TIME (NOW)	52.9323		- 15.3133	
PB-5A WORKING FOR THEMSELVES (NOW)	43.8346		- 11.6926	- 13.1449
PB-6A WORKING ON A CONTRACT BASIS (NOW)	48.9734		- 13.0218	- 13.1113
PB-7A FINDING THEIR PAY AND OPPORTUNITY GOVERNED AT THE MOMENT BY GLOBAL COMPETITION (NOW)	54.2529		- 14.4855	
PB-8A HAVING TO LEAVE CANADA TO FIND WORK IN THEIR WORK AREA OF INTEREST OR EXPERTISE (NOW)	44.3609		- 22.2180	- 21.8609
PB-8B HAVING TO LEAVE CANADA TO FIND WORK IN THEIR WORK AREA OF INTEREST OR EXPERTISE (IN TEN YEARS)	52.6616		- 14.3689	- 23.7727
PB-9A NEED TO TRAVEL OUTSIDE THE COUNTRY AS PART OF THEIR JOB (NOW)	39.2830		- 14.5919	
PB-11A RECEIVING SUPERVISION THAT IS ENCOURAGING,ENRICHING, COLLABORATIVE, AND EMPOWERING (NOW)	44.4574		- 8.8476	
PB-12A REQUIRED TO PLAY A LEADERSHIP ROLE IN THEIR JOB (NOW)	49.1188			- 16.8966
PB-13B WORKING WITH SOPHISTICATED TECHNOLOGY (IN TEN YEARS)	75.5894		- 11.8424	
PB-14A VARIETY PLAYS A SIGNIFICANT ROLE ON THE JOB (NOW)	55.9160		- 16.1541	- 20.5589
PB-16A REQUIRE SECONDARY DIPLOMAS OR DEGREES FOR EMPLOYMENT (NOW)	68.6567	- 9.2392	- 16.5637	- 16.8710
PB-16A FIND THEIR JOBS CHALLENGING (NOW)	54.1199			- 15.1913
PB-20A FORCED TO LEARN SKILLS THEY ARE NOT INTERESTED (NOW)	56.1798		15.2042	- 20.1084
PB-20B FORCED TO LEARN SKILLS THEY ARE NOT INTERESTED (IN TEN YEARS)	62.3616			- 11.9173
PB-21A FUTURE TRENDS INFLUENCE CURRENT CAREER DECISIONS (NOW)	60.2662		- 18.4057	- 20.9805
PB-22A FIND WORK AND PERSONAL LIFE BOUNDARIES BEGINNING TO BLUR (NOW)	60.0386		- 13.1338	- 18.1677
AVERAGE	51.9727		- 15.1815	- 18.1677

INDUSTRY SECTOR JOB GROWTH	MEAN			
Q-23A TWO KINDS OF SKILLS WHICH CAN BE EASILY TRANSFERRED TO A NEW OCCUPATION (DATA)	1.0000			+0.4286
Q-28A NUMBER OF YEARS EDUCATION OR TRAINING THE AVERAGE WORKER REQUIRES BEYOND HIGH SCHOOL (NOW)	3.7426			- 1.2943
Q-29A AREAS OF JOB GROWTH IN THE PAST TEN YEARS (SERVICE ECONOMY)	2.3722		- 0.8081	- 1.8722
Q-29A AREAS OF JOB GROWTH IN THE NEXT TEN YEARS (PUBLIC SECTOR / GOVERNMENT)	2.7273		+ 1.0676	+ 0.9127
Q-29A AREAS OF JOB GROWTH IN THE NEXT TEN YEARS (SERVICE ECONOMY)	2.2818		- 0.8715	- 1.2018

the following questions: "to some extent working out of their homes (now)", "having to leave Canada to find work in their work area (now and ten years from now)", "variety plays a significant role on the job (now)", "forced to learn skills they are not interested in (now)", and "future trends influence career decisions (now)."

Teachers differed significantly from regular adult students with respect to data skill transferability (teachers chose "data" skills as one of two most transferable skills significantly less often than did regular adult students) and the number of years of education or training the average worker now requires beyond high school (approximately 2 and a half years versus just under four years for regular adult students).

Guidance counsellors and teachers significantly differed from regular adult students with respect to service economy growth in the past ten years (between 1st and 2nd place for guidance, 1st place for teachers, and between 2nd and 3rd place for regular adult students). With respect to significant differences in connection with public sector/government job growth in the next ten years, guidance and teacher means were close to 4th place versus between 2nd and 3rd place for regular adult students. Service economy job growth in the next ten years found guidance and teacher means close to 1st place versus between 2nd and 3rd place for regular adult students.

Guidance and teachers differed significantly in the same direction on all of the percentage survey questions and had no significant differences at all in the Part A skill section. Adult ESL students disagreed consistently negatively on the Part A skill section questions and on the single question of significant difference among the percentage survey questions.

Adult ESL Students versus Regular Adult Students, Guidance, and Teachers

Adult ESL students (see Table 3) differed from the other educational groups on 7 of the 11 "ten years from now" questions in Part A. Each of the three other educational groups had significant differences on 5 of these 11 "ten years from now" questions. The average adult ESL mean for these questions was 7.5. Other educational groups scored uniformly higher on all questions of significant difference (regular adult students, +0.7 on average; guidance, +1.3 on average; and teachers, +1.3 on average). The two questions with the highest score difference were "the ability to operate in team environments with people of different social and cultural backgrounds (ten years from now)" and "the ability to be entrepreneurial and innovative in many areas (ten years from now)". All of the other three educational groups differed the most on these two questions. The other question on which all of these three educational groups differed was: "skills and values needed to achieve high self-esteem, motivation and goal setting."

With respect to the percentage questions at the end of Part A and the working condition questions (where there was a significant group difference), adult ESL students had average mean score of 52%. Guidance differed negatively on all 8 "now" questions and 1 "ten years from now" question by –16% on average. Teachers differed negatively on all 6 "now" questions and 2 "ten years from now" questions by –19%. There was no significant difference with regular adult students on any these survey questions. Both guidance and teachers differed significantly from adult ESL students on the following questions: "to some extent working out of their home now" (-23% and -27%), "working for themselves now" (-13% and -14%), and "future trends influence current career decision now" (-15% and -17%).

Table 3

Adults ESL

SURVEY QUESTIONS PART A	MEAN	SIGNIFICANT DIFFERENCE FROM ADULT STUDENTS MEAN		
		ADULT STUDENTS	GUIDANCE	TEACHERS
1B-B READING, WRITING, AND COMPUTATION SKILLS (IN TEN YEARS)	7.7282	+ 0.6354		
1C-B SPEAKING AND LISTENING SKILLS (IN TEN YEARS)	7.8641	+ 0.6206		+ 1.0645
1D-B SKILLS AND VALUES NEEDED TO ACHIEVE HIGH SELF-ESTEEM, MOTIVATION, AND GOAL SETTING (IN TEN YEARS)	7.7157	+ 0.6265	+ 1.07	+ 1.1414
1F-B INTERPERSONAL SKILLS IN GENERAL (IN TEN YEARS)	7.3564		+ 1.1558	+ 1.1992
1I-B THE ABILIY TO ADAPT AND OPERATE IN A RAPIDLY CHANGING TECHNOLOGICAL ENVIRONMENT (IN TEN YEARS)	7.8235		+ 1.0789	
1J-B THE ABILITY TO OPERATE IN TEAM ENVIRONMENTS, WITH PEOPLE OF DIFFERENT SOCIAL AND CULTURAL BACKGROUNDS (IN TEN YEARS)	7.0583	+ 1.0175	+ 1.6246	+ 1.6454
1K-B THE ABILITY TO BE ENTERPRENEURIAL AND INNOVATIVE IN MANY AREAS (IN TEN YEARS)	7.0900	+ 0.7177	+ 1.3490	+ 1.5026
AVERAGE	7.5195	+ 0.7235	+ 1.2557	+ 1.3106
MEAN PERCENT QUESTIONS	**MEAN PCT.**			
PERCENTAGE OF PEOPLE WHO WILL LIKELY REQUIRE MOST OF THESE SKILLS (IN TEN YEARS)	65.3398			+ 13.6257
PB-2A TO SOME EXTENT WORKING OUT OF THEIR HOMES (NOW)	57.0874		- 23.2779	- 27.0874
PB-3B WHO WILL ENJOY JOB SECURITY (IN TEN YEARS)	49.7030		- 17.0840	
PB-4A EMPLOYED PART-TIME (NOW)	53.4951		- 15.8761	
PB-5A WORKING FOR THEMSELVES (NOW)	43.8346		-12.6144	- 14.0676
PB-6A WORKING ON A CONTRACT BASIS (NOW)	48.9734		- 13.2709	
PB-7A FINDING THEIR PAY AND OPPORTUNITY GOVERNED AT THE MOMENT BY GLOBAL COMPETITION (NOW)	53.8776		- 14.1102	
PB-8A HAVING TO LEAVE CANADA TO FIND WORK IN THEIR WORK AREA OF INTEREST OR EXPERTISE (NOW)	42.9126		- 20.7700	- 20.4126
PB-8B HAVING TO LEAVE CANADA TO FIND WORK IN THEIR WORK AREA OF INTEREST OR EXPERTISE (IN TEN YEARS)	47.5728			- 18.6839
PB-11A RECEIVING SUPERVISION THAT IS ENCOURAGING, ENRICHING, EMPOWERING (NOW)	45.6311		- 10.0213	
PB-14A VARIETY PLAYS A SIGNIFICANT ROLE IN THE JOB (NOW)	51.3000			- 15.9429
PB-19A FIND THEIR JOBS CHALLENGING (NOW)	55.7692			- 16.8406
PB-21A FUTURE TRENDS INFLUENCE CURRENT CAREER DECISIONS (NOW)	56.7327		- 14.8722	- 17.4470
AVERAGE	51.7103		- 15.7663	- 18.6403
	MEAN			
Q-23 TWO KINDS OF SKILLS CAN BE EASILY TRANFERRED TO A NEW OCCUPATION (DATA)	1.0000			+ 0.4286
Q-29A AREAS OF JOB GROWTH IN THE PAST TEN YEARS (SERVICE ECONOMY)	2.5769		- 1.0128	- 1.0769
Q-29B AREAS OF JOB GROWTH IN THE NEXT TEN YEARS (PUBLIC SECTOR / GOVERNMENT)	2.7089		+ 1.0860	+ 0.9311
Q-29B AREAS OF JOB GROWTH IN NEXT TEN YEARS (SERVICE ECONOMY)	2.3291		- 0.9188	- 1.2491

Adult ESL students chose "data" skills as one of the "two kinds of skills which can be easily transferred to a new occupation" significantly more often than teachers did. With respect to "areas of job growth in the past ten years", both guidance and teachers had the service economy in 1st place (versus between 2nd and 3rd place for adult ESL students). In the next ten years both guidance and teachers rated the public sector/government close to 4th place (versus close to 3rd place for adult ESL students) as an area of job growth. On the other hand, both guidance and teachers rated the service economy closer to 1st place as an area of job growth over the next ten years (versus between 2nd and 3rd place for adult ESL students).

Guidance and teachers differed in the identical direction on questions of common significant difference in all of the above survey questions. All of the educational groups differed significantly in a positive direction with adult ESL students in the Part A skills section.

Natcon versus Guidance and Teachers

Overall there were few differences among these three groups and none in the working conditions part of the survey (see Table 4). In the skills section of Part A, the Natcon group's average mean for the 5 "now" questions where there was a significant difference was 7.2, with guidance varying positively on 2 of the 11 "now" questions by an average of +1.2 and teachers by +1.4 on 5 of the "now" questions. All significant differences were positive in nature. The two questions on which guidance and teachers both significantly differed from Natcon were "speaking the listening skills now" (+1.1 and +1.5) and "skills and values needed to achieve high self-esteem, motivation, and goal setting now" (+1.3 and +1.4). The most important skill question among those with a significant difference for Natcon was "the ability to learn now" with a mean of 7.8 (and with teachers differing by +1.1).

Teachers also differed from Natcon in their scoring of "data" as one of the "two kinds of skills which can easily be transferred to a new occupation" (teachers chose "data" significantly less often than Natcon as one of the two most transferable skills). In addition, teachers felt that the "number of careers the average person graduating from school will likely have before retiring fully" was 1.2 less than the Natcon 5.9.

Generally there were very few differences between Natcon and guidance and only a few differences between Natcon and teachers.

Table 4

Natcon

SURVEY QUESTIONS PART A	MEAN	SIGNIFICANT DIFFERENCE FROM NATCON MEAN	
		GUIDANCE	TEACHERS
1A-A THE ABILITY TO LEARN (NOW)	7.8125		+ 1.0804
1C-A SPEAKING AND LISTENING SKILLS	7.3125	+ 1.1265	+ 1.5446
1D-A SKILLS AND VALUES NEEDED TO ACHIEVE HIGH SELF-ESTEEM, MOTIVATION, AND GOAL SETTING (NOW)	7.3330	+ 1.2667	+ 1.4167
1I-A THE ABILITY TO ADAPT AND OPERATE IN A RAPIDLY CHANGING TECHNOLOGICAL ENVIRONMENT	7.0208		+ 1.3721
1J-A THE ABILIY TO OPERATE IN TEAM ENVIRONMENTS, WITH PEOPLE OF DIFFERENT SOCIAL AND CULTURAL BACKGROUNDS (NOW)	6.7708		+1.4435
AVERAGE	7.2499	+1.1966	+ 1.3714
Q-23 TWO KINDS OF SKILLS WHICH CAN BE EASILY TRANSFERRED TO A NEW OCCUPATION (DATA)	1.0000		+ 0.4286
Q-27 NUMBER OF CAREERS THE AVERAGE PERSON GRADUATING FROM SCHOOL WILL LIKELY HAVE BEFORE RETIRING FULLY	5.8913		-1.1713

Job Seekers versus Adult ESL and Regular Adult Students

In the Part A skill section (see Table 5), there were no significant differences between job seekers and adult ESL students and only two "now" question positive differences (of +0.6 on average from the average mean of 7.8 for job seekers) with regular adult students on the following questions: "ability to learn now" (+0.7) and "skills and values needed to achieve self-esteem, motivation, and goal setting now" (+0.5).

With respect to the working condition percentage questions, regular adult students differed significantly from job seekers on six "now" questions and one "ten years from now" question by having a mean average 11% higher than the job seeker mean average of 45%. Adult ESL students had significant differences on only two questions with a mean average difference of +12%. All of the significant differences for both adult ESL and regular adult students were positive in nature. Both educational groups had significant differences from job seekers on the following two questions: "who will enjoy job security in ten years" (job seekers: 36%; adult ESL students, +13%; regular adult students, +13%) and "find their job challenging now (job seekers: 44%, adult ESL students, +11%; and regular adult students, +10%).

Table 5

Job Seekers

SURVEY QUESTIONS PART A	MEAN	SIGNIFICANT DIFFERENCE FROM JOB SEEKERS MEAN	
		ADULT ESL	ADULT STUDENTS
1A- ABILITY TO LEARN (NOW)	7.8125		+ 0.7006
1D-A SKILLS AND VALUES NEEDED TO ACHIEVE HIGH SELF-ESTEEM, MOTIVATION, AND GOAL SETTING (NOW)	7.8661		+ 0.5037
AVERAGE	7.8393		+ 0.6022
WORKING CONDITION QUESTIONS	**MEAN PCT.**		
PB-3B WHO WILL ENJOY JOB SECURITY (IN TEN YEARS)	36.4815	+ 13.2215	+ 13.3284
PB-8A HAVING TO LEAVE CANADA TO FIND WORK IN THEIR WORK AREA OF INTEREST OR EXPERTISE	34.7321		+9.6288
PB-14A VARIETY PLAYS A SIGNIFIGANT ROLE ON THE JOB (NOW)	44.2718		+ 11.6442
PB-15A NUMBER OF JOB DUTIES OR RESPONSIBILITIES IS LARGE (NOW)	47.2642		+ 10.2830
PB-16A REQUIRE POST SECONDARY DIPLOMAS OR DEGREES FOR EMPLOYMENT (NOW)	58.4545		+ 10.2022
PB-19A FIND THEIR JOBS CHALLENGING (NOW)	44.4954	+ 11.2738	+9.6245
PB-21A FUTURE TRENDS INFLUENCE CURRENT CAREER DECISIONS (NOW)	49.0579		+ 10.5603
AVERAGE	45.0579	+ 12.2477	+ 10.7531

Overview of "Now" Means On Questions with

Significant Group Differences

Table 6 summarizes the "now" questions within Appendix C with respect to number of times each of the groups compared had a mean that fell in the middle of the seven groups (i.e., the fourth lowest mean) or had a mean lower in value than the middle ranking mean. The groups whose mean were among the lowest three means on each of the "now" question were ranked according to the number of times each group's mean was either the lowest mean, the second lowest mean, or the third lowest mean on any of the "now" questions. The frequencies of each of these bottom three ranking means for each group were then combined to arrive at an overall frequency value that reflected the number of times each group had means on "now" questions that fell among the lowest three means for each "now" question. By using this approach, it was possible to get an overall sense of the extent to which each group was likely to provide "now" question scores that were lower on average than the other groups on questions where there was a significant difference. In other words, those groups that frequently had means that were among the lowest three means on any given "now" question in Appendix C had a tendency to score lower in general on "now" questions where significant differences existed among the various groups. By ranking the tendency of each group to provide lower scores on these "now" questions it was possible to compare each group in this respect. Similarly, the group that was most likely to have the middle ranking mean on these same "now" questions could be said to display a relative tendency to avoid extreme scores on "now" questions where there was a significant difference among the groups.

In Table 6, the three groups in the lowest means category (i.e., having the bottom three means) with respect to any of the "now" questions were human resource professionals, Natcon, and teachers. Human resource professionals had the lowest mean on 17 questions of significant difference (versus 8 for Natcon and 1 for teachers). Human resource professionals tied for the lowest combined mean total with 25 along with Natcon (with 13 for teachers). In no instance did regular adult students have the 1st, 2nd, or 3rd lowest mean. In other words, there was strong tendency for human resource professionals and Natcon participants to provide lower scores on "now" questions where there were significant differences. On the other hand, adult students never had a mean score that was not among the groups with the top three means with respect any of these "now" questions.

Guidance clearly had the middle mean on more questions of significance than any other group (10 versus 5 for job seekers and 4 for teachers and adult ESL students). So guidance teachers had the strongest tendency to avoid extreme scores relative to the other groups on these "now" questions. Perhaps guidance teachers are receiving information from both students and adult professionals and the media regarding skill and work-condition requirements and so are more likely to have scores that indicate a balancing of these viewpoints.

In Table 7 the three groups in the highest means category (i.e., among the top three means) with respect to any of the "now" questions were regular adult students (25), adult ESL students (20), and job seekers (18). Regular adult students had the highest mean on 13 questions of significant difference, adult ESL students on 6, and job seekers on none (although on 16 questions they had the 3rd highest mean). In no instance did Natcon or human resource professionals have the 1st, 2nd, or 3rd highest mean. In other words, there was a pronounced tendency for both groups of adult students and job seekers to provide higher average scores on "now" questions where there was a significant difference.

Table 6

Now

Group	Lowest Mean Frequency	2nd Lowest Mean Frequency	3rd Lowest Mean Frequency	Lowest Mean Combined Total	Middle Mean Frequency
Human Resources	17	6	2	25	1
Natcon	8	13	4	25	1
Teachers	1	2	10	13	4
Guidance	0	3	5	8	10
Job seekers	0	2	3	5	5
Adult ESL	0	0	2	2	4
Adult Students	0	0	0	0	1

Table 7

Now

Group	1st Highest Mean Frequency	2nd Highest Mean Frequency	3rd Highest Mean Frequency	Combined Mean Total
Adult Students	13	9	3	25
Adult ESL	6	13	1	20
Job seekers	0	0	16	16
Teachers	6	0	3	9
Guidance	1	4	3	8
Natcon	0	0	0	0
Human Resources	0	0	0	0

Conversely, Natcon or human resource professionals always provided consistently lower scores on average on all of these "now" questions.

It is possible that those students who are receiving upgrading are constantly being told by their teachers and by employers that they require a high school education as a bare minimum to find a job. Frequently, they would be made aware of the fact that most jobs in the new economy require post-secondary training. For anyone with less than a high school diploma, any job that requires many years of additional training beyond high school would likely be rated against their current skill level and the likelihood they would be capable of achieving the required skills. Viewed from this perspective, skill requirements at the moment could easily appear to be relatively high.

Employers, on the other hand, are usually quite familiar with people with educational achievements ranging from below high school to graduate school in the workplace. Most of the human resource professionals would have completed college and university degrees as well as post-diploma human resource certification programs as a bare minimum. For them, many of the people they employ may have lower skill levels than those in the human resource profession. Therefore, because they likely are more aware of the higher levels of education attainable (i.e., post-doctoral fellowships, etc.), the range of skill levels one could ask for continues well beyond what most people lacking a high school education would likely have any familiarity with. From this perspective, current skill requirements might appear to significantly lower than what could be demanded. Moreover, human resource professionals are more likely than the average adult reentry student to be able separate media hype from current employment reality. In other words, the press may portray working conditions and skill requirements changing at a faster rate than they are at the moment. Much of what appears in the various media may reflect anticipated changes or changes appearing in some leading-edge professions rather the situation currently

encountered by the average job seeker. Another possible reason for a lower emphasis on skills and working condition orientation may be that employers consider attitudinal predisposition a more important concern in making a hiring decision once some minimum or acceptable level of ability is indicated in terms of skills and workplace adaptability.

Overview of "Ten Years From Now" Means on Questions with Significant Group Differences

In Table 8, the three groups in the lowest means category (i.e., having the bottom three means) with respect to any of the "ten years from now questions" in Appendix C were adult ESL students (9), job seekers (8), and human resources (8). Adult ESL students had the lowest means on 8 questions, human resource professionals on 5, and job seekers on none. Although human resource professionals might be expected to have lower means for the same reasons they did with "now" questions on Tables 5 and 6, adult ESL students have shifted from being among the high mean groups on "now" questions to being more predominantly represented by lower mean scores on "ten years from now" questions. Perhaps for many immigrants, the major obstacle to finding work may be the English language. Many immigrants already possess the equivalent of a high school diploma or better in the country of origin and may believe that within the next ten years they will have sufficiently mastered English to easily find employment. In addition, it is possible they have been less affected by media regarding the changes anticipated given their current difficulties with the English language. If they are from developing countries, many of the new economy realities have likely received far less public attention than in countries like Canada that have leading edge technologies.

Guidance had the middle mean on more question of significance than any other group (5 versus 3 for human resource professionals and Natcon). So guidance teachers were the group most likely to avoid extreme scores on "now" and "ten years from now" questions. This would seem to further confirm their tendency to have employment-related viewpoints that balance the various perspectives of students, other teachers, and employers.

Table 8

Ten Years

Group	Lowest Mean Frequency	2nd Lowest Mean Frequency	3rd Lowest Mean Frequency	Lowest Mean Combined Total	Middle Mean Frequency
Adult ESL	8	0	1	9	2
Job seekers	0	4	4	8	0
Human Resources	5	2	1	8	3
Teachers	1	2	3	6	1
Adult Students	0	3	3	6	1
Natcon	0	3	2	5	3
Guidance	1	1	1	3	5

In Table 9 the three groups in the highest means category (i.e., among the top three means) with respect to any of the "ten years from now" questions were teachers (8), regular adult students (8), guidance (7), Natcon (7), and job seekers (7). Teachers had the highest mean on 7 questions of significant difference, regular adult students on 6, and guidance on 1. In no instance did Natcon, job seekers, or human resource professionals have the highest mean. The high mean scores for teachers may reflect for teachers the increasing pressures they are receiving to improve student scores and raise standards to meet those of many other nations or even those in other provinces. The general trend towards raising educational standards and continually measuring educational outcomes is likely seen by teachers as something that will manifest itself more fully over the next ten years. For adult students, there may be the sense that they are in a race to get a high school diploma before the baseline job requirement shifts even higher up the education ladder. Since most adult students are likely to have witnessed the increasing rise in educational requirements in the work world in Canada over the past ten years, they are likely to have a relatively keen sense of the possibility that this trend could continue. In addition, most teachers, feeling the pressure of rising educational standards, are likely to make their views known in the classroom as a way of either motivating or threatening their students to perform better.

Table 9

Ten Years

Group	1st Highest Mean Frequency	2nd Highest Mean Frequency	3rd Highest Mean Frequency	Combined Mean Total
Teachers	7	1	0	8
Adult Students	6	1	1	8
Guidance	1	5	1	7
Natcon	0	1	6	7
Job seekers	0	4	3	7
Adult ESL	1	2	1	4
Human Resources	0	1	3	4

Overview of "Now" and "Ten Years From Now" Combined Number of Lowest Means on Questions with Significant Group Differences

In Table 10, the three groups with means on questions of significant differences that were among the three lowest means on all of the "now" and "ten years from now" questions in Appendix C were human resource professionals (33), adult ESL students (24), and job seekers (23). Human resource professionals had the lowest mean on 22 questions, Natcon on 8, and teachers on 2. Thus human resource professionals would seem to either truly believe that skill requirements are not as important compared with other groups or they have a broader scale against which they are measuring the possibility for skill improvement as mentioned earlier. Or perhaps beyond some threshold of skill ability and working-condition orientation, attitudinal variables become more important in the eyes of employers.

Guidance clearly had the highest number of middle means with 15 versus 6 for adult ESL students and 5 for teachers and job seekers. This would seem to be a relatively strong indication of the tendency of guidance teachers to balance the viewpoints of students, teachers, and employers when forming employment-related opinions.

Table 10

Now and Ten Years Combined Means

Group	Lowest Mean Frequency	2nd Lowest Mean Frequency	3rd Lowest Mean Frequency	Combined Mean Total	Middle Mean Frequency
Human Resources	22	8	3	33	4
Natcon	8	16	6	30	4
Teachers	2	4	13	19	5
Job seekers	0	6	7	13	5
Adult ESL	8	0	3	11	6
Guidance	1	4	6	11	15
Adult Students	0	3	0	6	2

Overview of "Now" and "Ten Years From Now" Combined Number of Highest Means on Questions with Significant Group Differences

In Table 11, the three groups with means on questions of significant differences that were among the three highest means on "now" and "ten year from now" questions in Appendix C were regular adult students (33), adult ESL students (24), and job seekers (23). Regular adult students had the highest mean on 19 questions of significant difference, teachers on 13, and adult ESL students on 7. So it would seem that overall teachers and adult students are most likely to view skill and working condition demands as being greater than do employers and guidance teachers. As mentioned previously, both teachers and adult students are likely to feel more personally affected by the increasing demands for both higher educational standards and higher levels of educational achievement. Employers are frequently complaining about the inability of the school system to provide graduates with appropriate skills or attitudes. No doubt this has had its affect on teachers and students who bear the brunt of these criticisms.

Table 11

Now And Ten Years Combined Means

Group	1st Highest Mean Frequency	2nd Highest Mean Frequency	3rd Highest Mean Frequency	Combined Mean Total
Adult Students	19	10	4	33
Adult ESL	7	15	2	24
Job seekers	0	4	19	23
Teachers	13	1	3	17
Guidance	2	9	4	15
Natcon	0	1	6	7
Human Resources	0	1	3	4

Frequencies of Survey Questions for Entire Population for Now and Ten Years From Now

In the Part A skill section, all response means in Table 12 for "now" questions ranged between 7.1 and 8.3. In Table 13, which summarizes the "ten years from now" questions of Part A, response means ranged from 7.6 to 8.4. The ability to learn was the highest scoring question among the "now" and "ten years from now" questions.

With respect to the working condition and career-related questions with percentage responses in Table 14, all response means for "now" questions ranged from 34% to 60%. For the "ten years from now" questions in Table 15, response means varied from 43% to 75%. The need for a post-secondary diplomas or degrees for employment was the highest scoring question among the "now" and "ten years from now" questions.

Table 12

Frequencies of Survey Questions for Entire Population for Now

VARIABLE & DESCRIPTION	MEAN
PA-1 THE ABILITY TO LEARN	8.3169
PB-1 READING, WRITING AND COMPUTING SKILLS	8.2492
PC-1 SPEAKING AND LISTENING SKILLS	8.2128
PD-1 SKILLS AND VALUES NEEDED TO ACHIEVE HIGH SELF-ESTEEM, MOTIVATION, AND GOAL SETTING	8.1332
PE-1 CAREER DEVELOPMENT SKILLS	7.7878
PI-1 THE ABILITY TO ADAPT AND OPERATE IN A RAPIDLY CHANGING TECHNOLOGICAL ENVIRONMENT	7.7045
PF-1 INTERPERSONAL SKILLS IN GENERAL	7.6169
PJ-1 THE ABILITY TO OPERATE IN TEAM ENVIRONMENTS, WITH PEOPLE OF DIFFERENT SOCIAL AND CULTURAL BACKGROUNDS	7.5860
PG-1 UNDERSTANDING THE ORGANIZATION FUNCTIONS	7.3833
PK-1 THE ABILITY TO BE ENTREPRENEURIAL AND INNOVATIVE IN MANY AREAS:DESIGN AND R&D, MANAGEMENT OF PEOPLE, AND INFORMATION	7.2117
PH-1 THE ABILITY TO APPLY MATHEMATICAL AND SCIENTIFIC PRINCIPLES	7.1355

Table 13

Frequencies of Survey Questions for Entire Population in Ten Years

VARIABLE & DESCRIPTION	MEAN
PA-2 THE ABILITY TO LEARN	8.3684
PI-2 THE ABILITY TO ADAPT AND OPERATE IN RAPIDLY CHANGING TECHNOLOGICAL ENVIRONMENT	8.3485
PC-2 SPEAKING AND LISTENING SKILLS	8.3242
PD-2 SKILLS AND VALUES NEEDED TO ACHIEVE HIGH SELF-ESTEEM, MOTIVATION, AND GOAL SETTING	8.2953
PB-2 READING, WRITING, AND COMPUTATION SKILLS	8.2875
PJ-2 THE ABILITY TO OPERATE IN TEAM ENVIRONMENTS, WITH PEOPLE OF DIFFERENT SOCIAL AND CULTURAL BACKGROUNDS	8.0162
PE-2 CAREER DEVELOPMENT SKILLS	7.9952
PF-2 INTERPERSONAL SKILLS IN GENERAL	7.8658
PK-2 THE ABILITY TO BE ENTREPRENEURIAL AND INNOVATIVE IN MANY AREAS:DESIGN AND R&D, MANAGEMENT OF PEOPLE AND INFORMATION	7.8298
PG-2 UNDERSTANDING HOW THE ORGANIZATION FUNCTIONS	7.7011
PH-2 THE ABILITY TO APPLY MATHEMATICAL AND SCIENTIFIC PRINCIPLES	7.5758

Table 14

Frequencies of Survey Questions for Entire Population for Now

VARIABLE & DESCRIPTION	MEAN PCT.
PB-16A REQUIRE POST SECONDARY DIPLOMAS OR DEGREES FOR EMPLOYMENT	60.4459
PB-22A FIND WORK AND PERSONAL LIFE BOUNDARIES BEGINNING TO BLUR	54.4224
PB-18A REQUIRE PERSONAL COUNSELLING	53.3429
PB-17A REQUIRE CAREER COUNSELLING	52.4256
PB-21A FUTURE TRENDS INFLUENCE CURRENT CAREER DECISIONS	52.3002
PB-15A NUMBER OF JOB DUTIES OR RESPONSIBILITIES IS LARGE	52.0718
PB-10A RECEIVING CLOSE SUPERVISION ON THE JOB	50.9425
PB-20A FORCED TO LEARN SKILLS THEY ARE NOT INTERESTED IN	50.4487
PB-13A WORKING WITH SOPHISTICATED TECHNOLOGY	50.3746
PB-7A FINDING THEIR PAY AND OPPORTUNITY GOVERNED AT THE MOMENT BY GLOBAL COMPETITION	49.9023
PB-19A FIND THEIR JOB CHALLENGING	49.2344
PB-4A EMPLOYED PART-TIME	49.2295
PB-14A VARIETY PLAYS A SIGNIFICANT ROLE ON THE JOB	48.5246
PB-2A TO SOME EXTENT WORKING OUT OF THEIR HOMES	48.1141
PB-3A WHO ENJOY JOB SECURITY	46.9872
PB-6A WORKING ON A CONTRACT BASIS	44.2326
PB-12A REQUIRED TO PLAY A LEADERSHIP ROLE IN THEIR JOB	43.6705
PB-11A RECEIVING SUPERVISION THAT IS ENCOURAGING, COLLABORATIVE, AND EMPOWERING	39.8363
PB-5A WORKING FOR THEMSELVES	39.6800
PB-8A HAVING TO LEAVE CANADA TO FIND WORK IN THEIR WORK AREA OF INTEREST OR EXPERTISE	36.8102
PB-9A NEED TO TRAVEL OUTSIDE THE COUNTRY AS PART OF THEIR JOB	34.2265

Table 15

Frequencies of Survey Questions for Entire Population in Ten Years

VARIABLE & DESCRIPTION	MEAN PCT.
PB-16B REQUIRE POST-SECONDARY DIPLOMAS OR DEGREES FOR EMPLOYMENT	75.1040
PB-13B WORKING WITH SOPHISTICATED TECHNOLOGY	71.9643
PB-21B FUTURE TRENDS INFLUENCE CURRENT CAREER DECISIONS	64.6962
PB-14B VARIETY PLAYS A SIGNIFICANT ROLE ON THE JOB	63.3826
PB-7B FINDING THEIR PAY AND OPPORTUNITY GOVERNED AT THE MOMENT BY GLOBAL COMPETITION	63.2463
PB-19B FIND THEIR JOBS CHALLENGING	62.8923
PB-15B NUMBER OF JOB DUTIES OR RESPONSIBILITIES IS LARGE	62.6432
PB-22B FIND WORK AND PERSONAL LIFE BOUNDARIES BEGINNING TO BLUR	62.5458
PB-2B TO SOME EXTENT WORKING OUT OF THEIR HOMES	61.7591
PB-17B REQUIRE CAREER COUNSELLING	60.5088
PB-6B WORKING ON A CONTRACT BASIS	59.1438
PB-20B FORCED TO LEARN SKILLS THEY ARE NOT INTERESTED IN	58.0225
PB-18B REQUIRE PERSONAL COUNSELLING	57.8723
PB-4B EMPLOYED PART-TIME	57.6052
PB-5B WORKING FOR THEMSELVES	57.5728
PB-12B REQUIRED TO PLAY A LEADERSHIP ROLE IN THEIR JOB	54.4098
PB-8B HAVING TO LEAVE CANADA TO FIND WORK IN THEIR WORK AREA OF INTEREST OR EXPERTISE	47.1082
PB-9B NEED TO TRAVEL OUTSIDE THE COUNTRY AS PART OF THEIR JOB	46.6080
PB-10B RECEIVING CLOSE SUPERVISION ON THE JOB	45.1091
PB-11B RECEIVING SUPERVISION THAT IS ENCOURAGING, ENRICHING, COLLABORATIVE, AND EMPOWERING	45.7261
PB-3B WHO ENJOY JOB SECURITY	42.6094

Frequencies of Survey Questions Comparing Now to Ten Years from Now for Entire Population

Each question in Part A in Table 16 showed that "ten year from now" means were higher than "now" means. The average difference between the cumulative "now" mean (7.7580) and "ten years from now" mean (8.0553) in the Part A skill section was 0.2973. As indicated in Table 17, approximately 62% of people in the workforce are assumed to currently require these skills (group response means ranged from 52% for Natcon to 64% for adult students). Ten years from now the percentage of workers anticipated to require these skills is 71% (with the professional groups in the 77% to 79% range and both high school groups having a mean of 70%). In addition, the percentage of people expected to be able to acquire these skills is 60%. Thus approximately 11% of the working population will supposedly be unable to acquire the skills they will need ten years from now. (Human resource professionals believed that only 53% would be capable of learning these skills, while the other groups ranged between 58% to 64% regarding their belief in the ability of those in the workforce being able to master the required skills.)

With respect to the working condition and career-related questions with percentage responses in Table 18, the differences were both positive and negative in the expected direction. In other words, job security and direct supervision scores were lower ten years from now (by 4-6%); however, all other questions showed positive mean differences of 10% on average (even with the inclusion of both positive and negative mean differences). Particularly noteworthy mean differences involved questions concerning working with sophisticated technology (+22%), working for themselves (+18%), working on contract (+15%), finding variety plays a significant role on the job (+15%), requiring post-secondary diplomas or degrees for employment (+15%), finding their job challenging (+14%), working

Table 16

Frequencies of Survey Questions Comparing Now to Ten Years From Now for Entire Population

PART A QUESTIONS	TIME	MEAN	STD DEV	CASES
1A-A THE ABILITY TO LEARN	NOW	8.3169	1.1779	628
1A-B THE ABILITY TO LEARN	IN TEN YEARS	8.3684	1.4597	627
AVERAGE DIFFERENCE		0.0515		
1B-A READING, WRITING, AND COMPUTATION SKILLS	NOW	8.2492	1.1914	626
1B-B READING , WRITING, AND COMPUTATION SKILLS	IN TEN YEARS	8.2875	1.4501	626
AVERAGE DIFFERENCE		0.0383		
1C-A SPEAKING AND LISTENING SKILLS	NOW	8.2128	1.2651	625
1C-B SPEAKING AND LISTENING SKILLS	IN TEN YEARS	8.3242	1.2465	623
AVERAGE DIFFERENCE		0.1114		
1D-A SKILLS AND VALUES NEEDED TO ACHIEVE HIGH SELF-ESTEEM, MOTIVATION, AND GOAL SETTING	NOW	8.1332	1.3213	623
1D-B SKILLS AND VALUES NEEDED TO ACHIEVE HIGH SELF-ESTEEM MOTIVATION, AND GOAL SETTING	IN TEN YEARS	8.2953	1.3678	623
AVERAGE DIFFERENCE		0.1621		
1E-A CAREER DEVELOPMENT SKILLS	NOW	7.7878	1.4777	622
1E-B CAREER DEVELOPMENT SKILLS	IN TEN YEARS	7.9952	1.5317	622
AVERAGE DIFFERENCE		0.2074		
1F-A INTERPERSONAL SKILLS IN GENERAL	NOW	7.6169	1.4988	616
1F-B INTERPERSONAL SKILLS IN GENERAL	IN TEN YEARS	7.8658	1.4937	611
AVERAGE DIFFERENCE		0.2489		611
1G-A UNDERSTANDING HOW THE ORGANIZATION FUNCTIONS	NOW	7.3833	1.7061	621
1G-B UNDERSTANDING HOW THE ORGANIZATION FUNCTIONS	IN TEN YEARS	7.7011	1.6368	619
AVERAGE DIFFERENCE		0.3178		
1H-A THE ABILITY TO APPLY MATHEMATICAL AND SCIENTIFIC PRINCIPLES	NOW	7.1355	1.7093	620
1H-B THE ABILITY TO APPLY MATHEMATICAL AND SCIENTIFIC PRINCIPLES	IN TEN YEARS	7.5758	1.6705	620
AVERAGE DIFFERENCE		0.4403		

1I-A THE ABILITY TO ADAPT AND OPERATE IN A RAPIDLY CHANGING TECHNOLOGICAL ENVIRONMENT	NOW	7.7045	1.5650	616
1I-B THE ABILITY TO ADAPT AND OPERATE IN A RAPIDLY CHANGING TECHNOLOGICAL ENVIRONMENT	IN TEN YEARS	8.3485	1.3118	617
AVERAGE DIFFERENCE		0.644		
1J-A THE ABILITY TO OPERATE IN TEAM ENVIRONMENTS, WITH PEOPLE OF DIFFERENT SOCIAL AND CULTURAL BACKGROUNDS	NOW	7.5860	1.5718	616
1J-B THE ABILITY TO OPERATE IN TEAM ENVIRONMENTS, WITH PEOPLE OF DIFFERENT SOCIAL AND CULTURAL BACKGROUNDS	IN TEN YEARS	8.0162	1.5775	619
AVERAGE DIFFERENCE		0.4302		
1K-A THE ABILITY TO BE ENTREPRENEURIAL AND INNOVATIVE IN MANY AREAS: DESIGN AND R&D, MANAGEMENT OF PEOPLE AND INFORMATION	NOW	7.2117	1.7280	614
1K-B THE ABILITY TO BE ENTREPRENEURIAL AND INNOVATIVE IN MANY AREAS: DESIGN AND R&D, MANAGEMENT OF PEOPLE AND INFORMATION	IN TEN YEARS	7.8298	1.5756	611
AVERAGE DIFFERENCE		0.6181		

AVERAGE NOW MEANS	7.7580
AVERAGE IN TEN YEARS MEANS	8.0553
AVERAGE DIFFERENCE	0.2973

Table 17

Percentage of Workforce Requiring and Capable of Acquiring Part A Skills Now and In Ten Years

	Part A Questions Continued								
	GROUP PERCENTAGE MEANS*								
Part A Questions	Teachers	Human Resources	Guidance	Natcon	Adult ESL	Job Seekers	Adult Students	Std. Dev.	Cases
PA-1L Requiring Skills Now	65.8621	56.4286	62.3810	52.2917	61.8269	60.4630	63.7175		
Overall Mean	61.6561							18.1381	628
PA-1M Requiring Skills In Ten Years	78.9655	78.9286	76.6667	77.8723	65.3398	70.0917	69.6642		
Overall Mean	70.9585							18.5483	626
PA-1N Capable of Acquiring Skills	59.6552	52.50000	60.9756	63.5417	60.9804	57.6852	61.0448		
Overall Mean	60.1923							16.3713	624
Mean differences between 1M &1N	19.3103	26.4286	15.6911	14.3206	4.3594	12.0917	8.6194		
Overall Mean Difference	10.7662								

- See Table 17A & 18A

Table 18

Part B Percentage Questions

PART B PERCENTAGE QUESTIONS	TIME	MEAN PCT.	STD. DV.	CASES
PB-2A TO SOME EXTENT WORKING OUT OF THEIR HOMES	NOW	48.1141	22.2417	631
PB-2B TO SOME EXTENT WORKING OUT OF THEIR HOMES	IN TEN YEARS	61.7591	18.4884	631
AVERAGE DIFFERENCE		13.645		
PB-3A WHO ENJOY JOB SECURITY	NOW	46.9872	21.8978	624
PB-3B WHO ENJOY JOB SECURITY	IN TEN YEARS	42.6094	25.8962	617
AVERAGE DIFFERENCE		(4.3778)		
PB-4A EMPLOYED PART-TIME	NOW	49.2295	17.2661	623
PB-4B EMPLOYED PART -TIME	IN TEN YEARS	57.6052	20.7499	618
AVERAGE DIFFERENCE		8.3757		
PB-5A WORKING FOR THEMSELVES	NOW	39.6800	19.1877	625
PB-5B WORKING FOR THEMSELVES	IN TEN YEARS	57.5728	19.8764	618
AVERAGE DIFFERENCE		17.8928		
PB-6A WORKING ON A CONTRACT BASIS	NOW	44.2326	19.6371	619
PB-6B WORKING ON A CONTRACT BASIS	IN TEN YEARS	59.1438	20.3547	619
AVERAGE DIFFERENCE		14.9112		
PB-7A FINDING THEIR PAY AND OPPORTUNITY GOVERNED BY GLOBAL COMPETITION	NOW	49.9023	19.9016	614
PB-7B FINDING THEIR PAY AND OPPORTUNITY GOVERNED BY GLOBAL COMPETITION	IN TEN YEARS	63.2463	20.3820	613
AVERAGE DIFFERENCE		13.344		
PB-8A HAVING TO LEAVE CANADA TO FIND WORK IN THEIR WORK AREA OF INTEREST OR EXPERTISE	NOW	36.8102	22.5464	627
PB-8B HAVING TO LEAVE CANADA TO FIND WORK IN THEIR WORK AREA OF INTEREST OR EXPERTISE	IN TEN YEARS	47.1082	23.8904	619
AVERAGE DIFFERENCE		10.298		
PB-9A NEED TO TRAVEL OUTSIDE THE COUNTRY AS PART OF THEIR JOB	NOW	34.2265	20.5709	627
PB-9B NEED TO TRAVEL OUTSIDE THE COUNTRY AS PART OF THEIR JOB	IN TEN YEARS	46.6080	23.0943	625
AVERAGE DIFFERENCE		12.3815		
PB-10A RECEIVING CLOSE SUPERVISION ON THE JOB	NOW	50.9425	18.6481	626
PB-10B RECEIVING CLOSE SUPERVISION ON THE JOB	IN TEN YEARS	45.1091	24.4077	623
AVERAGE DIFFERENCE		(5.8334)		

PB-11A RECEIVING SUPERVISION THAT IS ENCOURAGING, ENRICHING, COLLABORATIVE, AND EMPOWERING	NOW	39.8363	19.3579	611
PB-11B RECEIVING SUPERVISION THAT IS ENCOURAGING, ENRICHING, COLLABORATIVE, AND EMPOWERING	IN TEN YEARS	45.7261	22.6154	606
AVERAGE DIFFERENCE		5.8898		
PB-12A REQUIRED TO PLAY A LEADERSHIP ROLE IN THEIR JOB	NOW	43.6705	20.1725	613
PB-12B REQUIRED TO PLAY A LEADERSHIP ROLE IN THEIR JOB	IN TEN YEARS	54.4098	22.2627	610
AVERAGE DIFFERENCE		10.7393		
PB-13A WORKING WITH SOPHISTICATED TECHNOLOGY	NOW	50.3746	19.9761	614
PB-13B WORKING WITH SOPHISTICATED TECHNOLOGY	IN TEN YEARS	71.9643	18.3960	616
AVERAGE DIFFERENCE		21.5897		
PB-14AVARIETY PLAYS A SIGNIFICANT ROLE ON THE JOB	NOW	48.5246	19.6969	610
PB-14B VARIETY PLAYS A SIGNIFICANT ROLE ON THE JOB	IN TEN YEARS	63.3826	21.0197	609
AVERAGE DIFFERENCE		14.858		
PB-15A NUMBER OF JOB DUTIES OR RESPONSIBILITIES IS LARGE	NOW	52.0718	19.2196	613
PB-15B NUMBER OF JOB DUTIES OR RESPONSIBILITIES IS LARGE	IN TEN YEARS	62.6432	20.3959	611
AVERAGE DIFFERENCE		10.5714		
PB-16A REQUIRE POST-SECONDARY DIPLOMAS OR DEGREES FOR EMPLOYMENT	NOW	60.4459	19.4451	628
PB-16B REQUIRE POST- SECONDARY DIPLOMAS OR DEGREE FOR EMPLOYMENT	IN TEN YEARS	75.1040	18.6919	625
AVERAGE DIFFERENCE		14.6581		
PB-17A REQUIRE CAREER COUNSELLING	NOW	52.4256	20.5134	625
PB-17B REQUIRE CAREER COUNSELLING	IN TEN YEARS	60.5088	21.7664	623
AVERAGE DIFFERENCE		8.0832		
PB-18A REQUIRE PERSONAL COUNSELLING	NOW	53.3429	52.0703	627
PB-18B REQUIRE PERSONAL COUNSELLING	IN TEN YEARS	57.8708	22.9675	619
AVERAGE DIFFERENCE		4.5279		
PB-19A FIND THEIR JOBS CHALLENGING	NOW	49.2344	19.7764	627
PB-19B FIND THEIR JOBS CHALLENGING	IN TEN YEARS	62.8923	21.2370	622
AVERAGE DIFFERENCE		13.6579		
PB-20A FORCED TO LEARN SKILLS THEY ARE NOT INTERESTED IN	NOW	50.4487	20.5492	624
PB-20B FORCED TO LEARN SKILLS THEY ARE NOT INTERESTED IN	IN TEN YEARS	58.0225	23.6884	622
AVERAGE DIFFERENCE		7.5738		

PB-21A FUTURE TRENDS INFLUENCE CURRENT CAREER DECISIONS	NOW	52.3002	20.7953	613
PB-21B FUTURE TRENDS INFLUENCE CURRENT CARRER DECISIONS	IN TEN YEARS	64.6962	19.9905	609
AVERAGE DIFFERENCE		12.396		
PB-22A FIND WORK AND PERSONAL LIFE BOUNDARIES BEGINNING TO BLUR	NOW	54.4224	18.9278	606
PB-22B FIND WORK AND PERSONAL LIFE BOUNDARIES BEGINNING TO BLUR	IN TEN YEARS	62.5458	20.7366	601
AVERAGE DIFFERENCE		8.1234		

AVERAGE NOW MEANS	47.9630
AVERAGE TEN YEARS MEANS	58.1298
AVERAGE DIFFERENCE	10.1668

from their home to some extent (+14%), and having future trends influence their career decisions (+12%).

Transferable Skills

Using the total frequency responses for each skill dimension, the overall rank order of transferability in Table 19 is as follows: idea (375), people (363), data (255) and thing (163). In other words, "idea" and "people" skills are considered the two most transferable skills. Teachers were the significantly less likely to choose data skills as transferable skills compared to Natcon, adult ESL students, job seekers, and regular adult students.

Table 19

Transferable Skills Frequencies

Variable 23: Transferable Skills	**Frequency**
Idea	375
People	363
Data	255
Thing	163

Importance of Skills Dimensions Now and Ten Years From Now

With respect to the importance of skills dimensions "now" in Table 20, the overall rank order by mean frequency is: people (1.9733), idea (2.3573), data (2.4411), and thing (3.0102). In Table 21, the rank order by mean frequency of importance of skills dimensions "ten years from now" is: idea (2.0863), people (2.2683), data (2.3926), and thing (3.0257). The "ten years from now" versus "now" differences between these mean frequencies indicates that there is little difference with respect to the "data" and "thing" skill dimensions; however, "idea" skills are viewed as likely to be slightly more important than "people" skills.

Table 20

Importance of Skill Dimension Now

Variable 24-A: Skill Dimension	**Mean Frequency**
People	1.9733
Idea	2.3573
Data	2.4411
Thing	3.0102

Table 21

Importance of Skill Dimensions in Ten Years

Variable 24-B: Skill Dimension	**Mean Frequency**
Idea	2.0863
People	2.2683
Data	2.3926
Thing	3.0257

Job Loss Career Areas

Although each group chose five career areas expected to experience job loss from a total of 23 occupation areas, seven career areas contained the top five choices of all groups as shown in Table 22. The following career areas were chosen overall as likely to experience the greatest job loss: telephone operator (data and thing: 14%), bookkeeper (data: 11%), dispatcher (data: 10%), teacher (people: 8%), medical secretary (data: 8%), registered nurse (people: 6%), and insurance agent (people and data: 5%). Careers by skill dimension: data: 48%; people: 19%; and thing: 14%.

These occupational areas accounted for roughly 50% to 83% of all the choices by the various groups. In the 49% to 57% range were jobs seekers (49%), adult ESL (55%), and regular adult students (57%); and, in the 68% to 83% range were guidance (68%), Natcon (72%), teachers (72%), and human resources (83%). Thus there was more substantial agreement about career areas likely to experience job loss among those in a professional role.

Table 22

Job Loss Career Areas*

Variable PE-25-A

COL. PCT. TOT. PCT.	TEACHERS	HUMAN RESOURCES	GUIDANCE	NATCON	ADULT ESL	JOB SEEKERS	REG. ADULT STUDENTS	CUM. TOT. PCT.
Telephone Operator	19.10 0.80	19.90 0.84	17.40 1.10	17.40 1.30	12.00 2.08	12.20 2.16	12.20 5.22	13.50
Bookkeeper	13.40 0.58	18.20 0.80	12.00 0.76	13.70 1.06	9.90 1.70	8.70 1.54	10.30 4.40	10.84
Dispatcher	11.80 0.50	14.50 0.62	10.90 0.66	11.90 0.90	5.80 1.00	0.81 1.46	6.06 2.60	10.34
Teacher	6.70 0.26	4.58 0.20	4.20 0.28	5.12 0.40	7.74 1.32	8.78 1.56	10.3 4.38	8.40
Medical Secretary	5.58 0.24	11.42 0.50	10.60 0.68	11.60 0.90	7.70 1.32	5.42 0.96	7.20 3.06	7.66
Registered Nurse	5.44 0.24	2.26 0.12	5.24 0.34	5.60 0.44	6.78 1.14	6.50 1.14	7.12 3.04	6.46
Insurance Agent	10.40 0.46	12.90 0.58	7.80 0.50	6.90 0.54	4.84 0.82	6.14 1.10	3.44 1.48	5.48
Column Total Pct.	72.42	83.26	68.14	72.22	54.76	48.55	56.62	62.68

Column Percentage: Percentage of respondents within each group choosing this occupation as one of their 5 choices (column does not total 100% since not all occupational choices listed). For example, 11.80% of teachers chose dispatcher as one of their five choices.

Cumulative Total Percentage: Total percentage of sample respondents choosing this occupation area as one of their 5 choices represented as a percentage of all occupational choices by all groups (does not add up to 100% since not all occupational choices listed). For example, the 11.80% of teachers who chose dispatcher represents only 0.26% of the total population (640 participants).

* The seven occupations include the five careers chosen by all of the groups.

Employment Growth Career Areas

Although each group chose five career areas expected to experience employment growth from a total of 23 occupations, the eleven career areas indicated in Table 23 contained the top five choices of all groups. The following career areas were chosen overall as likely to experience the greatest employment growth: computer programmer (idea and thing: 17%), psychologist (people and idea: 10%), police officer (people: 9%), teachers (people: 8%), fashion designer (idea: 6%), chef (thing: 6%), insurance agent (people and data: 5%), restaurant owner (thing: 4%), registered nurse (people: 4%), waiter/waitress (people and data: 3%), and landscape gardener (thing: 3%). Careers by skill dimension: people: 39%; thing: 30%; idea: 23%; and data: 8%. These occupational areas accounted for roughly 68% to 80% of all the choices by the various groups. In the 68% to 72% range were job seekers (68%), regular adult students (70%), and adult ESL students (72%); and, in the 79% to 80% were human resources (79%), guidance (79%), teachers (79%), and Natcon (80%). Thus there was more substantial agreement about career areas likely to experience employment growth among those in a professional role. In addition, the professional group was less likely to choose teachers, registered nurses, and insurance agents as areas of job growth and more likely to choose them as areas of job loss.

Table 23

Employment Growth Career Areas*

Variable PE-25-B

COL. PCT. TOT. PCT.	TEACHERS	HUMAN RESOURCES	GUIDANCE	NATCON	ADULT ESL	JOB SEEKERS	REG. ADULT STUDENTS	CUM. TOT. PCT.
Computer Programmer	14.18 0.64	15.90 0.70	15.6 1.02	17.20 1.32	16.50 2.82	15.90 2.80	17.30 7.28	16.58
Psychologist	12.10 0.52	16.90 0.70	5.70 0.50	8.80 0.84	10.00 1.70	11.50 2.04	9.50 3.98	10.28
Police Officer	8.30 0.38	4.70 0.20	7.20 0.40	6.42 0.52	10.90 1.46	9.70 1.72	10.9 4.60	9.28
Teachers	6.90 0.30	10.10 0.42	7.70 0.50	5.86 0.46	5.62 0.94	6.40 1.12	3.74 3.82	7.56
Fashion Designer	3.72 0.18	3.16 0.14	3.66 0.24	2.64 0.20	8.38 1.44	4.90 0.84	6.96 2.94	5.98
Chef	7.50 0.36	6.20 0.26	10.7 0.70	9.50 0.74	4.42 0.66	5.30 0.94	4.80 2.02	5.68
Insurance Agent	1.54 0.06	1.56 0.08	3.62 0.22	4.76 0.38	7.22 1.22	3.76 0.70	5.48 2.34	5.00
Rest. Owner	6.04 0.26	5.46 0.26	8.34 0.54	9.06 0.72	2.90 0.50	2.46 0.46	3.34 1.54	4.28
Registered Nurse	5.26 0.26	10.84 0.48	4.58 0.30	5.63 0.44	2.34 0.40	4.62 0.82	3.56 1.52	4.22
Waiter / Waitress	6.22 0.26	0.76 0.04	5.66 0.33	6.9 0.52	1.58 0.26	2.42 0.44	2.56 1.10	2.95
Landscape Gardener	7.70 0.34	3.10 0.16	6.36 0.40	3.52 0.30	1.82 0.32	1.50 0.26	1.85 0.82	2.60
Column Total Pct.	79.46	78.66	79.12	80.29	71.68	68.46	69.99	74.41

Column Percentage: Percentage of respondents within each group choosing this occupation as one of their 5 choices (column does not total 100% since not all occupational choices listed)

Cumulative Total Percentage: Total percentage of sample respondents choosing this occupation area as one of their 5 choices represented as a percentage of all occupational choices by all groups (does not add up to 100% since not all occupational choices listed)

* The eleven occupations include the five careers chosen by all of the groups.

Opportunities for Advancement Career Areas

Although each group chose five career areas expected to experience opportunities for advancement from a total of 23 occupations, the ten career areas indicated in Table 24 contained the top five choices of all groups. The following career areas were chosen overall as likely to experience the greatest opportunities for career advancement: computer programmer (idea and thing: 15%), police officer (people: 8%), teacher (people: 8%), psychologist (people and idea: 7%), registered nurse (people: 6%), fashion designer (idea: 6%), reporter (people and idea: 5%), chef (thing: 5%), insurance agent (people and data: 5%), and restaurant owner (thing: 4%). Careers by skill dimension: people: 39%; idea: 33%; thing: 9%; and data: 5%. These occupational areas accounted for roughly 64% to 83% of all the choices by the various groups. In the 64% to 66% range were regular adult students (66%), adult ESL students (65%), and job seekers (66%); and, in the 74% and 83% range were Natcon (74%), teachers (75%), guidance (78%), and human resources (84%). Thus there was more substantial agreement about career areas likely to experience opportunities for career advancement among those in a professional role. Nine out of the ten career areas chosen (with the exception of reporter) were also chosen as areas of job growth.

Table 24

Opportunities for Advancement Career Areas*

Variable PE-25-C

COL. PCT. TOT. PCT.	TEACHERS	HUMAN RESOURCES	GUIDANCE	NATCON	ADULT ESL	JOB SEEKERS	REG. ADULT STUDENTS	CUM. TOT. PCT.
Computer	18.40	20.14	19.46	19.60	14.94	14.70	13.92	
Programmer	0.70	0.96	0.98	1.34	2.92	2.62	5.94	15.46
Police	7.64	4.36	8.82	7.14	7.24	8.90	8.72	
Officer	0.22	0.18	0.20	0.42	1.44	1.62	3.84	7.92
Teacher	12.4	9.96	9.76	6.92	7.12	8.62	5.12	
	0.40	1.14	0.44	0.44	1.42	1.54	2.24	7.62
Psychologist	7.38	12.98	3.90	8.14	6.98	7.48	5.24	
	0.22	0.56	0.16	0.50	1.38	1.36	2.34	6.52
Registered		9.78	7.32	4.58	2.28	4.12	5.48	
Nurse		2.10	0.32	0.28	0.46	0.74	2.44	6.34
Fashion	1.42	7.96	3.28	5.96	9.02	3.90	6.50	
Designer	0.04	0.36	0.14	0.34	1.80	0.70	2.90	6.28
Reporter	0.96	7.72	3.72	3.20	4.56	5.50	6.42	
	0.04	0.32	0.18	0.22	0.92	0.98	2.42	5.08
Chef	10.8	5.10	8.00	10.12	4.06	4.62	3.94	
	0.30	0.22	0.34	0.62	0.80	0.82	1.74	4.84
Insurance	4.68	3.02	7.78	4.90	4.26	5.04	4.34	
Agent	0.14	0.12	0.32	0.30	0.86	0.90	1.94	4.58
Rest. Owner	11.52	2.34	5.90	3.75	3.56	2.70	3.88	
	0.36	0.10	0.22	0.22	0.70	0.56	1.72	3.88
Column Total Pct.	75.20	83.36	77.94	74.31	64.02	65.58	63.56	68.52

Column Percentage: Percentage of respondents within each group choosing this occupation as one of their 5 choices (column does not total 100% since not all occupational choices listed)

Cumulative Total Percentage: Total percentage of sample respondents choosing this occupation area as one of their 5 choices represented as a percentage of all occupational choices by all groups (does not add up to 100% since not all occupational choices listed)

* The ten occupations include the five careers chosen by all of the groups.

Automation or Technology Will Likely Replace Workers

In These Career Areas

Although each group chose five career areas expected to experience the greatest replacement threat from automation or technology from a total of 23 occupations, the nine career areas indicated in Table 25 contained the top five choices of all groups. The following career areas were chosen overall as likely to experience the greatest threat from automation or technology: telephone operators (data and thing: 15%), dispatcher (data: 12%), bookkeeper (data: 12%), medical secretary (data: 7%) appliance repair (thing: 6%), insurance agent (people and data: 6%), carpenter (thing: 5%), teacher (people: 5%), and reporter (people and idea: 4%). Careers by skill dimension: data: 51%; thing: 27%; people: 11%; and idea: 4%. These occupational areas accounted for roughly 57% to 89% of all the choices by the various groups. In the 57% to 72% range were adult ESL students (57%), regular adult students (66%), and job seekers (72%); and, in the 80% to 87% range were guidance (80%), teachers (84%), and human resources (87%). Thus there was more substantial agreement about career areas likely to experience opportunities for career advancement among those in a professional role. All of the occupations indicated as among the top job loss areas are included in the nine career areas listed here.

Table 25

Automation or Technology Will Likely Replace Workers in These Career Areas*

Variable PE-25-D

COL. PCT. TOT. PCT.	TEACHERS	HUMAN RESOURCES	GUIDANCE	NATCON	ADULT ESL	JOB SEEKERS	REG. ADULT STUDENTS	CUM. PCT. TOT.
Telephone Operator	16.72 0.68	19.76 1.00	18.88 1.28	17.06 1.46	12.08 2.20	16.16 2.78	14.10 5.70	15.10
Dispatcher	17.90 0.70	17.64 0.92	16.22 1.04	17.52 1.54	7.46 1.36	10.88 1.88	11.82 4.76	12.20
Bookkeeper	14.18 0.60	18.24 0.96	14.74 0.94	15.9 1.38	8.16 1.52	11.90 2.04	10.08 4.06	11.50
Medical Secretary	8.42 0.32	8.28 0.42	9.02 0.56	11.74 1.04	4.44 0.82	7.94 1.34	5.86 2.40	6.90
Appliance Repair	6.72 0.28	5.12 0.26	7.56 0.48	4.16 0.36	7.28 1.34	4.00 0.68	6.02 2.42	5.82
Insurance Agent	7.22 0.26	9.54 0.52	6.68 0.58	6.68 0.58	3.08 0.54	5.96 1.00	5.32 2.14	5.62
Carpenter		0.84 0.04	3.28 0.22	3.20 0.28	8.02 1.46	4.78 0.80	4.58 1.86	4.66
Teacher	5.26 0.18	3.34 0.18	1.90 0.10	5.92 0.44	3.88 0.74	6.28 1.06	5.26 2.10	4.80
Reporter	7.44 0.26	4.04 0.22	1.64 0.10	6.90 0.62	2.96 0.50	3.56 0.60	3.02 1.20	3.50
Column Total Pct.	83.86	86.64	79.84	89.08	57.36	71.90	66.06	70.10

Column Percentage: Percentage of respondents within each group choosing this occupation as one of their 5 choices (column does not total 100% since not all occupational choices listed)

Cumulative Total Percentage: Total percentage of sample respondents choosing this occupation area as one of their 5 choices represented as a percentage of all occupational choices by all groups (does not add up to 100% since not all occupational choices listed)

* The nine occupations include the five careers chosen by all of the groups.

Job Loss Due to Global Competition

Although each group chose five career areas expected to experience the greatest replacement threat from automation or technology from a total of 23 occupations, the ten career areas indicated in Table 26 contained the top five choices of all groups. The following career areas were chosen overall as likely to experience job loss owing to global competition: carpenters (thing: 11%), fashion designers (idea: 10%), appliance repair (thing: 8%), computer programmer (idea and thing: 7%), chef (thing: 7%), waiter/waitress (people and data: 5%), registered nurse (people: 5%), garbage collector (thing: 5%), telephone operator (data and thing: 5%), and bookkeeper (data: 4%). Careers by skill dimension: thing: 43%; idea: 17%; data: 14%; and people: 10%. These occupational areas accounted for roughly 64% to 79% of all the choices by the various groups. In the 63% to 70% range are adult ESL students (63%), regular adult students (65%), job seekers (69%), human resource (69%), and Natcon (70%); and in the 78% to 79% range were guidance (78%) and teachers (79%). Those in professional roles were still in more agreement than both student groups. With the exception of medical secretary, dispatcher, and insurance agent, all of the areas of likely job loss indicated previously with respect to job loss in general are found in this category of job loss due to global competition. Computer programmers who are believed to be in employment growth careers with more career advancement are also believed to be in danger of job loss owing to global competition.

Table 26

Danger of Jobs Lost to Global Competitors Who Have Workers in Their Countries Who Are Paid Less*

Variable PE-25-E

COL. PCT. TOT. PCT.	TEACHERS	HUMAN RESOURCES	GUIDANCE	NATCON	ADULT ESL	JOB SEEKERS	REG. ADULT STUDENTS	CUM. PCT. TOT.
Carpenter	15.14	8.16	13.76	11.88	11.42	9.88	10.74	
	0.42	0.44	0.74	0.84	2.24	1.60	4.74	11.02
Fashion	17.24	13.86	15.3	12.22	6.16	8.44	10.5	
Designer	0.28	0.72	0.76	0.82	1.26	1.36	4.62	9.82
Appliance	20.48	8.66	11.96	6.04	7.20	6.98	8.26	
Repair	0.28	0.44	0.58	0.40	1.48	1.14	3.64	7.96
Computer	9.14	12.58	7.92	13.72	5.86	8.18	5.74	
Programmer	0.24	0.68	0.52	1.04	1.16	1.28	2.50	7.42
Chef		2.02	5.10	4.68	8.78	9.60	6.66	
		0.10	0.26	0.24	1.76	1.52	2.92	6.80
Waiter /	1.42	1.34	4.88		7.12	6.82	5.06	
Waitress	0.04	0.06	0.22		1.46	1.10	2.30	5.18
Registered	2.00	1.26	4.82		2.70	6.42	6.04	
Nurse	0.04	0.06	0.22		0.54	1.04	2.70	4.60
Garbage		2.26	7.36	2.38	6.72	5.52	3.60	
Collector		0.12	0.36	0.16	1.38	0.90	1.64	4.56
Telephone	6.66	10.00	2.68	10.28	3.84	4.02	3.72	
Operator	0.06	0.54	0.12	0.70	0.78	0.66	1.66	4.52
Bookkeeper	6.66	9.26	4.08	8.92	3.54	2.86	4.22	
	0.06	0.48	0.18	0.50	0.70	0.46	1.94	4.32
Column Total Pct.	78.74	69.40	77.86	70.12	63.34	68.72	64.54	66.20

Column Percentage: Percentage of respondents within each group choosing this occupation as one of their 5 choices (column does not total 100% since not all occupational choices listed)

Cumulative Total Percentage: Total percentage of sample respondents choosing this occupation area as one of their 5 choices represented as a percentage of all occupational choices by all groups (does not add up to 100% since not all occupational choices listed)

* The ten occupations include the five careers chosen by all of the groups.

Career Areas with the Greatest Amount of Technology Upgrading or Training Required

Although each group chose five career areas expected to experience the greatest need for technology upgrading or training from a total of 23 occupations, the eight career areas indicated in Table 27 contained the top five choices of all groups. The following career areas were chosen overall as likely to experience the need for significant additional technology upgrading or training: computer programmer (idea and thing: 18%), teacher (people: 10%), appliance repair (thing: 8%), police officer (people: 7%), registered nurse (people: 7%), psychologist (people and idea: 6%), veterinarian (thing: 5%), and musician (idea: 3%). Careers by skill dimension: thing: 31%; people: 30%; and idea: 27%. These occupational areas accounted for 59% to 78% of all the choices by the various groups. The two highest groups were teachers (78%) and guidance (67%) while the other groups were in the 59% to 65% range. So high school educators were more likely to be in agreement regarding the career areas in need of technology upgrading and training required than students.

Table 27

Career Areas with The Greatest Amount of Technology

Upgrading or Training Required*

Variable PE-25-F

COL. PCT. TOT. PCT.	TEACHERS	HUMAN RESOURCES	GUIDANCE	NATCON	ADULT ESL	JOB SEEKERS	REG. ADULT STUDENTS	CUM. PCT. TOT.
Computer	17.74	16.62	18.5	16.3	16.68	17.56	18.26	
Programmer	0.56	0.88	1.22	1.24	3.16	3.04	7.50	17.60
Teacher	16.56	11.72	12.76	13.92	8.02	11.50	9.36	
	0.58	0.62	0.82	1.06	1.52	1.98	3.90	10.48
Appliance	13.78	6.98	12.36	5.46	8.52	6.52	6.28	
Repair	0.78	0.34	0.76	0.40	1.62	1.10	2.64	7.64
Police	3.08	5.38	5.54	8.72	6.10	9.32	8.12	
Officer	0.10	0.28	0.32	0.62	1.16	1.58	3.40	7.46
Registered	9.38	8.46	6.36	8.70	3.24	5.76	7.50	
Nurse	0.28	0.42	0.38	0.62	0.62	0.98	3.20	6.50
Psychologist	1.42	2.70	3.88	3.66	7.82	7.24	7.02	
	0.04	0.14	0.24	0.28	1.48	1.22	2.98	6.38
Veterinarian	7.28	3.52	6.74	4.24	4.92	5.12	4.16	
	0.24	0.16	0.42	0.32	0.92	0.84	1.78	4.68
Musician	8.62	3.18	0.90	1.92	3.26	1.98	2.60	
	0.32	0.16	0.06	0.14	0.60	0.34	1.10	2.72
Column Total Pct.	77.86	58.56	67.04	62.92	58.56	65.00	63.30	63.46

Column Percentage: Percentage of respondents within each group choosing this occupation as one of their 5 choices (column does not total 100% since not all occupational choices listed)

Cumulative Total Percentage: Total percentage of sample respondents choosing this occupation area as one of their 5 choices represented as a percentage of all occupational choices by all groups (does not add up to 100% since not all occupational choices listed)

* The eight occupations include the five careers chosen by all of the groups.

Career Areas with the Least Amount of Technology Upgrading or Training Required

Although each group chose five career areas expected to experience the least need for technology upgrading or training from a total of 23 occupations, the eight career areas indicated in Table 28 contained the top five choices of all groups. The following career areas were chosen overall as the least likely to experience the need for technology upgrading or training: waiter/waitress (people and data: 13%), garbage collector (thing: 12%), chef (thing: 10%), landscape gardener (thing: 7%), ambulance driver (thing: 6%), carpenter (thing: 5%), dispatcher (data: 5%), and restaurant owner (data: 3%). Careers by skill dimension: thing: 40%; data: 21%; and people: 13%. These occupational areas accounted for 57% to 73% of all the choices by the various groups. In the 57% to 61% range were adult ESL students (57%), human resources (59%), and regular adult students (61%); and, in the 69% to 73% range were Natcon (69%), guidance (71%), job seekers (72%), and teachers (73%). Thus high school educators were more likely to be in agreement regarding the career areas in the least need of technology upgrading and training required than students. With respect to previously indicated career areas of job loss and job growth or opportunity advancement, five of the eight career areas (dispatcher, carpenter, chef, garbage collector, and waiter/waitress) were expected to experience job loss for various reasons; and, three were expected to be areas of employment opportunity (chef, landscape gardener, and restaurant owner). It would seem that chefs are viewed both as a career area of job loss and employment opportunity with more of those in professional roles picking this as an area of growth or opportunity and more adult students picking this career area as an area of job loss.

Table 28

Career Areas with Least Amount of Technology

Upgrading or Training Required*

Variable PE-25-G

COL. PCT. TOT. PCT.	TEACHERS	HUMAN RESOURCES	GUIDANCE	NATCON	ADULT ESL	JOB SEEKERS	REG. ADULT STUDENTS	CUM. PCT. TOT.
Waiter /	18.92	13.98	14.98	14.86	10.88	13.86	13.16	
Waitress	0.62	0.82	0.96	1.02	1.92	2.34	5.66	13.34
Garbage	15.32	14.14	14.12	18.02	10.88	14.06	9.74	
Collector	0.52	0.86	0.86	1.26	1.92	2.38	4.22	12.02
Chef	10.88	11.14	15.64	10.58	8.00	8.46	10.9	
	0.34	0.68	0.96	0.74	1.42	1.40	4.70	10.24
Landscape	9.16	1.00	5.52	8.86	5.18	9.48	7.16	
Gardener	0.34	0.60	0.34	0.60	0.88	1.58	3.10	7.44
Ambulance	6.68	3.94	4.32	4.70	7.80	5.76	5.84	
Driver	0.24	0.24	0.28	0.32	1.36	0.94	2.54	5.92
Carpenter	5.30	8.40	5.78	7.28	4.52	5.8	4.86	
	0.16	0.48	0.34	0.50	0.80	0.94	2.10	5.32
Dispatcher	3.48	3.88	4.28	1.34	7.44	10.86	5.84	
	0.10	0.24	0.26	0.80	1.28	1.12	1.52	5.32
Rest. Owner	2.92	2.34	6.46	2.90	1.98	3.58	3.40	
	0.10	0.14	0.38	0.20	0.34	0.58	1.46	3.20
Column Total Pct.	72.66	58.82	71.10	68.54	56.68	71.86	60.90	62.80

Column Percentage: Percentage of respondents within each group choosing this occupation as one of their 5 choices (column does not total 100% since not all occupational choices listed)

Cumulative Total Percentage: Total percentage of sample respondents choosing this occupation area as one of their 5 choices represented as a percentage of all occupational choices by all groups (does not add up to 100% since not all occupational choices listed)

* The eight occupations include the five careers chosen by all of the groups

Career Areas with the Biggest Increase in Educational or Training Requirements

Although each group chose five career areas expected to experience the greatest need for additional education or training from a total of 23 occupations, the nine career areas indicated in Table 29 contained the top five choices of all groups. The following career areas were chosen overall as the most likely to experience the need for more education or training: computer programmer (idea and thing: 14%), police officer (people: 14%), teacher (people: 12%), registered nurse (people: 10%), psychologist (people and idea: 8%), medical secretary (data: 6%), veterinarian (thing: 5%), appliance repairer (thing: 4%), and dispatcher (data: 1%). Careers by skill dimension: people: 42%; thing: 23%; idea: 22%; and data: 6%. These occupational areas accounted for 68% to 78% of all the choices by the various groups with everyone in the high school educational groups in the 68% to 70% range (human resources and Natcon were both at 78%).

Table 29

Career Areas with Increased Educational or Training Requirements*

Variable PE-25-H

COL. PCT. TOT. PCT.	TEACHERS	HUMAN RESOURCES	GUIDANCE	NATCON	ADULT ESL	JOB SEEKERS	REG. ADULT STUDENTS	CUM. PCT. TOT.
Computer	10.28	14.5	11.88	16.46	13.58	15.42	14.00	
Programmer	0.40	0.78	0.84	1.14	2.32	2.70	5.92	14.10
Police	13.22	14.66	11.28	8.12	6.48	10.24	10.32	
Officer	0.48	0.86	0.78	0.50	1.12	5.88	4.44	14.06
Teacher	7.72	13.66	14.44	17.16	13.34	14.90	13.00	
	0.54	0.76	1.02	0.16	2.32	2.56	4.82	12.18
Registered	7.62	10.86	9.74	12.62	5.58	11.12	9.42	
Nurse	0.30	0.62	0.70	0.86	0.96	2.02	4.04	9.50
Psychologist	8.22	6.64	4.48	8.66	9.64	7.5	9.54	
	0.30	0.30	0.30	0.58	1.62	1.26	4.10	8.46
Medical	2.44	7.22	5.60	3.12	7.22	4.94	5.52	
Secretary	0.08	0.38	0.40	0.76	1.24	0.84	2.4	6.10
Veterinarian	6.44	5.04	8.84	6.10	6.48	5.76	3.98	
	0.24	0.28	0.64	0.42	1.12	0.96	1.54	5.20
Appliance	11.68	4.18	5.24	4.10	4.70	5.04	3.00	
Repairer	0.44	0.24	0.36	0.30	0.78	0.86	1.26	4.24
Dispatcher		0.80		1.40	1.14	0.36	1.52	
		0.04		0.10	0.18	0.06	0.66	1.04
Column Total Pct.	67.62	77.56	71.50	77.74	68.16	75.28	70.30	74.88

Column Percentage: Percentage of respondents within each group choosing this occupation as one of their 5 choices (column does not total 100% since not all occupational choices listed)

Cumulative Total Percentage: Total percentage of sample respondents choosing this occupation area as one of their 5 choices represented as a percentage of all occupational choices by all groups (does not add up to 100% since not all occupational choices listed)

* The nine occupations include the five careers chosen by all of the groups.

Careers with the Greatest Change in Job Description

Although each group chose five career areas expected to experience the greatest change in job description from a total of 23 occupations, the twelve career areas indicated in Table 30 contained the top five choices of all groups. The following twelve career areas were chosen overall as the most likely to experience the greatest change in job description: teachers (people: 10%), registered nurse (people: 9%), computer programmer (idea and thing: 8%), psychologist (people and idea: 7%), police officer (people: 7%), medical secretary (data: 7%), bookkeeper (data: 6%), fashion designer (idea: 5%), insurance agent (people and data: 5%), dispatcher (data: 4%), ambulance driver (thing: 3%), and landscape gardener (thing: 1%). Careers by skill dimension: people: 38%; data: 22%; idea: 20%; and thing: 12%. These occupational areas accounted for 67% to 99% of all the choices by the various groups. In the 67% to 69% range were job seekers (67%), adult ESL students (67%), and regular adult students (69%); and, in the 75% to 99% range were teachers (75%), human resources (75%), Natcon (79%) and guidance (99%). The top five choices here were also chosen as being among top six professions requiring the most technology upgrading or training.

Table 30

Career Areas with the Greatest Change in Job Description*

Variable PE-25-I

COL. PCT. TOT. PCT.	TEACHERS	HUMAN RESOURCES	GUIDANCE	NATCON	ADULT ESL	JOB SEEKERS	REG. ADULT STUDENTS	CUM. PCT. TOT.
Teacher	17.66	12.72	17.76	14.18	7.42	10.42	8.90	
	0.54	0.80	1.18	1.04	1.32	1.80	3.78	10.46
Registered	12.92	13.70	15.40	16.56	4.86	10.08	8.28	
Nurse	0.38	0.88	1.00	0.96	0.86	1.74	3.50	9.32
Computer	3.54	3.30	5.56	7.04	10.68	8.24	8.26	
Programmer	0.10	0.22	0.38	0.46	1.88	1.42	3.46	7.92
Psychologist	1.82	5.40	4.36	3.18	5.32	6.18	3.54	
	0.06	3.34	0.30	0.24	0.94	1.02	1.52	7.42
Police	15.10	13.20	16.04	9.78	3.50	5.84	6.02	
Officer	0.46	0.84	1.04	0.68	0.62	1.02	2.56	7.22
Medical	11.90	7.36	7.02	7.48	6.66	6.34	7.22	
Secretary	0.36	0.44	0.46	0.52	1.20	1.08	3.12	7.18
Bookkeeper	1.54	4.68	6.18	4.42	4.72	5.80	6.84	
	0.04	0.26	0.42	0.30	0.84	0.98	2.90	5.74
Fashion		1.86	1.86	1.60	8.88	3.92	6.04	
Designer		0.12	0.12	0.12	1.58	0.66	2.60	5.20
Insurance	7.46	7.52	4.48	4.26	4.70	2.80	4.70	
Agent	0.22	0.48	0.28	0.28	0.84	0.48	2.04	4.62
Dispatcher	1.82	3.26	6.38	2.76	5.72	4.92	3.58	
	0.06	0.20	0.22	0.18	1.04	0.84	1.52	4.06
Ambulance	1.02	1.56	3.48	6.48	2.88	0.56	3.58	
Driver	0.30	0.10	0.22	0.42	0.52	0.10	1.52	3.18
Landscape		0.90	10.6	0.8	1.64	1.82	1.54	
Gardener		0.06	0.06	0.06	0.30	0.32	0.64	1.44
Column Total Pct.	74.78	75.46	99.12	78.54	66.98	66.92	68.50	73.76

Column Percentage: Percentage of respondents within each group choosing this occupation as one of their 5 choices (column does not total 100% since not all occupational choices listed)

Cumulative Total Percentage: Total percentage of sample respondents choosing this occupation area as one of their 5 choices represented as a percentage of all occupational choices by all groups (does not add up to 100% since not all occupational choices listed)

* The twelve occupations include the five careers chosen by all of the groups.

Future Employment Trends Influencing Survey Respondents' Career Decisions

On a scale of 0 to 5, future employment trends had a mean of 3.1. Of the respondents, 26.1% indicated "not at all"; 2.7%, one; 7.3%, two; 21.4%, three; 15.9%, four; and 26.6%, five. There were no missing cases. Thus for 26% of the respondents, future employment trends had no influence on their career decisions, while 64% considered such trends to be of middle to high importance.

Number of Careers on Average Before Retirement

The mean score for the respondents was 5.9 careers.

Number of Years of Post-Secondary Education or Training Needed

Respondents believed that 3.7 years of post-seconday training were required by those in the workforce now. In ten years time, they would potentially require 4.9 years of post-secondary training. Thus an additional 1.2 years of training are anticipated as necessary over the current 3.7-year estimate.

Impression of Job Growth by Industry Sector Over the Past Ten Years and the Next Ten Years

As indicated in Table 31, the rank order of job growth over the past ten years by industry sector according to means is as follows: service economy (2.149), manufacturing (2.379), public sector/government (2.655), and natural resource economy (2.742). The rank order of job growth over the next ten years by industry sector according to means is as follows: service economy (1.960), manufacturing (2.370), natural resource economy (2.546), and public sector/government (3.046). The rank order shift regarding job growth from the

past ten years to the next ten years indicates a belief that the service economy will become a more powerful job growth area, manufacturing will remain roughly the same as an area of job growth, and that the public sector/government will fall behind the natural resource sector as an area of job growth.

Table 31

Impression of Job Growth

Past Years And Next Years

Variable 29-A & B Ranking (1-4)	% Choosing Service Economy	% Choosing Manufacturing	% Choosing Public Sector / Government	% Choosing Natural Resource Economy
Past ten years				
Mean	2.149	2.379	2.655	2.742
Next ten years				
Mean	1.960	2.370	2.546	3.046
Variable 29 –A & B mean difference	0.189	0.009	0.196	(1.609)

Background of Survey Respondents

A breakdown of the number of respondents by group is provided in Table 32. With respect to gender, as indicated in Table 33, 56.3% of the respondents were female and 43.7% were male. As far as age is concerned, Table 34 shows that 5.6% of the respondents were under the age of 21, 31.7% were between the ages of 21 and 30, 30.4% were between the ages of 31 and 40, 21.9% were between the ages of 41 and 50, and 10.4% were over the age of 50. In connection with citizenship, Table 35 indicates that 77.7% of respondents were Canadians and 22.3% were foreigners. Regarding years of schooling, Table 36 reveals that roughly 20% of the respondents had less 12 years of schooling; 17% had between 12 and 13 years of education; 22% had 13 to 15 years of education; and 42% had more than 15 years of schooling. Insofar as socioeconomic group identification while growing up is concerned, Table 37 reveals that 16.3% felt they came from a lower class origin, 75.3% from the middle class, and 8.4% from the upper class. Table 38 indicates that the percentage of respondents who see themselves starting their own business in the next five years is as follows: yes (25.0%), maybe (52.7%), and no (22.4%). With respect to how adequately prepared participants felt they were regarding changes they foresaw occurring over the next ten years, according to Table 39, the mean score was 5.3 on a scale of one (well prepared) to nine (poorly prepared).

Table 32

Groups Surveyed

GROUPS SURVEYED	NUMBER SURVEYED
Adult ESL Students at Scarborough Centre for Alternative Studies	106
Regular Adult Students at Scarborough Centre for Alternative Studies	274
Teachers at Scarborough Centre for Alternative Studies	29
Scarborough Guidance Counsellors (Elementary & Secondary)	42
Human Resource Employers	28
Adult Job Seekers on welfare	115
Natcon Participants	46
Total	640

Background Information Profile of Sample

Table 33

PF-30

Gender

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM. PERCENT
Male	1	252	39.40	43.70	43.70
Female	2	325	50.80	56.30	100.00
	0	63	9.80	Missing	
Total		640	100.00	100.00	

Table 34

PF-31

Age

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM. PERCENT
<21	1	32	5.00	5.60	5.60
21-30	2	182	28.40	31.70	37.20
31-40	3	175	27.30	30.40	67.70
41-45	4	126	19.70	21.90	89.60
51+	5	60	9.40	10.40	100.00
	0	65	10.20	Missing	
Total		640	100.00	100.00	

Table 35

PF-32

Country

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM. PERCENT
Canadian	1	443	69.20	77.70	77.70
Other	2	127	19.80	22.30	100.00
	0	70	10.90	Missing	
Total		640	100.00	100.00	

Table 36

PF-33

Years of Schooling

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM. PERCENT
<12 Years	1	113	17.70	19.80	19.80
12-13 years	2	96	15.00	16.80	36.60
13-15	3	124	19.40	21.70	58.30
15+	4	239	37.30	41.80	100.00
	0	68	10.60	Missing	
Total		640	100.00	100.00	

Table 37

PF-34

Which Socio-Economic Group

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM. PERCENT
Low class	1	93	14.50	16.30	16.30
Middle class	2	431	67.30	75.30	91.60
Upper	3	48	7.50	8.40	100.00
	0	68	10.60	Missing	
Total		640	100.00	100.00	

Table 38

PF-35

Starting Own Business in the Next Five to Ten Years

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM. PERCENT
Yes	1	145	22.70	25.00	25.00
Maybe	2	306	47.80	52.70	77.60
No	3	130	20.30	22.40	100.00
	0	59	9.20	Missing	
Total		640	100.00	100.00	

Table 39

PF-36

Future Changes Over the Next Five to Ten Years

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM. PERCENT
Well	1	31	4.80	5.40	5.40
	2	45	7.00	7.80	13.10
	3	98	15.30	17.00	31.10
	4	63	9.80	10.90	41.00
	5	165	25.80	28.50	69.60
	6	74	11.60	12.80	82.40
	7	63	9.80	10.90	93.30
	8	17	2.70	2.90	96.20
Poor	9	22	3.40	3.80	100.00
	0	62	9.70	Missing	
Total		640	100.00	100.00	

Limitations of the Results

The main focus on the comparison in this research study was the staff and students from the Scarborough Centre for Computer Studies which is an adult re-entry high school. All of the adult ESL and regular students surveyed were actively taking courses at this school. The job seekers surveyed were welfare recipients attending a job search program in all of the boroughs in Toronto other than Scarborough. The job seekers were used to see if any significant impression differences were evident in a comparison with the adult student groups. The teachers surveyed taught solely at this school; however, guidance counsellors from across Scarborough were surveyed so as to have a larger number of guidance counsellors for comparative purposes. Career counsellors from various educational institutes across Canada were also surveyed so that a broader basis for comparison might be possible. The human resource professionals came from a wide variety of industries from various parts of Ontario.

Given the sample sizes used for the professional groups it is not possible to confidently generalize to the larger professional population; however, the general lack of significant response differences across all of the professionals groups was an encouraging sign that it would likely be worthwhile to assess the broader applicability of this survey's results. Similarly, the relative lack of significant differences in the responses of job seekers when compared with the two adult student groups was also encouraging regarding the potential broader applicability of the results in the Toronto area.

An additional limitation may be the self-report, pencil and paper questionnaire. It may be that there is a better way of accessing or collecting this information such as through the use of qualitative interviews.

The potential trends or patterns alluded to in the next chapter often involved assuming that covariance may exist regarding group differences across numerous questions or that a simple comparison of means across numerous "now" or "ten years from now" questions is noteworthy. Further research is needed to statistically support all of these assertions. Moreoever, it would be worth investigating the possibility of there being significant gender differences in the response patterns.

Perhaps the main limitation of the study derives from the fact that the survey was administered in a given time period (1996-97). Given that many people believe that the future is a linear extension of the recent past, perceptions may have been strongly affected by the last economic recession. It is quite possible that a prolonged time of significantly lower unemployment might significantly moderate the perceptions or responses of the respondents regarding the survey's questions, particularly with questions concerning job security and self-efficacy.

CHAPTER FIVE: SUMMARY, DISCUSSION AND CONCLUSIONS

Summary

We are living in a period of accelerating change. These changes are pervasively affecting job descriptions, careers, working conditions, and skills required for employment. In addition, technological developments are increasingly becoming responsible for organizational restructuring that may lead to significant job elimination for some occupational areas as a result of automation. Other larger macroeconomic developments such as the rise of the service sector and the decline of the public/manufacturing, and natural resource sectors of the economy as sources of job growth are a reflection of the globalization of competition and economic development.

Most educators, adult students, and human resource professionals have varying impressions of the extent to which these developments have already manifested themselves in their local environment and the likelihood that these changes will affect over the next ten years. In this study, it was found that educators and human resource professionals largely share a common view of these factors both now and over the longer term. Although there were few significant differences among these groups, they nonetheless had frequency means that were typically higher or lower than each other. Generally speaking, the professional groups differed significantly with the adult student groups on a large number of questions. These differences were usually all in the same direction with the adult students scoring higher on most questions of significant difference. Differences also existed with respect to the extent to which various career areas would be affected by forthcoming changes with the professional groups more in

common agreement on the career most likely to be affected. The adult students were also less likely to think that the service economy was as big a source of employment than were the professional groups. Adult students differed significantly on some key questions such as the percentage of workers who are capable of acquiring the Part A skills presumably required now and likely to be necessary ten years from now. The professional groups were much more skeptical of the ability of the workforce to acquire these skills as required. In this connection, reasons behind the underlying assumptions of all groups should be elicited. That most professional groups believed that 14% to 27% of people in or entering the workforce would be unable to acquire the necessary skills as required suggests the need for counselling and intervention strategies such as career scenario planning and contingency-based educational planning. This conclusion was further reinforced by the fact that the majority of respondents did not feel personally well prepared for the future anticipated changes.

All groups identified careers that mainly involve the idea and people skills to be favourably affected by various change factors but these were also the career areas requiring most educational and technological training and upgrading since their job descriptions were also likely to change the most. Idea and people skills were viewed as likely to be the most transferable skills as well. Technology skills were perceived as needed as a result of automation making technology a core component of all jobs. As a result, it would seem useful for those pursuing careers in all areas to focus on acquiring idea, people, and technology skills.

Since most people were perceived as potentially working part-time, lacking job security, and starting their own businesses over the next ten years, it would seem appropriate for educators to pay more attention to these decision making contexts.

Further research, however, is needed to clarify reasons behind the differing group responses, to reassess the survey's continuing relevance, and to identify any limitations of the original study.

Discussion

The purpose of this study was to evaluate the extent to which educators, adult students, and human resource professionals shared common perceptions and expectations regarding skill and workplace requirements now and ten years from now, and to identify which career areas and industries will likely experience significant changes over the next five to ten years. The survey results tended to show that the various groups were remarkably consistent in the direction of their differences over a broad range of questions and that these differences were of a similar magnitude throughout the survey. This suggests that the responses from each group tend to be both consistent and coherent and that significant differences did exist among the groups over a broad range of questions. These significant differences plus any overall mean frequency response trends are used to arrive at tentative conclusions and recommendations regarding their implications for career and educational counselling.

Although the results of the research can only be generalized tentatively to the entire population of the Scarborough Centre For Alternative Studies as mentioned previously, there were some indications that the results might have broader applicability

at least to the Toronto area. The discussion that follows addresses the survey's results in the context of their implications for career counsellors and educators at the Scarborough Centre for Alternative Studies, but draws upon the various perspectives on these issues that one might encounter in current career development theory and practice. The issues that arose from this research survey are now seen as typical of the era we are now in the midst of. Perhaps the more relevant question concerns the applicability of these broader theoretical concerns to this particular sample. For the purposes of this dissertation, it is assumed that the kind of coherent response congruence that was found among the professional groups and the student groups, especially in ways that were expected, is of definite significance. Aside from appearing to confirm changing realities commonly discussed in the current career counselling literature, the results may point to issues particularly relevant to other adult students and educators.

Human Resources versus Adult ESL Students, Adult Students, Guidance Counsellors, and Teachers

The fact that there was only one significant difference among human resource professions and high school guidance counsellors and adult educators suggests that the teaching groups impressions of career and work issues both now and in ten years are largely congruent (Table 1). With respect to "now" questions of significant difference in Appendix C, human resource professionals had the highest number of lowest means and had the highest number of means within the lowest three means on more "now" questions than any other group (Table 6). This suggests human resource professionals on average tend to have a lower estimations of the degree to which various skills are essential in the workplace at the moment--something which was also indicated by the fact that human

resource professionals had the lowest mean (Table 5) on the question concerning the number of people currently requiring the Part A skills (57%). On the other hand, the professional groups had mean scores for the question relating to the percentage of people likely to require these same skills in ten years in the 77% to 79% range (human resources, 79%), yet human resource professionals as a group on average felt that only 53% of those in the workforce would be capable of acquiring these skills as required. This would suggest that 26% of the workforce, according to the human resource group, will not rise to the challenge. This is somewhat ironic given that the human resource group had the highest number of "now" and "ten years from now" combined means in the lowest mean category (i.e., they were more likely than any other group on any "now" and "ten years from now" questions" to have one of the lowest three means on that question). Given that there is no standard (such as a recent Statistics Canada survey) to measure the impressions against for most questions, lower means may suggest that this group has a higher standard of what is possible versus what is required or acceptable (for instance, only some of the "now" percentage questions have published statistical data to compare a group's mean against). One implication of this pessimism regarding the inability of 26% of the workforce not being able to acquire the necessary skills in the future may be a reluctance to offer training to a portion of the workforce. In all likelihood, this part of the workforce would likely be downsized or let go. If they are right, then this training dilemma represents a significant societal and adult education challenge that must be addressed by some means.

The single question where there was a significant difference shared by all educational groups concerned the "skills and values needed to achieve self-esteem,

motivation, and goal setting (now)". One would expect that such a difference might exist because the educational groups deal with people who have less recent workplace attachment. Human resource professionals on the other hand tend to deal with people who are currently employed or have more recent working experience. Recent or current workforce attachment is typically associated with having more self-confidence with respect to employability. In addition, those employed are more likely to have the financial means and motivation to set more immediate goals with a reasonable expectation of realizing those goals. People who have been unemployed for any length of time or who hope to reenter the workforce at a later date may feel they lack the skills and values necessary to achieving self-esteem, motivation, and goal setting at the moment. To them, the future probably seems less certain and beyond their control to some extent so they are likely to be less confident in setting goals.

Both regular students and adult ESL students had significant differences with human resource professionals on many of the "now" questions (Table 1). Both of these groups had means over 20% higher in most instances than did human resource professionals. Regular adult students had the most significant differences (23 out of a possible 45 questions in the now and ten years from now categories). The higher scores might be attributable to teachers and guidance counsellors continually reinforcing learning-related skills. Teachers often highlight these skills in tests and other forms of evaluation. Moreover, having been out of school for some time and the difficulties students may have experienced in not being able to obtain desired employment because they lack a high school diploma might also serve to highlight these skill requirements more fully. Adult ESL students may have differed less often than regular adult students

(on 16 out of possible 45 questions in the now and ten years from now categories) for any number of reasons; however, it is possible that they have had less exposure to a rapidly changing workplace in their home countries, or they may have only been able to obtain low skill jobs in Canada and so are less familiar with jobs in Canada requiring higher levels of skill.

The four common questions among the two student groups where the means were 25% higher or more were: "To some extent working out of their homes (now)", "who will enjoy job security (in ten years)", "having to leave Canada to find work in their work area of interest or expertise" and "future trends influence career decisions (now)." It is possible that students are more interested in future trends since they are in the process of educating themselves for future employment. By focusing more on future trends, it may create the impression that changes are taking place faster now, whereas others less focused on the future might assume these same changes are not as pronounced at the moment. This might explain why there is a higher assessment of the number of people working out of their homes at the moment and of the number of workers seeking employment outside Canada. It is also possible that many of the students are familiar with many people running small businesses out of their homes on a part-time or full-time basis. Human resource professionals are more likely to have interpreted the former question in terms of employees telecommuting at the moment. Perhaps the difficulty in finding employment that may have led to obtaining more educational upgrading might have created more of an impression of people needing to go to greater lengths, including leaving Canada, in order to find employment. Many of the ESL students have left their former country to find better life situations. It is possible that the awareness of regular

adult students regarding the large number of ESL students in the school has influenced their response to this question. The higher impression of the percentage of workers who will likely enjoy job security in the future is harder to assess, yet it is a question with far reaching implications with respect to the nature of employment. Further research is recommended in order to identify underlying assumptions behind this disparity. One would assume that human resource professionals are more likely to have a better sense of the job security issues given their role in hiring or firing. Nonetheless, human resource professionals may have been disproportionately influenced by the downsizing of middle managers that became part of a widespread organizational restructuring process during the last economic recession (something which would have influenced adult students to a far lesser extent). Assumptions regarding job security may also reflect beliefs concerning the future growth of the economy. In all likelihood, adult students were more optimistic regarding future employment opportunities, while human resource professionals were responding to the questions more with respect to the terms of employment. Nonetheless it would be helpful for further research to clarify this issue more fully.

Regular Adult Students versus Adult ESL Students, Guidance, and Teachers

Regular adult students significantly differed in a positive way from adult ESL students mainly with respect to the ten years from now questions (6 out of 11) in the Part A section (Table 2). There were no significant differences, however, with guidance or teachers in this section. It may be that adult ESL students have less North American work experience or less long-term exposure to media employment-related messages regarding changes in progress. In addition, these issues may not have been as

pronounced in their home countries since most of the ESL students come from developing nations where the rate of change may be significantly slower. Regardless of the reason for this difference, it would seem that these issues need to be more fully addressed in discussions of teachers and career counsellors with ESL students to ensure that the questions and their implications are fully understood. Being able to operate in team environments, with people of different social and cultural backgrounds both now and in ten years was the area with highest mean difference between regular adult and adult ESL students. This might indicate that regular adult students have more difficulty coping with adult ESL students either in the classroom (once they are beyond taking ESL classes and are then taking regular classes) or on the job (i.e., working with new immigrants) than the other way around. If this is true, adult ESL students might want to be made more aware of how they are perceived by others. On the other hand, adult ESL students may have a lower estimation of the extent to which teamwork is a growing trend in the workplace (Fisher &Fisher, 1998).

With respect to working condition questions, both guidance and teachers had negative average mean differences of 15% and 18% on sixteen and thirteen (mostly "now") questions respectively. With human resource professionals there were significant differences on 19 of these primarily "now" questions that had means that were 20% lower on average. The greater importance placed on "now"-related working condition questions by regular adult students may reflect a belief that they have quite a lot to learn before they feel they can meet employer expectations. Having been excluded from employment consideration because they have not had a high school diploma may have made many regular adult students overestimate the extent to which higher requirements

are pervasive in the employment world. It would be useful to further explore the extent to which regular adult students may be experiencing feeling of inferiority or helplessness. If the challenge of meeting employment expectations seems to be too high, many might be tempted to give up in despair. For instance, in terms of the mean percentage of people likely to require the skills mentioned in Part A versus the mean percentage of people able to acquire these skills were 70% versus 61% for regular adult students. Thus 9% of people will not be able to acquire these skills. Those lacking a high school education are more likely to feel they may potentially fall into this unfortunate category. The fact that regular adult students believed the number of years of post-secondary training now required is roughly four years on average (versus two and a half for teachers) might be perceived as a formidable barrier for many as well. Effort should therefore be made by teachers and guidance counsellors to emphasize those occupational areas with employment growth that require fewer skills and years of post-secondary training so that more occupational areas will appear to be within reasonable reach.

Regular adult students were more likely to believe that in the past ten years and in the next ten years the service economy placed somewhere between second and third place regarding past employment growth or potential future job growth. Given that the service sector has decisively been the main source of employment growth in Canada for the last forty to fifty years (Crane, 1992), more education regarding the major source of job growth plus the reasons for this growth should be emphasized to students, particularly since almost all job growth is anticipated to come from this sector over the next ten years (Boyett & Boyett, 1996).

Adult ESL Students versus Regular Adult Student, Guidance, and Teachers

Regular adult students scored higher on average than adult ESL students on 7 of the 11 "ten years from now" questions and all three educational groups scored higher on average on 5 of these 11 questions in Part A (Table 3). All three of the other educational groups had significantly higher scores on following two questions: "The ability to operate in team environments with people of different social and cultural backgrounds (ten years from now)" and "skills and values needed to achieve high self-esteem, motivation, and goal-setting (ten years from now)". As previously mentioned, it is possible that the ESL students are unaware of the growing trend toward team work or perhaps they are unaware of the difficulty that natural born Canadians might have in adjusting to people from other cultures, especially since Canada only borders on an English-speaking country with a similar culture. With regard to the "skills and values needed to achieve high self-esteem, motivation and goal-setting", it is possible that many of the ESL immigrants have high levels of education in their home countries and already possess what they perceive as the necessary motivation to succeed (immigrants by virtue of their willingness to move to foreign-language country are most likely confident or motivated risk-takers and goal-setters). Moreover, adult ESL students had the lowest mean score (65%) regarding their estimation of the percentage of workers who will likely require the skills mentioned in Part A in ten years and they believed that 61% of the workforce would be able to acquire these skills as required. For adult ESL students, the future did not seem to represent a challenge much different from the present with respect to the skills mentioned. This was evident from the fact that adult ESL students had the lowest means on 8 of the "ten years from now" questions of significant difference (which

represents the highest number of lowest means of all of the groups surveyed). Given that human resource professionals believed that 79% of the workforce will require these skills in ten years, teachers and guidance counsellors should explore with adult ESL students the basis for their assumptions here. Adult ESL students already suffer from a significant language barrier in the workplace and should not underestimate the importance of learning other skills that employers are anticipating a need for. Employers in many instances hire someone based on their abilities to help to their organizations over the long run and not just to meet their current skill requirements.

Adult ESL students had significantly higher mean scores on a majority of the "now" percentage-based questions than did both teachers and guidance counsellors. The questions with the highest difference common to both teachers and guidance counsellors were: "To some extent working out of their homes now", "working for themselves now", and "future trends influence current career decisions now". The same reasons and recommendations already mentioned in connection with regular adult students would likely also apply to regular adult ESL students.

Similar to regular adult students, adult ESL students did not perceive the service economy as the primary engine of job growth over the past and next ten years. Steps should be taken to inform them of the macroeconomic trends that have been taking place for some time in the Canadian economy and which are likely to continue on for the foreseeable future.

Overview of Human Resource Professionals, Teachers, Guidance Counsellors, Adult ESL Students and Regular Adult Students

Overall there were no significant differences between adult high school teachers and guidance counsellors. Guidance counsellors were the group by far the most likely to have the middle mean on all questions of significance among the survey results (Table 6). Teachers on the whole had slightly lower "now" question means and slightly higher "ten years from now" question means on average with respect to questions where there was a significant difference among the groups (Table 9). Human resource professionals had the greatest number of lowest means on "now" questions (Table 6) and were second to lowest with respect the number of lowest "ten years from now" means (Table 8). On the other hand, regular adult students and adult ESL students tended to have the highest "now" means (Table 7); however, adult ESL students had the lowest "ten years from now" means on average (Table 8) and regular adult students had the highest number of high means on the "ten years from now" survey questions (Table 9). The foregoing suggests that guidance counsellors are most likely obtaining their information both from students and from other professionals, not to mention other sources such as the media which all groups are exposed to. So it would seem that guidance counsellors are appropriately fulfilling their roles as good listeners and as intermediaries who try to balance a number of diverse viewpoints. For presumably similar reasons, teachers also were usually located close to middle with respect to their means on questions of significance. The fact that the student groups varied with respect to "ten year from now" questions suggests that both teachers and guidance counsellors need to explore further the basis for these impression differences. Ideally, all groups should make explicit the

reasoning behind their impressions so that more objective reconciliation of impressions with known statistical evidence is possible at least with the "now" assumptions. For instance, respondents felt that 49% of the workforce was employed part-time and it was perceived that 40% of the workforce was working for themselves. Yet estimates of non-standard employment (which includes part-time jobs, temporary work, and self-employment) in Canada in 1994 affected just 33% of the workforce (Reid, 1996). Clearly more information regarding available statistics would help everyone involved in education gain a better sense of the current reality so that they don't overestimate or underestimate the importance of various employment-related factors.

Transferable Skills

In Table 19, the rank order of skill dimension transferability by response frequency was idea (375), people (363), data (255), and thing (163). The top two transferable skills quite clearly are idea and people skills. This result was anticipated since these two skill dimensions are the hardest to automate. Data skills may increasingly be construed as computer skills since computers now are responsible for processing increasing amounts of information. Teachers were the least likely to choose data skills as transferable. Perhaps teachers were thinking that the manual methods of processing data were disappearing. Assumption clarification would help here. That thing skills are significantly lower than data skills in terms of frequency response suggests that fewer jobs have a physical component to them. This is in keeping with the fact that blue-collar work has been significantly declining for quite some time only to be replaced by technicians and technologists wearing suits (Campbell, 1997). Thus all groups would

seem to have an awareness of these long term prevailing trends. What would be helpful, however, is to assess the extent to which this awareness is incorporated into educational and career plans.

Importance of Skill Dimensions Now and In Ten Years

In Table 20, the rank order of skill dimensions "now" was: people, idea, data, and thing. In ten years, however, the people and idea skills switch place (Table 21). This is in keeping with the rank order of skill dimension transferability. The questions that arise concern the extent to which teachers are changing their curricula to reflect these changes, guidance counsellors are making students aware of the career and educational implications, and students are incorporating this awareness into their decision making and goal-setting. More emphasis needs to be placed on creativity, innovation, experimentation, risk taking, problem solving, and results monitoring. For instance, to what extent do guidance counsellors encourage and facilitate career experimentation and results monitoring? To what extent are they aware of the many newer career areas emerging such as chief completion specialist; chief imagination officer; Internet evangelist, concierge, or archaeologist; etc.?

Occupational Area Questions

The general trend with respect to all of the occupational questions was that the occupational career areas compiled from the top five choices of all the groups indicates that all of the professional groups were in more common agreement regarding the career areas chosen than the other groups; that is, both regular adult and adult ESL students

were much more likely on average to have chosen a wider range of occupational areas in responding to each question. Further research would be useful in eliciting the reasons why each group chose the occupations they did in each case.

With respect to job loss career areas by skill dimensions (Table 22), the rank order was data (48%), people (19%), and thing (14%). The data skill occupations (telephone operator, dispatcher, medical secretary, and insurance agent) would seem to be highly susceptible to automation and to some extent are already in a state of decline. The people skill occupations such as teacher, medical secretary, registered nurse, and insurance agent were also seen as likely to experience job loss. Perhaps respondents were envisioning automation reducing employment in these areas especially as the Internet becomes a means to sell insurance or teach courses, and software is better able to manage back office and booking functions previously assumed by a medical secretary. What may have been overlooked by the respondents were demographic factors likely to affect both teaching and nursing. An extremely large number of teachers are nearing retirement and an aging baby boom population is likely to be in need of more health care, particularly support with home care (Foot, 1996). Around the time the survey was administered many nurses had lost their jobs due to budget cutbacks and the educational field, especially the adult education, was also experiencing budget constraints. It is possible that media coverage of these events created the impression that the future would be a logical extrapolation of events occurring at the moment. Unfortunately, such thinking is highly unwarranted in any era characterized with considerable unpredicatable or complex change (Ringland, 1998). Further research would be helpful in eliciting the

thinking that was used to arrive at the choices made of career areas and the various factors likely to affect careers in this section of the survey.

Employment growth (Table 23) by skill dimension was as follows: people (39%), thing (30%), idea (23%), and data (8%). People-oriented careers such as psychologist, teacher, insurance agent, police officer, registered nurse and waiter/waitress were seen as areas of job growth. Ironically, the first three occupational areas were represented in the job loss area. It is possible that some of the respondents were aware of the demographic shifts taking place with respect to teachers and nurses. Adult ESL and regular adult students were most likely to pick insurance agents as a job growth area and teachers and nurses as less likely occupational growth areas than did the professional groups. This suggests that the professional groups may be more aware of the numerous factors influencing career prospects over the next ten years. As previously mentioned, it would be wise for educators and students to clarify assumptions they are operating under in making employment projections. By doing so it would be easier to assess on an on-going basis the validity of these assumptions and make suitable adjustments when trends shift. For instance, the assumption that more police officers would be needed (the third highest scoring career area) is likely based on perceived growing crime rates which may or may not materialize; indeed, crime rates have been falling over the past five years (Foot, 1996).

The thing-related occupational areas chosen were computer programmer, chef, restaurant owner, and landscape gardener. The last three occupational areas are likely in keeping with the growing trend toward eating out as families and individuals become more squeezed for time (Foot, 1996). Landscape gardeners are experiencing a boom

owing to aging baby boomers becoming more interested in gardening yet not having enough time to do the gardening themselves. Many of the early boomers are in senior management positions and have serious time constraints, yet have the money to outsource their cooking or gardening needs (Foot, 1996).

The idea-related career areas such as computer programmer, psychologist, and fashion designer were among the top four career choices for job growth. This is in keeping with the assumption that the continuing demand for more innovations in all areas would create a greater emphasis on creativity, problem solving, new approaches, and newer computer technologies. In the case of psychologists, perhaps the increasing stresses associated with increased competitive demands and complexity in many areas of society will increase the need for psychologists to help people deal with such changes. If such is the case, then teachers and guidance counsellors would be well advised to determine the extent to which stress factors play a significant role in the learning and career decision making processes. It is important that students not curtail their career and educational plans as a result of stress factors that may be subject to alleviation or alteration.

In terms of opportunities for career advancement (Table 24), the ranking of skill dimensions was: people (39%), idea (33%), thing (9%), and data (5%). The same four top areas of job growth were also the top four areas of career advancement: computer programmer, police officer, teacher, and psychologist. As one might expect in world of increasing automation of thing and data skills, areas of career advancement would likely be found in areas of complexity less easy to automate, i.e., people and idea areas. The inclusion of nurses and insurance agents among careers likely to have opportunities for

advancement probably suggests that these areas will have the opportunity to move up the knowledge ladder more. Perhaps more nurses will fulfill nurse practitioner roles and insurance agents will begin to act more as risk management consultants. Once again, it would be desirable to have further research explore more of the reasons underlying the respondents' choices in each case.

In Table 25, the skill dimensions rank order with respect to automation or technology likely to replace workers was as follows: data (51%), thing (27%), people (11%), and idea (4%). All of the occupations previously indicated as areas of potential job loss were included here. As expected data and thing skill dimensions were the areas clearly most likely to be subjected to automation or technological replacement. Data, in particular, is easily handled by computers. It is worth noting, however, that the professional groups ranged from 80% to 89% in terms of choosing the same top five career areas most likely affected by automation or technology (i.e., at least 80% of all respondents in any professional group chose the same top five career areas overall) while the two student groups ranged from 57% (adult ESL) to 66% (regular adult students) in their choice of the top five career areas affected. Thus it would be useful for teachers and guidance counsellors to discuss automation and technology as a source of job elimination with students in order make everyone more aware of the assumptions they are operating under.

The career areas most subject to job loss as a result of global competition (Table 26) are rank ordered according to skill dimension as follows: thing (43%), idea (17%), data (14%), and people (10%). Increasingly manufactured items (i.e., things) are being produced in developing countries where wages are lower (Reich, 1991). Both computer

programmers and fashion designers (the idea-related career areas) were perceived as potentially suffering from foreign-based competition. Information on almost anything is available at virtually no cost over the Internet anywhere in world and ideas can easily copied or imitated. Holiday Inn, for instance, has its accounting (a data skill) done in India and IBM has its design-to-specification computer programming done in Bangalore, India (Campbell, 1997). Not surprisingly, people skills were chosen the least since cultural and language barriers restrict the free flow of people-related skills at the moment.

Career areas requiring the greatest amount of technology upgrading or training (Table 27) fell into the following skill dimension rank order: thing (31%), people (30%), and idea (27%). The same top areas chosen as areas of job growth and opportunity advancement are found in this category as well: computer programmer, teacher, police officer, registered nurse, and psychologist. This would seem to indicate that the respondents felt that job growth and advancement opportunity are closely tied to increasing training in technology and other areas. Thing skills were tied to computer programmers and appliance repairers which suggests that technology will become more complex as most would expect. Careers employing more people and idea skills are also perceived as requiring much more technology training as well. Thus technology, people, and idea skills are perceived as being closely related to job growth and career advancement, but promising occupations in these skill areas also require substantial on-going technology upgrading.

Career areas requiring the least amount of technology upgrading or training (Table 28) fell into the following skill dimension rank order: thing (40%), data (21%), and people (13%). The thing-related occupational areas included garbage collector, chef,

landscape gardener, ambulance driver, and carpenter. These occupational areas tend to be very traditional career areas that have not changed drastically over the past 25 years or so. The other occupations tend to be of a similar nature: waiter/waitress, dispatcher, and restaurant owner. Five of the eight occupations in this category were also indicated as areas of job loss for various reasons: dispatcher, carpenter, chef, garbage collector, and waiter/waitress. Thus there would seem to be a perceived connection between lack of technology upgrading and job loss.

Career areas requiring increasing education or training (Table 29) fell into the following skill dimension rank order: people (42%), thing (23%), idea (22%) and data (6%). Once again, the top five career areas chosen here were also among the top areas chosen with respect to job growth, opportunity for advancement, and technology upgrading. Thus there would seem to be a perceived necessity for technology and other forms of skill upgrading in order for a career to be considered an area of job growth and advancement opportunity. Even appliance repairers would seem to require additional training other than just technology upgrading or training.

Career areas experiencing the greatest change in job description (Table 30) fell into the following skill dimension rank order: people (38%), data (22%), idea (20%), and thing (12%). The same top five career areas chosen here were also the same top five career areas requiring further education and training. Thus an increase in training or education is associated with a changing job description. Even occupational areas likely to experience job loss for a variety of reasons (e.g., insurance agent, bookkeeper, medical secretary, dispatcher) are also likely to be subject to significant changes in job description. This is most likely a result of technology transforming these occupations as

indicated previously. Thus both job loss, career advancement, and job growth are all associated with changing job descriptions; however, career advancement and job growth areas differ from job loss areas in requiring more technological and educational skill upgrading.

Future Employment Trends Influencing Survey Respondents' Career Decisions

Given that 26 % of the respondents indicated that future trends had no influence on career decisions and another 10% indicated future trends had a less than average influence, there would seem to be a significant portion of the sample that should at least engage in career scenario planning in case their preferred occupational areas do not lead to employment. Considering how expensive educational training has become, most people cannot afford to just pick any educational program and assume that a job will be waiting at the end of the program. Many students go into considerable debt with student loans and do not have the luxury timewise or monetarily to choose a career without strategic consideration given to its future prospects. While teachers and career counsellors should not actively discourage anyone from pursuing a career in a declining occupational area, they would be negligent if they did not inform students of trends that might prejudice their chances of finding employment. Once informed, at least students can continually monitor developments that might have a significant potential effect on career prospects and revise their plans accordingly.

Number of Careers on Average Before Retirement

Given the perception that people graduating now are likely to have 6 careers before retiring, it would make sense to engage students in career scenario planning so that they can be giving consideration to a number of possible career opportunities and to help them explore various career paths options. The notion of skill transferability becomes increasingly important if people are likely to be switching careers. Educational plans and curricula that lead to the development of technological, people, and idea skills would seem to be highly recommended as a result of this survey's findings.

Frequencies of Survey Questions Comparing Skill Areas Now to Ten Years From Now for Entire Population

The average of the "now" means for the nine-point Likert questions in Part A was 7.8 versus 8.1 for the "in ten years" questions (Table 15). Although the overall difference is only 0.3, it is noteworthy that overall frequencies are extremely high. The range of means was between 7.1 and 8.4. Thus all of the skill areas mentioned were considered to be important. The five highest means among the "now" questions were: "The ability to learn" (8.3); "reading, writing, and computation skills" (8.2); "speaking and listening skills" (8.2), "skills and values needed to achieve high self-esteem, motivation, and goal-setting" (8.1); and "career development skills" (7.8). All changes with respect to the "ten years from now" responses were positive in nature; however, the biggest changes that occurred with the "ten years from now" skills concerned the following two questions: "the ability to adapt and operate in a rapidly changing technological environment" (8.3) and "the ability to operate in team environments, with people of different social and

cultural backgrounds" (8.0). Thus learning, comprehension, communication, motivation, cultural and technological skills were considered to be of paramount importance. The questions worth considering in this regard would be the extent to which educational curricula and evaluation reflects these learning priorities and the extent to which adult student educational and career decision making takes these areas into consideration. The latter is of particular importance given the high priority placed upon career development skills.

The average of the "now" questions on the percentage working condition and career questions was 48% versus 58% for the "in ten years" questions (Table 18). The "now" questions with the top five highest mean scores were: "require post-secondary diplomas or degrees for employment" (60.4%), "find work and personal life boundaries beginning to blur" (54.4%), "require personal counselling" (53.3%), "require career counselling" (52.4%), and "future trends influence current career decisions" (52.3%). All changes with respect to the "ten years from now" responses (Table 18) were positive in nature with the exception of two questions where a negative change was anticipated ("who enjoy job security" and "receiving close supervision"); however, the following "ten years from now" questions had means that exceeded 60%: "require a post-secondary diploma" (75.1%), "future trends influence current career decisions" (64.7%), "variety plays a significant role on the job" (63.4%), "find their pay and opportunity governed by global competition" (63.2%), "find their jobs challenging" (62.9%), "number of job duties or responsibilities is large" (62.6%), "find work and personal life boundaries beginning to blur" (62.5%), and "require career counselling" (60.5%). With 75% of jobs likely to require a post-secondary diploma and jobs likely to become more challenging,

competitive, and demanding, career counselling naturally rises in importance. In addition, if the perception of job security diminishes (e.g., respondents believed 58% of all jobs will be part-time in nature and only 43% of the workforce will enjoy job security) and if boundaries between work and personal life begin to blur as anticipated, it is likely that significantly more people will require personal counselling so as to manage priorities, time and stress better.

Educators and guidance counsellors need to work together to ensure that these issues are addressed in the curricula and in counselling session with adult student clients. For those reentering the education system after failing to complete their high school education previously, these challenges will increasingly appear quite daunting; and for some, insurmountable. Considerable attention must be paid to providing the necessary individual attention, encouragement and support so that barriers to success can be identified and realistically overcome or at least minimized (Krumboltz, 1996). In such a demanding and unstable environment, career scenario planning becomes essential. Alternative career paths must be given careful consideration since barriers and work-related challenges that arise in the future may or may not be anticipated or easily overcome. What does seem clear, however, is that barriers to employment and the number of challenges experienced by those employed are more likely to increase rather than decrease over the next ten years.

Background of Survey Respondents

Most of the respondents (84%) were between the ages of 21 and 50 (Table 34). There was roughly an even gender split (Table 33) between male (44%) and female respondents (56%). Most respondents (75%) felt they grew up in middle class families (Table 37). Non-Canadian citizens comprised 22% of the respondents versus 78% who were Canadian citizens (Table 35). Non-Canadian citizens were mostly found in the adult ESL group (17%) and among the job seekers (5%).

With respect to starting their own businesses over the next five to ten years (Table 38), 25% believed they might do so, 53% were undecided, and 22% would not. This suggests that teachers and guidance counsellors should be careful to at least explore opportunities for self-employment in any employment or career discussions. Guidance counsellors should be sure to get a sense of how anyone they are counselling feels about the prospect of self-employment. The fact that many people (53%) are unsure is a significant indicator that it would be worth finding out what is likely to influence the decision making process one way or another in this regard. This recommendation is further reinforced by the fact that overall the respondents believed that 58% of the workforce would be working for themselves within ten years (Table 18). Thus issues such as the self-assessment and preparation necessary before venturing down this path should also be addressed.

On the question concerning how well prepared the respondents felt regarding the changes they felt (Table 39), the mean score was 5.3 with one representing well-prepared and nine representing poorly prepared. However, employed professionals represent 23%

of the respondents and they are more likely to feel better prepared for anticipated changes given their levels of education and current employment status. For instance, approximately 31% of the respondents chose a number between one and three or between six and nine. Most of the student responses were in the four to nine range (the medium to poorly prepared range). Teachers and guidance counsellors would be well advised to try to identify any perceived barriers to career or educational decision making, goal-setting or attainment.

Conclusions

Edwin Herr (1996) has stressed the importance of career counselling "expanding paradigms of career work to meet the challenges of the international economy, the changing work organizations and possibility structures in this nation and abroad, and the globalization and mobility of the world's workforce" (p. 31). In such a world, Herr believes that "dynamic behavioral possibilities or expectations and shifting work contexts increase the multiprobabilistic nature of factors influencing career behaviour and the patterns of response that occur. Thus theories of career behaviour, particularly comprehensive ones, must also be open, evolving, and incomplete" (p. 15). Despite these challenges, it is nonetheless the responsibility of educators and guidance counsellors to help individuals address these complex concerns in a way that is motivating and adaptive.

To some extent, uncertainty exists even with respect to workplace environment as it exists in the present. Given the dynamic nature of the changes taking place, there are diverse opinions regarding which changes are manifesting themselves at the moment. Moreover, the degree to which they are gaining in relative importance is largely a

subjective judgment for many people. The purpose of this research survey administered was to try to assess the degree to which perceptions differ among various educational and human resource groups regarding the current work environment challenges and demands and those anticipated taking place over the next ten years. By this means, it was hoped that broad-based differences and similarities might emerge that could be helpful with respect to identifying areas for further fruitful research and areas that educators should be more mindful of in their curricula development, pedagogical or counselling approaches, and individual interventions with adult students.

The underlying assumptions with regard to the survey's development had to do with the multidimensional nature of the changes already underway and the degree to which these changes would become more pronounced over the next ten years. The research results bore out these assumptions given the uniformly high means associated with almost every "now" and "in ten years" skill, career, and working condition question. The changes anticipated to take place over the next ten years were always in the expected direction and were particularly significant with respect to career and working environment concerns. The relative ranking of skill dimensions showed people and idea skills to be of greatest importance and transferability as was originally assumed. Technological skills are rising to take the place of data and thing skill dimensions as evident from the considerable technological upgrading required of those pursuing areas of job growth and opportunities for advancement. The increasing need for additional education or skill training was also required in these areas of job growth and advancement. The ascendance of idea skills over people skills in the next ten years would seem to portend a period of considerable innovation, experimentation, and rapid

change. Thus those involved in education are likely to experience an accelerating rate of change in the demands placed on their resources and abilities.

So uncertainty will have to become an inherent part of the career decision making process because both individuals and occupations will be constantly changing. These uncertainties include concerns regarding the way the future will unfold with respect to the likelihood of realizing career choices, the degree of success and satisfaction likely to be found in the chosen occupations, and the possibility of changing preferences in the future. Audrey Collin (1996) emphasizes the roles organizational structural changes play in creating this uncertainty when he notes that "the flexibility that organizations need in order to adapt to changing circumstances thwarts the individual's future orientation. Where structures are temporary and experimental, individuals find it difficult to discern a visible stable future pathway and are unsure where to invest, what steps to take, and what the appropriate timetables are" (p. 391).

These uncertainties as revealed in significant response difference by group point to the need for career and educational scenario planning so that students are preparing for a number of possible futures. One way to bridge together the various career scenarios is by focusing on those skills that are common to a number of scenarios and are thus transferable across career areas. So even simply being able to identify which skill dimensions are likely to be of paramount importance and to be able to identify their transferability to other occupations helps to provide a general sense of educational, career, and employment change directions and opportunities. By at least having a general sense of direction, students can relieve some of stress and anxiety associated with making the career decisions in the face of changing circumstances and, in many cases, too much

and not enough information. For as Harmon (1996) recommends, "We must all find ways to increase our comfort with the fact that the world of work is changing more rapidly than ever before and to increase our sense of control of our own lives and destinies within an increasingly complex social and economic environment" (p. 39). Perhaps the fact that 78% of the respondents were potentially interested in starting their own business over the next five to ten years is an indicator of a desire to control their destiny more.

Those areas where educators and adult students differed significantly in their impressions speaks to a need for further clarification of underlying assumptions and contexts. In some cases, such as adult students lack of awareness that the service economy has been the primary job creator over the past twenty five years, reveals a need for the dissemination of more employment-related information that is readily available. Given that the theory of work adjustment presupposes that the process of circumscription is dependent on the perception of opportunity (Dawis, 1994), it is essential that students make career choices based on reasonably accurate information regarding present circumstances and have a broad sense of opportunities that may emerge over the next ten years as a result of current technological and employment trends.

The indicated need for career and personal counselling in the face of an increasing blurring of work and personal life roles was further emphasized in the importance placed upon the "skills and values needed to achieve high self-esteem, motivation, and goal setting." As contexts change so to some extent must self-concepts and sources of self-esteem change. For as Rene Dawis (1994) observes, "Because context is a ubiquitous determinant, we can have high self-esteem in one context and low self-esteem in another.

Similarly, self-concept can change with context, although it is customarily thought of as being stable" (pp. 38-39).

Unfortunately many career theories assume stable career opportunities over time (Harmon, 1994). Given career instability, it becomes increasingly difficult to use a particular career as a main source of identity. For as Savickas (1994) notes, "In postindustrial society, the work role may not be the chief tie to reality or the bestower of social identity. No one philosophy of life will be shared by everyone in a multicultural society" (p. 237). Indeed, in a postmodern era, individuals find that acquiring multiple, evolving identities is unavoidable (Anderson, 1998). As Phillips (1994) emphasizes, "decision making should be oriented toward discovery rather than goals; and flexibility, adaptability, and provisional commitment necessary in an uncertain world" (p. 160). In other words, because career commitment alone is not without its risks, a certain amount of career indecision becomes necessary. Or as Krumboltz (1996) asserts, "It is understandable that people are undecided, given the immense number of choices and the unforeseeable future. Indecision is the most logical and sensible response. Labeling the state as *open-mindedness* rather than indecision also helps." Yet a lack of career commitment cannot be allowed to undermine a student's sense of self-efficacy or self-esteem.

It must be stressed that the decision making context is one in which the respondents felt that in ten years 58% of the workforce will likely be employed on a part-time basis, only 43% will likely enjoy job security, and 58% will likely be working for themselves (Table 38).

The challenge, therefore, would seem to be to provide students with a more robust sense of self-efficacy. As Lent and Hackett (1994) stress, "A strong sense of self-efficacy may sustain efforts, even in instances where outcome attainment is uncertain" (p. 85). By anticipating a number of possible futures and developing a good sense of which skills are likely to be required (e.g., idea, people, and technology skills), it is easier to commit to an uncertain future so long as it is felt that acquisition of these skills will somehow prove useful or transferable across scenarios. After all, survey respondents anticipated that most people graduating today would have 6 different careers before retiring. So in essence, they are potentially preparing for and choosing six careers on average. It would therefore make considerable sense for students to plan for more than one sequence of careers that can cumulatively build in some way upon one another, rather than encouraging students to assume that they will each have six completely separate careers. They will not likely go through a completely isolated career decision making process in each instance; notwithstanding the fact that each circumstance in the future is likely to be somewhat unique. Included in this career alternative sequence exploration should be the prospect of self-employment and the skills and opportunities relevant to this pursuit. Moreover, skill transferability in connection with having a multiple career focus which might include entrepreneurial possibilities should play a much more significant developmental role in the career and educational planning process.

This study was successful in achieving its goal of identifying areas of significant difference and noteworthy trends among the various educational and professional groups with respect to changing skill and workplace requirements. These differences and trends have been useful for making helpful recommendations for all involved in seeing adult

students successfully find jobs and improve their employability both now and over the next ten years. Fruitful areas for further research were also identified. There were some indications that the results might have wider applicability beyond the immediate population sampled. Additional research would helpful to see if this is true. If this kind of survey were administered to similar groups over time it would be easier to better assess the limitations of the initial study and to monitor the extent to which anticipated changes are still considered to be relevant.

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APPENDIX A -LETTER OF CONSENT

This survey was designed by Colin Campbell who is a Counselling Psychology doctoral candidate at the Ontario Institute for Studies in Education.

The purpose of this survey is to try to determine the extent to which various categories of people in education (e.g., adult students, teachers, guidance counsellors) and people responsible for hiring differ in their assessment of skills required both now and ten years from now. The results of the survey will be used to make recommendations regarding potential areas of improvement in career counselling and curriculum planning for Scarborough adult education programs.

Each respondent remains anonymous since no names are being recorded nor are the surveys marked in any identifying manner. Surveys will only be placed in group categories and the responses for each group as a whole tabulated. No one other than the investigator and statistical personnel will have access to the raw data. By these means, individual confidentiality is assured.

Participation in the survey is entirely voluntary, so you may withdraw from completing this survey or any of its parts at any moment. By completing this survey in its entirety, however, you will provide the investigator with the information necessary to make positive educational suggestions that will hopefully benefit all Scarborough adult education students.

Survey

Part A:

1. For each of the following skills, please indicate your impression of the extent to which each may be more or less important for most people now and ten years from now by giving each a score on a scale from one to nine:

UNIMPORTANT 1 2 3 4 5 6 7 8 9 VERY IMPORTANT

	Now?	Ten years from now?
a) the ability to learn:	_____	_____
b) reading, writing, and computation skills:	_____	_____
c) speaking and listening skills:	_____	_____
d) skills and values needed to achieve high self-esteem, motivation, and goal setting:	_____	_____

e) career development skills: _____ _____

f) interpersonal skills in general: _____ _____

g) understanding how the organization functions: _____ _____

h) the ability to apply mathematical and scientific principles: _____ _____

i) the ability to adapt to and operate comfortably in a rapidly changing technological environment: _____ _____

j) the ability to operate effectively in team environments, which often comprise people of different social and cultural backgrounds: _____ _____

k) the ability to be entrepreneurial and innovative in many areas--not only in design and R&D, but in the management of people and information: _____ _____

l) circle the appropriate approximate percentage of people whom you assume currently require most of these skills in their work: 10 20 30 40 50 60 70 80 90

m) circle the appropriate approximate percentage of people whom you assume will likely require most of these skills ten years from now: 10 20 30 40 50 60 70 80 90

n) circle the approximate percentage of people you assume will be capable of acquiring these skills as required: 10 20 30 40 50 60 70 80 90

Part B: For each of the following questions indicate your impression of the approximate percentage of Canadian workers both now and ten years from now that each statement may hold true for:

2. a) Now working out of their homes to some extent? 10 20 30 40 50 60 70 80 90

b) Ten years from now? 10 20 30 40 50 60 70 80 90

3. a) Who now enjoy job security?	10 20 30 40 50 60 70 80 90
b) Ten years from now?	10 20 30 40 50 60 70 80 90
4. a) Currently employed part-time?	10 20 30 40 50 60 70 80 90
b) Ten years from now?	10 20 30 40 50 60 70 80 90
5. a) Currently working for themselves?	10 20 30 40 50 60 70 80 90
b) Ten years from now?	10 20 30 40 50 60 70 80 90
6. a) Currently working on a contract basis?	10 20 30 40 50 60 70 80 90
b) Ten years from now?	10 20 30 40 50 60 70 80 90

7. a) Finding their pay and opportunity governed
at the moment by global competition? 10 20 30 40 50 60 70 80 90

b) Ten years from now? 10 20 30 40 50 60 70 80 90

8. a) Now having to leave Canada to find work
in their area of interest or expertise? 10 20 30 40 50 60 70 80 90

b) Ten years from now? 10 20 30 40 50 60 70 80 90

9. a) Need to travel outside the country as part
of their job at the moment? 10 20 30 40 50 60 70 80 90

b) Ten years from now? 10 20 30 40 50 60 70 80 90

10. a) Now receiving close supervision on the job? 10 20 30 40 50 60 70 80 90

b) Ten years from now? 10 20 30 40 50 60 70 80 90

11. a) Now receiving supervision that is encouraging, enriching, collaborative, and empowering?	10 20 30 40 50 60 70 80 90
b) Ten years from now?	10 20 30 40 50 60 70 80 90
12. a) Required to play a leadership role in their job at the moment?	10 20 30 40 50 60 70 80 90
b) Ten years from now?	10 20 30 40 50 60 70 80 90
13. a) Now working with sophisticated technology?	10 20 30 40 50 60 70 80 90
b) Ten years from now?	10 20 30 40 50 60 70 80 90
14. a) Variety now plays a significant role on the job?	10 20 30 40 50 60 70 80 90
b) Ten years from now?	10 20 30 40 50 60 70 80 90

15. a) Number of job duties or responsibilities is large at the moment?	10 20 30 40 50 60 70 80 90
b) Ten years from now?	10 20 30 40 50 60 70 80 90
16. a) Require post-secondary diplomas or degrees for employment?	10 20 30 40 50 60 70 80 90
b) Ten years from now?	10 20 30 40 50 60 70 80 90
17. a) Require career counselling at the moment?	10 20 30 40 50 60 70 80 90
b) Ten years from now?	10 20 30 40 50 60 70 80 90
18. a) Require personal counselling at the moment?	10 20 30 40 50 60 70 80 90
b) Ten years from now?	10 20 30 40 50 60 70 80 90

19. a) Find their jobs challenging at the moment?	10 20 30 40 50 60 70 80 90
b) Ten years from now?	10 20 30 40 50 60 70 80 90
20. a) Forced to learn skills they are not interested in now?	10 20 30 40 50 60 70 80 90
b) Ten years from now?	10 20 30 40 50 60 70 80 90
21. a) Now let future trends influence current career decisions?	10 20 30 40 50 60 70 80 90
b) Ten years from now?	10 20 30 40 50 60 70 80 90
22. Now find work and personal life boundaries beginning to blur?	10 20 30 40 50 60 70 80 90
b) Ten years from now?	10 20 30 40 50 60 70 80 90

Part C: Read the following descriptions before answering the next two questions:

DATA (facts, records, files, numbers, systematic procedures for facilitating goods/services consumption by people). "Data activities" involve *impersonal processes* (objective processes) such as recording, verifying, processing, transmitting, and organizing facts or data representing goods or services.

IDEAS (abstractions, theories, knowledge, insights, and new ways of expressing something--for example, with words, equations, music, art). "Idea activities" involve *intrapersonal processes* (subjective processes) such as creating, discovering, interpreting, designing, developing, and synthesizing abstractions, theories, knowledge, insights, and new ways of expression, or implementing applications of abstractions, theories, knowledge, insights, and new ways of expression.

PEOPLE "activities" involve *interpersonal processes* such as helping, informing, serving, persuading, entertaining, motivating, and directing--in general, producing a change in human behaviour.

THINGS (machines, mechanisms, materials, tools, physical and biological processes). "Thing activities" involve *nonpersonal processes* such as producing, transporting, servicing, and repairing.

23. If people were required to make a major career shift, what **two** kinds of skills can likely be most easily transferred to a new occupation?

Circle any **two:** Data People Thing Idea

24. Indicate the order of importance of each skill dimension by assigning the number 1 for most important, 2 for the next in importance, 3 for the third most important, and 4 for the least important.

a) Now: Data _____ People _____ Thing _____ Idea _____

b) Ten years from now: Data _____ People _____ Thing _____ Idea _____

Part D:

25. From the list of the 23 jobs provided below, indicate your impression over the next ten years of the top five jobs in order with respect to:

Teacher	Police Officer	Waiter or Waitress	Insurance Agent
Restaurant Manager/Owner	Carpenter	Medical Secretary	Bookkeeper
Dispatcher	Telephone Operator	Garbage Collector	Landscape Gardener
Cook or Chef	Appliance Repairer	Firefighter	Ambulance Driver
Computer Programmer	Veterinarian	Psychologist	Fashion Designer
Musician	Newspaper Reporter	Registered Nurse	

a) job loss: 1 _____ 2 _____ 3_____
4 _____ 5 _____

b) employment growth: 1 _____ 2 _____ 3_____
4 _____ 5 _____

c) opportunities for advancement: 1 _____ 2 _____ 3_____

4 _____ 5 _____

d) danger of automation or technology

replacing workers: 1 _____ 2 _____ 3_____

4 _____ 5 _____

e) danger of jobs lost to global competitors who have workers in other countries who can do the job cheaper?

1 _____ 2 _____ 3_____

4 _____ 5 _____

f) the greatest amount of technology upgrading or training required

1 _____ 2 _____ 3_____

4 _____ 5 _____

g) the least amount of technology upgrading or training required

1 _____ 2 _____ 3_____

4 _____ 5 _____

h) increasing educational or training requirements

1 _____ 2 _____ 3_____

4 _____ 5 _____

i) greatest change in job description

1 _____ 2 _____ 3_____

4 _____ 5 _____

26. To what extent do future employment trends

influence your own career decisions? (not at all) 0 1 2 3 4 5 (a great deal)

27. How many careers will the average person now graduating from school likely have before retiring fully? 1 2 3 4 5 6 7 8 9

28. How many years of education or training does the average worker require beyond high school?

a) Now? 0 1 2 3 4 5 6 7 8 9

b) Ten years from now? 0 1 2 3 4 5 6 7 8 9

29. Rank order (1 through 4) the following employment areas according to your impression of job growth: (e.g., 1 indicates the largest growth area while 4 would indicate the smallest area of growth)

a) In the past ten years?

Public Sector/Government _____ Manufacturing_____ Service economy_____ Natural resource economy_____

b) In the next ten years?

Public Sector/Government _____ Manufacturing_____ Service economy_____Natural resource economy_____

Part E: Please complete the following background information portion of the survey. Please Indicate with a check-mark the correct response in each case.

30. Gender: Male ____ Female ____

31. Age: Under 21 ___ 21 to 30 _____ 31 to 40 _____41 to 50 ____ Over 50 ____

32. Citizenship (indicate most recent): Canadian ____ Foreign ____

33. Years of schooling (beginning at grade 1): Under 12 ____ 12 ____ 13 to 15 ____ More than 15 ____

34. Which socio-economic group did you
feel a part of when growing up? Lower class _____ Middle Class_____ Upper Class_____

35. Do you see yourself starting your own business in the next five to ten years? Yes___ Maybe___ No___

36. How well prepared do feel you are for the changes you foresee happening over the next five to ten years?
Circle appropriate number: Well Prepared 1 2 3 4 5 6 7 8 9 Poorly Prepared

APPENDIX C

TABLE 1A: THE ABILITY TO LEARN (NOW)

VARIABLE PA-1A-A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	54.1963	9.0327	6.8763	.0000
Within Groups	621	815.7448	1.3136		
Total	627	869.9411			

TABLE 1B

MEAN	GROUP	3	5	1	4	6	2	0[1]
7.8125	3 Natcon							
7.9474	5 Job seekers							
8.0000	1 Human Resources							
8.2596	4 Adult ESL							
8.5131	6 Adult Students	*	*					
8.6250	2 Guidance							
8.8929	0 Teachers	*	*					

[1] Horizontal numbers correspond to vertical numbers

TABLE 2A: THE ABILITY TO LEARN (IN TEN YEARS)

VARIABLE PA-1A-B BY VARIABLE OF VARIANCE
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	78.1014	13.0169	6.4266	.0000
Within Groups	620	1255.7934	2.0255		
Total	626	1333.8948			

TABLE 2B

MEAN	GROUP	4	6	5	3	1	2	0[1]
7.7282	4 Adult ESL							
8.3434	6 Adult Students	*						
8.3805	5 Job Seekers							
8.7660	3 Natcon	*						
8.8571	1 Human Resources	*						
8.8605	2 Guidance	*						
9.0000	0 Teachers	*						

[1] Horizontal numbers correspond to vertical numbers

TABLE 3A: READING, WRITING, AND COMPUTATION SKILLS (NOW)

VARIABLE PA-1B-A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	52.7641	8.7940	6.5242	.0000
Within Groups	619	834.3605	1.3479		
Total	625	887.1246			

TABLE 3B

MEAN	GROUP	1	3	5	4	6	2	0[1]
7.6296	1 Human Resources							
7.7083	3 Natcon							
7.9292	5 Job Seekers							
8.3846	4 Adult ESL							
8.4038	6 Adult Students	*	*					
8.5366	2 Guidance							
8.6786	0 Teachers							

[1] Horizontal numbers correspond to vertical numbers

TABLE 4A: READING, WRITING, AND COMPUTATION SKILLS (IN TEN YEARS)

VARIABLE PA-1B-B BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Group	6	41.6998	6.9500	3.38007	.0027
Within Group	619	1272.5430	2.0558		
Total	625	1314.2428			

TABLE 4B

MEAN	GROUP	4	5	6	2	3	1	0[1]
7.7282	4 Adult ESL							
8.3363	5 Job Seekers							
8.3636	6 Adult Students	*						
8.4419	2 Guidance							
8.4681	3 Natcon							
8.5714	1 Human Resources							
8.6071	0 Teachers							

[1] Horizontal numbers correspond to vertical numbers

TABLE 5A: SPEAKING AND LISTENING SKILLS (NOW)

VARIABLE PA-1C-A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	90.0129	15.0022	10.2030	.0000
Within Groups	618	908.6847	1.4704		
Total	624	998.6976			

TABLE 5B

MEAN	GROUP	3	1	5	6	4	2	0[1]
7.3125	3 Natcon							
7.3704	1 Human Resources							
7.9735	5 Job Seekers							
8.3864	6 Adult Students	*	*					
8.4038	4 Adult ESL	*	*					
8.4390	2 Guidance	*						
8.8571	0 Teachers	*	*					

[1] Horizontal numbers correspond to vertical numbers

TABLE 6A: SPEAKING AND LISTENING SKILLS (IN TEN YEARS)

VARIABLE PA-1C-B BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	46.5133	7.7522	5.1907	.0000
Within Groups	616	919.9907	1.4935		
Total	622	966.5040			

TABLE 6B

MEAN	GROUP	4	5	3	1	6	2	0[1]
7.8641	4 Adult ESL							
8.1161	5 Job Seekers							
8.3191	3 Natcon							
8.3571	1 Human Resources							
8.4847	6 Adult Students	*						
8.5814	2 Guidance							
8.9286	0 Teachers	*						

[1] Horizontal numbers correspond vertical numbers

TABLE 7A: SKILLS AND VALUES NEEDED TO ACHIEVE HIGH SELF-ESTEEM, MOTIVATION, AND GOAL SETTING (NOW)

VARIABLE PA-1D-A BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	120.1068	20.0178	12.7671	.0000
Within Groups	616	965.8354	1.5679		
Total	622	1085.9422			

TABLE 7B

MEAN	GROUP	1	3	5	4	6	2	0[1]
6.8148	1 Human Resources							
7.3333	3 Natcon							
7.8661	5 Job Seekers	*						
8.1845	4 Adult ESL	*	*					
8.3698	6 Adult Students	*	*	*				
8.6000	2 Guidance	*	*					
8.7500	0 Teachers	*	*					

[1] Horizontal numbers correspond vertical numbers

TABLE 8A: SKILLS AND VALUES NEEDED TO ACHIEVE HIGH SELF-ESTEEM, MOTIVATION, AND GOAL SETTING (IN TEN YEARS)

VARIABLE PA-1D-B BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	58.8083	9.8014	5.4647	.0000
Within Groups	616	1104.8482	1.7936		
Total	622	1163.6565			

TABLE 8B

MEAN	GROUP	4	1	5	6	3	2	0[1]
7.7157	4 Adult ESL							
8.2500	1 Human Resources							
8.2655	5 Job Seekers							
8.3422	6 Adult Students	*						
8.6170	3 Natcon	*						
8.7857	2 Guidance	*						
8.8571	0 Teachers	*						

[1] Horizontal numbers correspond to vertical number

TABLE 9A: CAREER DEVELOPMENT SKILLS (NOW)

VARIABLE PA-1E-A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	129.5993	21.5999	10.8318	.0000
Within Groups	615	1226.3878	1.9941		
Total	621	1355.9871			

TABLE 9B

MEAN	GROUP	1	3	2	5	0	4	6[1]
6.2593	1 Human Resources							
6.8936	3 Natcon							
7.4359	2 Guidance							
7.8142	5 Job Seekers	*	*					
7.8571	0 Teachers	*						
7.9615	4 Adult ESL	*	*					
8.0682	6 Adult students	*	*					

[1] Horizontal numbers correspond to vertical number

TABLE 10A: INTERPERSONAL SKILLS IN GENERAL (IN TEN YEARS)

VARIABLE PA-1F-B BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	70.3265	11.7211	5.4852	.0000
Within Groups	604	1290.6686	2.1369		
Total	610	1360.9951			

TABLE 10B

MEAN	GROUP	4	5	6	1	3	2	0[1]
7.3564	4 Adult ESL							
7.7091	5 Job Seekers							
7.8521	6 Adult Students							
8.0357	1 Human Resources							
8.3404	3 Natcon	*						
8.5122	2 Guidance	*						
8.5556	0 Teachers	*						

[1] Horizontal numbers correspond to vertical number

TABLE 11A: UNDERSTANDING HOW THE ORGANIZATION FUNCTIONS (NOW)

VARIABLE PA-1G-A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	105.6649	17.6108	6.3639	.0000
Within Groups	614	1699.1209	2.7673		
Total	620	1804.7858			

TABLE 11B

MEAN	GROUP	3	1	2	5	0	4	6[1]
6.4468	3 Natcon							
6.5185	1 Human Resources							
6.9231	2 Guidance							
7.2232	5 Job Seekers							
7.3929	0 Teachers							
7.4904	4 Adult ESL	*						
7.7311	6 Adult Students	*	*					

[1] Horizontal numbers correspond to vertical numbers

TABLE 12A: THE ABILITY TO ADAPT AND OPERATE IN A RAPIDLY CHANGING TECHNOLOGICAL ENVIRONMENT (NOW)

VARIABLE PA-1I-A BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	53.8555	8.9789	3.7637	.0011
Within Groups	609	1452.3717	2.3848		
Total	615	1506.2272			

TABLE 12B

MEAN	GROUP	3	1	4	5	2	6	0[1]
7.0208	3 Natcon							
7.3333	1 Human Resources							
7.5192	4 Adult ESL							
7.6204	5 Job Seekers							
7.7179	2 Guidance							
7.9008	6 Adult Students	*						
8.3929	0 Teachers	*						

[1] Horizontal numbers correspond to vertical number

TABLE 13A: THE ABILITY TO ADAPT TO AND OPERATE IN A RAPIDLY CHANGING TECHNOLOGICAL ENVIRONMENT (IN TEN YEARS)

VARIABLE PA-1I-B BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	52.2528	8.7088	5.2711	.0000
Within Groups	610	1007.8282	1.6522		
Total	616	1060.0810			

TABLE 13B

MEAN	GROUP	4	6	5	3	1	0	2[1]
7.8235	4 Adult ESL							
8.3295	6 Adult Students							
8.3704	5 Job Seekers							
8.6170	3 Natcon							
8.6786	1 Human Resources							
8.7778	0 Teachers							
8.9024	2 Guidance	*						

[1] Horizontal numbers correspond to vertical number

TABLE 14A: THE ABILITY TO OPERATE IN TEAM ENVIRONMENTS, WITH PEOPLE OF DIFFERENT SOCIAL AND CULTURAL BACKGROUNDS (NOW)

VARIABLE PA-1J-A BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	120.6906	20.1151	8.7579	.0000
Within Groups	609	1398.7494	2.2968		
Total	615	1519.4400			

TABLE 14B

MEAN	GROUP	1	3	4	5	2	6	0[1]
6.5926	1 Human Resources							
6.7708	3 Natcon							
7.1538	4 Adult ESL							
7.5556	5 Job Seekers							
7.7949	2 Guidance							
7.9237	6 Adult Students	*	*	*				
8.2143	0 Teachers	*	*					

[1] Horizontal numbers correspond to vertical number

TABLE 15A: THE ABILITY TO OPERATE IN TEAM ENVIRONMENTS WITH PEOPLE OF DIFFERENT SOCIAL AND CULTURAL BACKGROUNDS (IN TEN YEARS)

VARIABLE PA-1J-B BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	138.8679	23.1446	10.1250	.0000
Within Groups	612	1398.9706	2.2859		
Total	618	1537.8385			

TABLE 15B

MEAN	GROUP	4	6	5	3	1	2	0[1]
7.0583	4 Adult ESL							
8.0758	6 Adult Students	*						
8.0826	5 Job Seekers	*						
8.3830	3 Natcon	*						
8.4643	1 Human Resources	*						
8.6829	2 Guidance	*						
8.7037	0 Teachers	*						

[1] Horizontal numbers correspond to vertical number

TABLE 16A: THE ABILITY TO BE ENTERPRENEURIAL AND INNOVATIVE IN MANY AREAS – DESIGN AND R & D, MANAGEMENT OF PEOPLE AND INFORMATION (IN TEN YEARS)

VARIABLE PA-1K-B BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	113.0708	18.8451	8.1232	.0000
Within Groups	604	1401.2270	2.3199		
Total	610	1514.2978			

TABLE 16B

MEAN	GROUP	4	5	6	1	2	3	0[1]
7.0900	4 Adult ESL							
7.7593	5 Job Seekers							
7.8077	6 Adult Students	*						
8.1071	1 Human Resources							
8.4390	2 Guidance	*						
8.5532	3 Natcon	*						
8.5926	0 Teachers	*						

[1] Horizontal numbers correspond to vertical number

TABLE 17A: PERCENTAGE OF PEOPLE WHO CURRENTLY REQUIRE MOST OF THESE SKILLS IN THEIR WORK

VARIABLE PA-1L BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	6809.3158	1134.8860	3.5332	.0019
Within Groups	621	199468.3912	321.2051		
Total	627	206277.7070			

TABLE 17B

MEAN	GROUP	3	1	5	4	2	6	0[1]
52.2917	3 Natcon							
56.4286	1 Human Resources							
60.4630	5 Job Seekers							
61.8269	4 Adult ESL							
62.3810	2 Guidance							
63.7175	6 Adult Students	*						
65.8621	0 Teachers							

[1] Horizontal numbers correspond to vertical number

TABLE 18A: PERCENTAGE OF PEOPLE WHO WILL LIKELY REQUIRE MOST OF THESE SKILLS TEN YEARS FROM NOW

VARIABLE PA-1M BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	11035.5646	1839.2608	5.5812	.0000
Within Groups	619	203989.3555	329.5466		
Total	625	215024.9201			

TABLE 18B

MEAN	GROUP	4	6	5	2	3	1	0[1]
65.3398	4 Adult ESL							
69.6642	6 Adult Students							
70.0917	5 Job Seekers							
76.6667	2 Guidance							
77.8723	3 Natcon	*						
78.9286	1 Human Resources							
78.9655	0 Teachers	*						

[1] Horizontal numbers correspond to vertical number

TABLE 19A: TO SOME EXTENT WORKING OUT OF THEIR HOMES (NOW)

VARIABLE PB-2A BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	57529.0177	9588.1696	23.5434	.0000
Within Groups	624	254126.7668	407.2544		
Total	630	311655.7845			

TABLE 19B

MEAN	GROUP	1	0	3	2	5	6	4[1]
28.2143	1 Human Resources							
30.0000	0 Teachers							
32.5000	3 Natcon							
33.8095	2 Guidance							
48.2143	5 Job Seekers	*	*	*	*			
53.6803	6 Adult Students	*	*	*	*			
57.0874	4 Adult ESL	*	*	*	*			

[1] Horizontal numbers correspond to vertical number

TABLE 20A: TO SOME EXTENT WORKING OUT OF THEIR HOMES (IN TEN YEARS)

VARIABLE PB-2B BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	9413.5925	1568.9321	4.7540	.0001
Within Groups	624	205933.7926	330.0221		
Total	630	215347.3851			

TABLE 20B

MEAN	GROUP	1	3	0	4	3	5	6[1]
50.0000	1 Human Resources							
55.2381	2 Guidance							
56.2069	0 Teachers							
60.9709	4 Adult ESL							
61.4583	3 Natcon							
61.6964	5 Job Seekers							
64.9814	6 Adult Students	*						

[1] Horizontal numbers correspond to vertical number

TABLE 21A: WHO ENJOY JOB SECURITY (NOW)

VARIABLE PB-3A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	13570.0468	2261.6745	4.8935	.0001
Within Groups	617	285165.8506	462.1813		
Total	623	298735.8974			

TABLE 21B

MEAN	GROUP	1	5	3	4	0	6	2[1]
38.1481	1 Human Resources							
38.6364	5 Job Seekers							
46.2500	3 Natcon							
47.9612	4 Adult ESL							
49.3103	0 Teachers							
50.1132	6 Adult Students		*					
51.6667	2 Guidance							

[1] Horizontal numbers correspond to vertical number

TABLE 22A: WHO WILL ENJOY JOB SECURITY (IN TEN YEARS)

VARIABLE PB-3B BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prop.
Between Groups	6	50483.1524	8413.8587	14.1540	.0000
Within Groups	610	362615.7131	594.4520		
Total	616	413098.8655			

TABLE 22B

MEAN	GROUP	1	3	0	2	5	4	6[1]
24.0741	1 Human Resources							
27.4468	3 Natcon							
31.7241	0 Teachers							
32.6190	2 Guidance							
36.4815	5 Job Seekers							
49.7030	4 Adult ESL	*	*		*	*		
49.8099	6 Adult Students	*	*	*	*	*		

[1] Horizontal numbers correspond to vertical number

TABLE 23A: EMPLOYED PART- TIME (NOW)

VARIABLE PB-4A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	19844.3233	3307.3872	12.3039	.0000
Within Groups	616	165585.8532	268.8082		
Total	622	185430.1765			

TABLE 23B

MEAN	GROUP	1	2	3	0	5	6	4[1]
34.4444	1 Human Resources							
37.6190	2 Guidance							
42.5000	3 Natcon							
45.0000	0 Teachers							
48.3486	5 Job Seekers	*	*					
52.9323	6 Adult Students	*	*	*				
53.4951	4 Adult ESL	*	*	*				

[1] Horizontal numbers correspond to vertical number

TABLE 24A: WORKING FOR THEMSELVES (NOW)

VARIABLE PB-5A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	24331.6252	4055.2709	12.2011	.0000
Within Groups	618	205404.3748	332.3695		
Total	624	229736.0000			

TABLE 24B

MEAN	GROUP	1	3	0	2	5	6	4[1]
22.2222	1 Human Resources							
30.6250	3 Natcon							
30.6897	0 Teachers							
32.1429	2 Guidance							
38.3636	5 Job Seekers	*						
43.8346	6 Adult Students	*	*	*	*			
44.7573	4 Adult ESL	*	*	*	*			

[1] Horizontal numbers correspond to vertical number

TABLE 25A: WORKING ON A CONTRACT BASIS (NOW)

VARIABLE PB-6A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	27765.8217	4627.6369	13.4514	.0000
Within Groups	612	210544.6791	344.0273		
Total	618	238310.5008			

TABLE 25B

MEAN	GROUP	1	3	0	2	5	6	4[1]
27.0370	1 Human Resources							
32.9167	3 Natcon							
35.8621	0 Teachers							
35.9524	2 Guidance							
42.7103	5 Job Seekers	*						
48.9734	6 Adult Students	*	*	*	*			
49.2233	4 Adult ESL	*	*		*			

[1] Horizontal numbers correspond to vertical number

TABLE 26A: FINDING THEIR PAY AND OPPORTUNITY GOVERNED AT THE MOMENT BY GLOBAL COMPETITION (NOW)

VARIABLE PB-7A BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	21176.0642	3529.3440	9.6667	.0000
Within Groups	607	221618.0776	365.1039		
Total	613	242794.1368			

TABLE 26B

MEAN	GROUP	1	3	2	0	5	4	6[1]
38.5714	1 Human Resources							
38.9583	3 Natcon							
39.7674	2 Guidance							
44.4828	0 Teachers							
49.0654	5 Job Seekers							
53.8776	4 Adult ESL	*	*	*				
54.2529	6 Adult Students	*	*	*				

[1] Horizontal numbers correspond to vertical number

TABLE 27A: HAVING TO LEAVE CANADA TO FIND WORK IN THEIR WORK AREA OF INTEREST OR EXPERTISE (NOW)

VARIABLE PB-8A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	59593.0263	9932.1710	23.8101	.0000
Within Groups	620	258617.3884	417.1409		
Total	626	318220.4147			

TABLE 27B

MEAN	GROUP	1	3	2	0	5	4	6[1]
18.2143	1 Human Resources							
18.7500	3 Natcon							
22.1429	2 Guidance							
22.5000	0 Teachers							
34.7321	5 Job Seekers	*	*					
42.9126	4 Adult ESL	*	*	*	*			
44.3609	6 Adult Students	*	*	*	*	*		

[1] Horizontal numbers correspond to vertical number

TABLE 28A: HAVING TO LEAVE CANADA TO FIND WORK IN THEIR AREA OF INTEREST OR EXPERTISE (IN TEN YEARS)

VARIABLE PB-8B BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	28062.4194	4677.0699	8.8165	.0000
Within Groups	612	324661.3286	530.4924		
Total	618	352723.7480			

TABLE 28B

MEAN	GROUP	0	1	3	2	4	5	6[1]
28.8889	0 Teachers							
35.3571	1 Human Resources							
38.0851	3 Natcon							
38.2927	2 Guidance							
47.5728	4 Adult ESL	*						
48.0000	5 Job Seekers	*						
52.6616	6 Adult Students	*	*	*	*			

[1] Horizontal numbers correspond to vertical number

TABLE 29A: NEED TO TRAVEL OUTSIDE THE COUNTRY AS PART OF THEIR JOB (NOW)

VARIABLE PB-9A BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Pob.
Between Groups	6	19907.8160	3317.9693	8.3968	.0000
Within Groups	620	244992.0245	395.1484		
Total	626	264899.8405			

TABLE 29B

MEAN	GROUP	3	2	1	0	5	4	6[1]
24.3750	3 Natcon							
25.2381	2 Guidance							
25.3571	1 Human Resources							
26.4286	0 Teachers							
31.8750	5 Job Seekers							
36.5385	4 Adult ESL							
39.2830	6 Adult Students	*	*					

[1] Horizontal numbers correspond to vertical number

TABLE 30A: RECEIVING CLOSE SUPERVISION ON THE JOB (IN TEN YEARS)

VARIABLE PB-10B BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	30228.1384	5038.0231	9.1192	.0000
Within Groups	616	340318.4395	552.4650		
Total	622	370546.5779			

TABLE 30B

MEAN	GROUP	1	3	0	2	5	6	4[1]
29.6429	1 Human Resources							
31.2500	3 Natcon							
37.1429	0 Teachers							
40.7317	2 Guidance							
41.4818	5 Job Seekers							
49.5455	6 Adult Students	*	*					
52.1154	4 Adult ESL	*	*					

[1] Horizontal numbers correspond to vertical number

TABLE 31A: RECEIVING SUPERVISION THAT IS ENCOURAGING, ENRICHING, COLLABORATIVE, AND EMPOWERING (NOW)

VARIABLE PB-11A BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	28027.8653	4671.3109	14.0683	.0000
Within Groups	604	200555.7681	332.0460		
Total	610	228583.6334			

TABLE 31B

MEAN	GROUP	3	1	0	2	5	6	4[1]
23.7500	3 Natcon							
28.1481	1 Human Resources							
33.9286	0 Teachers							
35.6098	2 Guidance							
36.4151	5 Job Seekers	*						
44.4574	6 Adult Students	*	*		*			
45.6311	4 Adult ESL	*	*		*			

[1] Horizontal numbers correspond to vertical number

TABLE 32A: REQUIRED TO PLAY A LEADERSHIP ROLE IN THEIR JOB (NOW)

VARIABLE PB-12A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	24609.0703	4101.5117	11.0747	.0000
Within Groups	606	224432.3653	370.3504		
Total	612	249041.4356			

TABLE 32B

MEAN	GROUP	1	0	3	2	5	4	6[1]
29.6296	1 Human Resources							
32.2222	0 Teachers							
33.1250	3 Natcon							
37.8049	2 Guidance							
41.3208	5 Job Seekers							
46.2136	4 Adult ESL	*		*				
49.1188	6 Adult Students	*	*	*				

[1] Horizontal numbers correspond to vertical number

TABLE 33A: WORKING WITH SOPHISTICATED TECHNOLOGY (IN TEN YEARS)

VARIABLE PB-13B BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	7851.7341	1308.6223	3.9794	.0006
Within Groups	609	200271.4802	328.8530		
Total	615	208123.2143			

TABLE 33B

MEAN	GROUP	2	3	1	0	5	4	6[1]
64.0476	2 Guidance							
67.2917	3 Natcon							
68.5185	1 Human Resources							
70.3571	0 Teachers							
70.6542	5 Job Seekers							
70.7921	4 Adult ESL							
75.5894	6 Adult Students	*						

[1] Horizontal numbers correspond to vertical number

TABLE 34A: VARIETY PLAYS A SIGNIFICANT ROLE ON THE JOB (NOW)

VARIABLE PB-14A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	39468.9962	6578.1660	20.1553	.0000
Within Groups	603	196803.1349	326.3734		
Total	609	236272.1311			

TABLE 34B

MEAN	GROUP	1	3	0	2	5	4	6[1]
33.7037	1 Human Resources							
35.2083	3 Natcon							
35.3571	0 Teachers							
39.7619	2 Guidance							
44.2718	5 Job Seekers							
51.3000	4 Adult ESL	*	*	*				
55.9160	6 Adult Students	*	*	*	*	*		

[1] Horizontal numbers correspond to vertical number

TABLE 35A: NUMBER OF JOB DUTIES OR RESPONSIBILITIES IS LARGE (NOW)

VARIABLE PB-15A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	23505.4573	3917.5762	11.7200	.0000
Within Groups	606	202563.3845	334.2630		
Total	612	226068.8418			

TABLE 35B

MEAN	GROUP	1	3	0	5	2	4	6[1]
37.4074	1 Human Resources							
41.4894	3 Natcon							
46.4286	0 Teachers							
47.2642	5 Job Seekers							
48.5000	2 Guidance							
54.6000	4 Adult ESL	*	*					
57.5472	6 Adult Students	*	*		*			

[1] Horizontal numbers correspond to vertical number

TABLE 36A: REQUIRE POST-SECONDARY DIPLOMAS OR DEGREES FOR EMPLOYMENT (NOW)

VARIABLE PB-16A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	45081.6969	7513.6162	24.3027	.0000
Within Groups	621	191993.4623	309.1682		
Total	627	237075.1592			

TABLE 36B

MEAN	GROUP	3	1	0	2	5	4	6[1]
43.3333	3 Natcon							
44.2857	1 Human Resources							
51.7857	0 Teachers							
52.0930	2 Guidance							
58.4545	5 Job Seekers	*	*					
59.4175	4Adult ESL	*	*					
68.6567	6 Adult Students	*	*	*	*	*	*	

[1] Horizontal numbers correspond to vertical number

TABLE 37A: REQUIRE CAREER COUNSELLING (NOW)

VARIABLE PB-17A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	18535.9684	3089.3281	7.8232	.0000
Within Groups	618	244042.8220	394.8913		
Total	624	262578.7904			

TABLE 37B

MEAN	GROUP	1	3	0	2	5	4	6[1]
39.2857	1 Human Resources							
42.2917	3 Natcon							
43.9286	0 Teachers							
47.8571	2 Guidance							
51.0545	5 Job Seekers							
55.5340	4 Adult ESL	*	*					
56.6165	6 Adult Students	*	*					

[1] Horizontal numbers correspond to vertical number

TABLE 38A: FIND THEIR JOBS CHALLENGING (NOW)

VARIABLE PB-19A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	29436.4692	4906.0782	14.1217	.0000
Within Groups	620	215396.0667	347.4130		
Total	626	244832.5359			

TABLE 38B

MEAN	GROUP	1	3	0	2	5	6	4[1]
35.3571	1 Human Resources							
37.5000	3 Natcon							
38.9286	0 Teachers							
43.9535	2 Guidance							
44.4954	5 Job Seekers							
54.1199	6 Adult Students	*	*	*		*		
55.7692	4 Adult ESL	*	*	*		*		

[1] Horizontal numbers correspond to vertical number

TABLE 39A: FORCED TO LEARN SKILLS THEY ARE NOT INTERESTED IN (NOW)

VARIABLE PB-20A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	25733.2905	4288.8817	11.1495	.0000
Within Groups	617	237341.0685	384.6695		
Total	623	263074.3590			

TABLE 39B

MEAN	GROUP	0	1	2	3	5	4	6[1]
36.0714	0 Teachers							
38.5714	1 Human Resources							
40.9756	2 Guidance							
41.8750	3 Natcon							
50.1852	5 Job Seekers							
50.7692	4 Adult ESL							
56.1798	6 Adult Students	*	*	*	*			

[1] Horizontal numbers correspond to vertical number

TABLE 40A: FORCED TO LEARN SKILLS THEY ARE NOT INTERESTED IN (IN TEN YEARS)

VARIABLE PB-20B BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	15893.4466	2648.9078	4.8984	.0001
Within Groups	615	332574.2383	540.7711		
Total	621	348467.6849			

TABLE 40B

MEAN	GROUP	1	0	4	2	3	5	6[1]
45.0000	1 Human Resources							
50.7143	0 Teachers							
52.6923	4 Adult ESL							
53.1707	2 Guidance							
58.1250	3 Natcon							
58.8785	5 Job Seekers							
62.6316	6 Adult Students	*	*					

[1] Horizontal numbers correspond to vertical number

TABLE 41A: FUTURE TRENDS INFLUENCE CURRENT CAREER DECISIONS (NOW)

VARIABLE PB-21A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	58206.2202	9701.0367	28.4757	.0000
Within Groups	606	206450.5498	340.6775		
Total	612	264656.7700			

TABLE 41B

MEAN	GROUP	1	3	0	2	5	4	6[1]
27.8571	1 Human Resources							
36.0417	3 Natcon							
39.2857	0 Teachers							
41.8605	2 Guidance							
49.7059	5 Job Seekers	*	*					
56.7327	4 Adult ESL	*	*	*	*			
60.2662	6 Adult Students	*	*	*	*	*		

[1] Horizontal numbers correspond to vertical number

TABLE 42A: FUTURE TRENDS INFLUENCE CURRENT CAREER DECISIONS (IN TEN YEARS)

VARIABLE PB-21B BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	10267.9172	1711.3195	4.4272	.0002
Within Groups	602	232700.8841	386.5463		
Total	608	242968.8013			

TABLE 42B

MEAN	GROUP	1	0	2	4	3	5	6[1]
51.0714	1 Human Resources							
60.3571	0 Teachers							
60.4878	2 Guidance							
62.5253	4 Adult ESL							
63.9583	3 Natcon							
64.6078	5 Job Seekers							
68.2510	6 Adult Students	*						

[1] Horizontal numbers correspond to vertical number

TABLE 43A: FIND WORK AND PERSONAL LIFE BOUNDARIES BEGINNING TO BLUR (NOW)

VARIABLE BY PB-22A VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	17404.3653	2900.7276	8.7163	.0000
Within Groups	599	199343.4894	332.7938		
Total	605	216747.8547			

TABLE 43B

MEAN	GROUP	3	2	0	1	5	4	6[1]
45.9574	3 Natcon							
46.9048	2 Guidance							
47.0370	0 Teachers							
50.0000	1 Human Resources							
50.6000	5 Job Seekers							
54.0777	4 Adult ESL							
60.0386	6 Adult Students	*	*		*			

[1] Horizontal numbers correspond to vertical number

TABLE 44A: TWO KINDS OF SKILLS WHICH CAN BE EASILY TRANSFERED TO A NEW OCCUPATION

VARIABLE PD-23 DATA BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	1.9955	.3356	5.5684	.0000
Within Groups	248	14.8123	.0597		
Total	254	16.8078			

TABLE 44B

[1]

MEAN	GROUP	3	4	5	6	2	1	0
1.0000	3 Natcon							
1.0000	4 Adult ESL							
1.0000	5 Job Seekers							
1.0000	6 Adult Students							
1.1176	2 Guidance							
1.3333	1 Human Resources							
1.4286	0 Teachers	*	*	*	*			

[1] Horizontal numbers correspond to vertical numbers

TABLE 45A: NUMBER OFAREAS THE AVERAGE PERSON GRADUATING FROM SCHOOL WILL LIKELY HAVE BEFORE RETIRING FULLY

VARIABLE PE-27 BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Pro.
Between Groups	6	66.5181	11.0863	3.9536	.0007
Within Groups	560	1570.3214	2.8041		
Total	566	1636.8395			

TABLE 45B

MEAN	GROUP	5	0	6	4	2	1	3[1]
4.5361	5 Job Seekers							
4.7200	0 Teachers							
4.8300	6 Adult Students							
5.1084	4 Adult ESL							
5.1220	2 Guidance							
5.1429	1 Human Resources							
5.8913	3 Natcon	*	*					

[1] Horizontal numbers correspond to vertical number

TABLE 46A: NUMBER OF YEARS OF EDUCATION OR TRAINING THE AVERAGE WORKER REQUIRES BEYOND HIGH SCHOOL (NOW)
VARIABLE PE 28-A BY VARIABLE GROUP
ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	135.6962	22.6160	4.5697	.0001
Within Groups	633	3132.8022	4.9491		
Total	639	3268.4984			

TABLE 46B

MEAN	GROUP	0	3	2	1	5	4	6[1]
2.4483	0 Teachers							
2.5000	3 Natcon							
2.7209	2 Guidance							
2.9286	1 Natcon							
3.5614	5 Job Seekers							
3.7264	4 Adult ESL							
3.7426	6 Adult Students	*						

[1] Horizontal numbers correspond to vertical number

TABLE 47A: AREAS OF JOB GROWTH IN THE PAST TEN YEARS (SEVICE ECONOMY)

VARIABLE PE29-A SERVICE ECONOMY BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	74.5007	12.4168	11.6664	.0000
Within Groups	525	558.7681	1.0643		
Total	531	633.2688			

TABLE 47B

MEAN	GROUP	1	0	2	3	5	6	4[1]
1.3214	1 Human Resources							
1.5000	0 Teachers							
1.5641	2 Guidance							
1.7778	Natcon							
2.0947	5 Job Seekers							
2.3722	6 Adult Students	*	*	*				
2.5769	4 Adult ESL	*	*	*	*			

[1] Horizontal numbers correspond to vertical number

TABLE 48A: AREAS OF JOB GROWTH IN THE NEXT TEN YEARS (PUBLIC SECTOR/GOVERNMENT)

VARIABLE PE29-B-1 PUBLIC SECTOR GOVERNMENT BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	83.3880	13.8980	11.7774	.0000
Within Groups	525	619.5293	1.1801		
Total	531	702.9173			

TABLE 48B

MEAN	GROUP	4	6	5	3	1	0	2[1]
2.7089	4 Adult ESL							
2.7273	6 Adult Students							
3.2000	5 Job Seekers							
3.5435	3 Natcon	*	*					
3.5714	1 Human Resources	*	*					
3.6400	0 Teachers	*	*					
3.7949	2 Guidance	*	*					

[1] Horizontal numbers correspond to vertical number

TABLE 49A: AREAS OF JOB GROWTH IN THE NEXT TEN YEARS (SERVICE ECONOMY)

VARIABLE PE29-B3 SERVICE ECONOMY BY VARIABLE GROUP ONE-WAY ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F Ratio	P Prob.
Between Groups	6	97.7399	16.2900	16.1842	.0000
Within Groups	525	528.4311	1.0065		
Total	531	626.1711			

TABLE 49B

MEAN	GROUP	0	1	3	2	5	6	4[1]
1.0800	0 Teachers							
1.1786	1 Human Resources							
1.3778	3 Natcon							
1.4103	2 Guidance							
1.8750	5 Job Seekers							
2.2818	6 Adult Students	*	*	*	*			
2.3291	4 Adult ESL	*	*	*	*			

[1] Horizontal numbers correspond to vertical number