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Barriers to Employment

by

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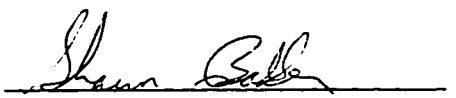

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The undersigned certify that they have read, and recommended to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled *Barriers to Employment* submitted by *Shawn Bakker* in partial fulfillment of the requirements for the degree of *Master of Education* in *Educational Psychology*.

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Abstract

This study investigated a software tool, called Copilot, designed to help job seekers find work. It compared the Copilot scale scores of post-secondary students from four different samples. The subjects scores were also analyzed based on variables of gender, educational level, and work experience. Finally, their scores were correlated with their results on the Career Beliefs Inventory, a questionnaire developed by John Krumboltz (1991) to target attitudes about careers.

Eighty-eight subjects from four different groups were compared. Subjects were asked to complete and return a paper-and-pencil version of the Copilot questionnaire and the Career Beliefs Inventory. Subjects were given the opportunity to receive and discuss their results in debriefing meetings where they were asked to complete and evaluation form of the Copilot questionnaire and their results.

Results indicated significant differences between the four groups scores on Copilot. Differences were also found based on the subjects work experience, but not gender or amount of education. There were also a number of significant correlations between Copilot and Career Beliefs Inventory scale.

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CHAPTER 1 INTRODUCTION

In today's economic climate, finding employment and keeping it are concerns for a large portion of the population. Increasing cutbacks in expenditures are shrinking the size of the government bureaucracy, eliminating what once were thought to be stable jobs. Corporate downsizing has had the same effect on workers in private enterprise, leaving them without jobs and little idea of how to find new ones. Students graduating from educational institutions are also feeling stress because of the perceived lack of job opportunities in their areas of study. Although they come from different environments, these individuals have two things in common: they don't have employment and they would like to find some.

The difficulties people face when looking for a job are quite varied. Those who are unfortunate enough to be laid off in the middle of their career might find themselves with outdated skills and financial burdens that require a higher salary. Students just leaving school might be in a position where they have the appropriate skills but not enough work experience. Everyone who is unemployed faces a number of different difficulties that prevent them from re-entering the workforce.

Research has shown that work means different things to different people, but for all it provides more then the means to earn a living. By providing individuals with an opportunity to use their skills, work gives them a sense of competence and accomplishment. It gives workers the opportunity to interact with others, providing

social opportunities and connecting them to society. Everyone chooses to work for different reasons, and to be without employment causes distress in many people. Unemployment brings about financial hardship, isolation from friends and family, and feelings of worthlessness.

The misfortune of the unemployed has become a popular issue as more individuals feel less secure in their own employment. The increased concern with higher levels of unemployment has resulted in the growth of services for unemployed individuals aimed at returning them to the workforce. Bookstores are full of volumes that teach people how to write resumes, market their skills, network, and find jobs. Government agencies provide seminars on "How To Find The Hidden Job Market," and "How To Sell Yourself." Many of these resources provide helpful information to the job seeker. Nevertheless many job seekers might not be sure where their job search is breaking down. It mightl be that their resume and written documents are very effective, but their interpersonal communication skills do not get them past the first interview.

The present study examined a new tool designed to help job seekers enter the work place quickly, avoiding the struggles associated with long-term unemployment. Copilot is a computer scored questionnaire that provides its users with a report containing recommendations on how to improve certain aspects of their job searches. Past research has shown Copilot to be an effective tool for helping people who have been unemployed for an extended period find work, but it has never been used with post-secondary

students. Therefore, this study examined the usefulness of Copilot with student job seekers.

Finding work is a large concern for recent graduates, and their respective learning institutions have invested a large amount of resources into helping their graduates find employment. Copilot may be an additional resource that these institutions can use to alleviate the work load from their counsellors and to make their delivery of services more efficient. Evaluating tools that could help students spend less time unemployed is worthwhile, because the discovery of an effective tool is extremely valuable for those it helps find work.

The main purpose of the present study was to determine if Copilot is a useful tool for post-secondary students. This study examines the relationship between the student's previous work experience, educational level, and gender with their Copilot results. It also measures the student's evaluation of the feedback given to them in their Copilot report. Finally, the study compares student's responses on John Krumboltz's Career Beliefs Inventory to their responses to the Copilot questionnaire. The examination of these issues will allow future career counsellors to determine if Copilot is an appropriate resource to use with their clients, in the aim of helping their clients find employment faster.

CHAPTER 2 LITERATURE REVIEW

Working with the unemployed and helping them throughout the job search process requires a vast amount of knowledge in many different disciplines. Employment counsellors need to be skilled clinicians, have knowledge about the current economic climate, and be aware of the possible tools they can use to aid their clients. Therefore, to set the stage for this study, the relevant literature from the following areas will be presented: knowledge about work and unemployment, the use of computers in counselling, the social learning theory of career decision making, and finally the theory behind the development of Copilot.

World of Work

The central focus of career guidance and counselling is the facilitation of the choice and implementation of work in one's life (Herr & Kramer, 1996). In the pursuit of this goal, career theorists have developed theoretical and operational definitions of work. These definitions include a number of activities that range from the things we do for money, to the activities which provide structure and meaning to our lives. A strictly economic definition of work (Braude, 1975) is "the things a person does to earn a living." Super (1976, as cited in Herr & Kramer, 1996) includes much more then economic pursuits when he defines work as:

> The systematic pursuit of an objective valued by oneself (even if only for survival) and desired by others; directed and consecutive, it requires the

> expenditure of effort. It may be compensated (paid work) or uncompensated (volunteer work or an avocation). The objective may be intrinsic enjoyment of the work itself, the structure given to life by the work, role, the economic support which work makes possible, or the type of leisure which it facilitates (p.20).

Work is a complex construct because it can be viewed in so many different ways. The definitions and meanings given to work have changed throughout history, across cultures, and even among current researchers. Herr & Kramer (1996) note that work can be seen as an economic process whereby an employer exchanges wages for tasks the employee fulfils. It can also be seen as a psychological process where the worker meets his/her needs for affiliation, competency, identification, structure, and purpose. Finally, work can be seen as a sociological process that revolves around the relationships created through the interaction of worker-co-worker, server-customer, manager-subordinate.

Jahoda (1982), after comparing the effects of mass unemployment, theorized that work fulfils a number of vital functions apart from economic remuneration. It provides people with a habitual time structure and a daily sense of purpose, it is a source of social contacts and gives a sense of collective purpose, and it is a source of status and identity. Jahoda's (1982) thesis does not appear to fit for all workers though.

Throughout the history of humankind, the way people have viewed work has changed. According to Tilgher (1962), the ancient Greeks saw work as a curse, or a necessary evil, best done by slaves and avoided by the aristocrats. Their name from work, *ponos*, comes from the Latin word which means sorrow. The Hebrews view of

work was not more positive. For them, work was a penalty from God for the original sin in the Garden of Eden. The early Christians also viewed work as a punishment, but believed that when the rewards of their work were shared with needy brothers, they would be blessed by God. Therefore, they saw work as a means to a worthy end. During the Reformation work became a holy calling, necessary for salvation. Work was glorified and all leisure activities were seen as wasteful and as showing weakness of character (Sverko & Vidovic, 1995).

The meaning of work has even changed in the much shorter history of the United States. Maccoby and Terzi (1980) identified four different ethics that have given meaning to work throughout the history of the United States. The first was the Protestant ethic, in which an individual worked for the glory of God and for personal salvation. The second was the craft ethic, in which people worked toward self-sufficiency and independence. The third was the entrepreneurial ethic, which stressed risk taking, boldness, and the exploitation of opportunities. The fourth was the career ethic, where individuals strove to get ahead by making themselves valuable in the market place through the development of their skills. The authors also describe a fifth ethic that is presently emerging. They call it the self-fulfilment ethic, which stresses work that challenges and provides individual growth, as well as increased time for family and leisure. Kates, Greiff, and Hagen (1990) also write about this new way to view work. "Work is increasingly viewed as a source of psychosocial satisfaction as well as remuneration, and workers are more aware of the need for balance between their job and

their family life" (p. 19). Maccoby and Terzi (1980) note that each of these work ethics exist today, with different people stressing different elements of them.

The meaning of work also differs across cultures. Furnham et al. (1993) studied the strength of Protestant Work Ethic beliefs in thirteen different countries. They found that nations with a high Gross National Product (GNP) had lower scores on measures of Protestant Work Ethic, indicating a more liberal and less authoritarian stance of most workers. In nations with a low GNP, they found workers beliefs closer in tune with the Protestant Work Ethic, meaning that they were more focused on individualism, and showed large differences between the rich and poor.

Engel (1988) compared the values of American and Japanese men who were working full-time. He found that the values held by the Japanese emphasized group concerns, loyalty and harmony, respect for elders and authority, hard work, frugality, and self-sacrifice. The American workers also believed in hard work, but placed more emphasis on individualism, independence, and self-sufficiency. Although the Japanese preferred to work for larger corporations, the Americans prefered to work alone, be their own boss, and would rather be self-employed then work for a large corporation. Engel (1988) noted that these values were not permanent but always changing. He found that younger Japanese workers expressed a desire for more leisure time, a change which brings their values closer to those currently held by American workers.

It is apparent that there are large individual differences in the values, interests, and meaning attached to work. Therefore the belief that work plays a central role in human

life is not universally acceptable (Sverko & Vidovic, 1995). For some people work does play a central role in their lives, meeting important personal needs. For others work is a toilsome exercise they engage in only to acquire the financial remuneration needed to pay for their needs and interests. This provides a challenge for career counsellors, who need to be aware of their clients' values and interests. The challenge lies in working with a wide variety of clients as a result of the increasing interaction of societies and cultures. It is no longer rare to have Japanese workers in America or American workers in Japan. These individuals retain some of their old values and adopt some from their new residence. Therefore, professionals working in the career industry can no longer generalize what they believe people might value in work.

Changing Nature of Work

As the meaning and ethics of work have changed through history, the nature of work, or type of work that people do, has changed and continues to change. Studies completed by researchers at the Economic Council of Canada (Rahman & Gera, 1990) found that the service sector has been growing rapidly and accounted for 71% of the employed in 1988. Along with this growth of service jobs has come an increase in non-standard types of employment such as part-time jobs, short-term work for less then 6 months, increased self-employment, and temporary-help agency work. While this improves the hiring flexibility of employers, it leads to unstable employment, low pay, and minimal opportunities for employee training and promotion.

Most of the new jobs in the service sector of the present economy require either specific high level skills, or very low skill levels (Rahman & Gera, 1990). Therefore laid off middle managers, whose jobs required intermediate skill levels, are having a difficult time reentering the workforce without a loss in income. For the people who are unwilling to make those sacrifices, they might face an extended period of unemployment, and the longer an individual is unemployed the lower are their chances for finding work.

The advancement of technology is also changing the nature, organization, and location of many jobs. Many jobs that require lesser skills have been eliminated by technology that has made workers redundant. One example of this is in the automotive industry, where robots have replaced the workers responsible for welding and painting (Kates, Greiff, & Hagen, 1990). Advances no longer tie industries to certain geographical areas, allowing them to move their businesses to locations with cheaper operating and production costs. Most often the workers whose jobs have been eliminated required less formal education, making it difficult for these individuals to return to the workforce, because the newly created jobs require a smaller number of better educated workers.

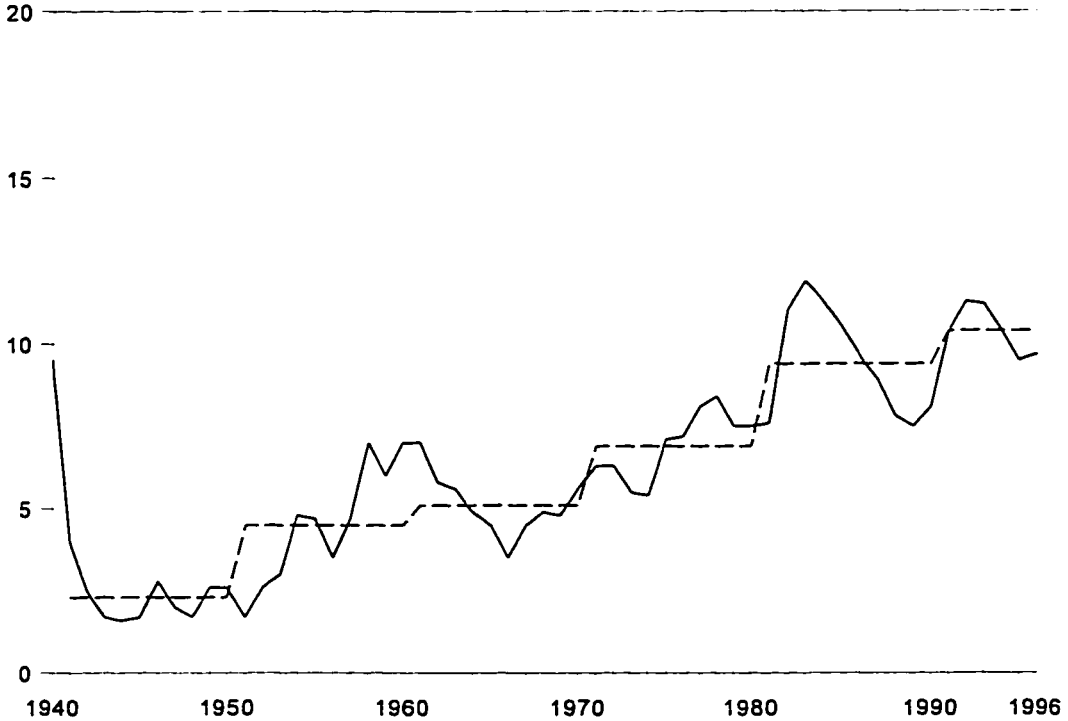
Another indicator of changes in the nature of work lie in the research on occupational half-life. Occupational half-life is the amount of time it takes for half of an individual's knowledge, training, and skills to become obsolete. Patterson (1985) notes that the occupational half-life for many jobs is getting shorter, requiring people to continually update their skills. He states that we have moved from training, to retraining, to continuous training for workers to remain current in their area of employment.

Individuals who do not train and update their skills are more likely to face long terms of unemployment if they lose their job.

Unemployment

Unemployment has been a concern for most industrialized nations for more then a hundred years (Garraty, 1978). In Canada there has been an upward trend in the unemployment rate since World War II (see Chart). During the 1940's, the unemployment rate was approximately 2%. In the 1950's it jumped to 4%, and during the 1960's the rate moved to 5%. The rate continued to increase throughout the 1970's, where it was at 6.7%; and the 1980's, where the average unemployment rate was 9.5% (Gera & McMullen, 1991). Increasing levels of unemployment have also been seen in several European countries, notably Germany, France, the United Kingdom, and Italy. The general rate of unemployment in Western Europe rose from 3% to 10-15% between 1974 and 1986 (Schultz-Gamard, Balz, Drewski & Mowka, 1988).

Figure 1
Unemployment Rate, Canada, 1940-96



Although the causes of unemployment are numerous, making it difficult to group them into simple categories, economists have developed three groups of unemployment: cyclical, frictional, and structural. Cyclical unemployment is caused by recessions in the economy that lead to a lower demand for goods and services. When the demand grows with the end of the recession, cyclical unemployment decreases. Frictional unemployment is caused by normal job turnover, which is natural in a dynamic labour market. People are continually leaving one job to look for another while firms are continually creating or eliminating jobs. When people quit or lose their job they join the

ranks of the unemployed until they are able to find a job that requires their capabilities. Because the process of finding a new job takes time, there will always be some unemployment. Structural unemployment is caused by fundamental, permanent changes in the economy. This type of unemployment is often permanent, because it occurs when an individual's skills are outdated and no longer required by the job market. The changes that bring about structural unemployment can include changes in technology, in international competition, and in productivity. A common example is the decreasing number of farmers in North America due to increased land productivity and more efficient machinery.

Evidence for an increase in structural unemployment lies in the comparison of the unemployment rate with the number of job vacancies. Generally, when structural unemployment is low there is a negative relationship between the unemployment and job vacancy rates. More job vacancies lead to more individuals moving out of unemployment into the workforce, and lower job vacancy rates make it more difficult for people to find employment. With increases in structural unemployment, the negative relationship between the job vacancy and unemployment rate weakens. The structural changes in the economy leave workers with outdated work skills unable to compete for new jobs created in the economy, resulting in a higher unemployment rate and a higher job vacancy rate. Evidence of the growth of structural unemployment in the Canadian economy is discussed by Gera, Rahman and Arcand (1991). They found that while the job vacancy rate grew, the unemployment rate grew as well, indicating that a large

number of the unemployed do not have the skills to fill the jobs that are currently in demand.

Structural unemployment is a concern for both governments and career counsellors because it often results in long-term unemployment. Long-term unemployment is a serious hardship because it erodes work skills, reduces the possibility of further employment, and creates a morale problem. The longer someone is out of work the more their skills deteriorate from lack of use. The intensity of their job search declines as disillusionment sets in, resulting in fewer job prospects, further decreasing their chances at finding employment.

In Canada, the proportion of people who have been unemployed for longer then one year has been increasing (Rahman & Gera, 1990). In 1981, 3.5% of the total unemployed were without work for more then a year. That percentage moved to 6.6% by 1989. Along with the increase in long-term unemployment, the average duration of unemployment rose 27% to 17.9 weeks from 1979 to 1989. Rahman and Gera (1990) found that while long-term unemployment increased proportionately with rises in the unemployment rate, it did not fall in proportion with the unemployment rate. According to their study it appears that long-term unemployment rises sharply during recessions but falls slowly during periods of economic expansion.

With the increase in structural unemployment leading to a larger number of individuals finding themselves unemployed for extended periods of time, career counsellors need to be aware of the difficulties these individuals face when attempting to

reenter the workforce. Those who have been most likely to suffer from extended periods of unemployment are older workers, and people who live in the Atlantic provinces, Quebec, and British Columbia. Rahman and Gera (1990) found that during the 1980's the long-term unemployment rate for workers over 45 years was three times higher then younger workers. There are a number of reasons why older individuals face longer periods of unemployment. First, their skills may be outdated and no longer needed in the changing economy. The most recent recession has led to the downsizing of many people in middle management positions, leaving many people who do not have the skills for upper executive work, but are overeducated for lower service positions. Secondly, older workers have higher relocation costs and may be unwilling to move to a different geographical area to find employment. Finally, employers may not want to invest in a worker who will be with them for a shorter period of time.

In summary, it appears that the incidence of long-term unemployment increases with age, and the longer one is unemployed the lower the probability of finding work. When working with individuals experiencing unemployment, counsellors need to be prepared to work with people who need educational upgrading, are suffering from depression, and disillusioned with the job search process. The structural changes in the Canadian economy has brought different work to career counsellors. With people changing careers more often, needing to return to school for continual training, and facing long term unemployment because of their outdated skills, career counselling has grown from helping students choose a life-long occupation, to developing career plans for

individuals of many ages and experiences. These new challenges for the career counsellor are overshadowed by the challenges people have adjusting to a dynamic economy with changing demands on its workers.

Social costs of unemployment

The importance of work in people's lives can lead to individual and social problems when they find themselves unemployed. Research on the effects of unemployment has become popular as the levels of unemployment in the industrialized nations has continued to increase. As the economies of separate nations become more and more entwined, unemployment in one country can lead to negative effects on their trading partners economies and unemployment rates.

The social effects of unemployment lie in large part to the economic cost of providing insurance, health benefits, training programs, and other services. Increases in suicides, imprisonments, and health problems are also expensive issues that are positively correlated with higher levels of unemployment. Estimates of the costs of unemployment are large but usually conservative. In 1985, it was estimated that the public costs of unemployment in Germany was between 54 to 99 million DM, or 46-83 million Canadian dollars (Schultz-Gamard et al, 1988). The same year Shelton (1985), estimated the costs of unemployment for the United States. The cost of unemployment benefits were $9 billion, other financial assistance totalled $6 billion, and the lost productivity of works was estimated to be $19 billion. Currently, European countries spend between 1 and 3 percent of their Gross Domestic Products on programs designed to stop the rise of

unemployment such as training and labour market schemes (*The Economist*, August 28. 1993).

Individual costs of unemployment

The individual effects of unemployment include economic realities that accompany the loss of income. Schultz-Gambard et al (1988) examined the individual and social effects of unemployment on 90 unemployed German workers. They found that 50% of them had spent all their savings. 20% had gone into debt because of unemployment. 20% had difficulties meeting large long term financial obligations such as mortgage payments. 10% could no longer pay their rent. The average length of unemployment for the workers was 11.7 months, and naturally the authors found that the longer workers were unemployed that more financial difficulties they encountered.

However the results of unemployment for an individual go beyond monetary concerns. Some of the other effects include loss of status, lowering of self-esteem, excessive alcohol consumption and drug abuse, accusations levelled by family, and problems with their partner. The loss of work also leaves the individual with a large amount of unstructured free time which can result in boredom, lack of motivation, and feelings of unproductivity. Only a few unemployed individuals engage in new activities or take up activities the previously enjoyed but did not have time for. Only 34% became involved in hobby activities, and only 15% spend a considerable amount of time looking for a new job (Schultz-Gambard et al 1988).

The loss of work is a traumatic crisis for people. Borgen and Amundson (1984) compared the experience of unemployment to that of the grief process experienced with the loss of a loved one, where the individual goes through stages of denial, anger, bargaining, depression, and finally acceptance. Winegardner, Simonetti, & Nykodym (1984) found that the experiences of the unemployed closely matched the experiences of terminally ill patients. Kirsh (1992), after studying the responses of Canadians to unemployment, concluded that most respond to their unemployment experience by venting their anger on themselves and their families. This damaged their relationships with loved ones, eroding the base of their social support when they needed it most.

Unemployment and health

The relationship between unemployment and health is not very clear, with many of the research findings disagreeing. There is general agreement that the loss of one's job generates a large amount of psychological stress, and leads to diminished self-esteem (Warr & Jackson, 1985; Kates, Grieff, & Hagen, 1990). A study done by Cobb and Kasl (1977, as cited in Kates, Grieff, & Hagen, 1990) found that the period of apprehension prior to a plant closure was when employees felt the greatest amount of anxiety and depression. The workers also showed the greatest increase in physical indicators of stress (changes in blood uric acid, cholesterol levels, and blood pressure) before they were laid off. Dooley, Rook, and Catalano (1987) surveyed 4000 principal wage earners in the United States and concluded that job security was the best predictor of scores on a checklist of psychological symptoms. Those individuals who were feeling insecure in

their job were much more likely to be experiencing mild depression. Therefore it appears that while unemployment is a distressing event, the threat of unemployment is just as distressing.

There is a lack of consensus amongst researchers whether unemployment causes mental and physical health problems, or exposes and exacerbates a pre-existing problem. A number of authors have found that individuals who have suffered from long-term unemployment have an increased chance of developing cardiovascular problems (Moser et al. 1986, as cited in Kates, Grieff, & Hagen, 1990; Brenner 1987). Other researchers have found higher rates of bronchitis, post-neonatal infant mortality, obstructive lung disease, and chronic physical illnesses in samples of the unemployed (Macdonald et al., 1982 as cited in Kirsh, 1992; Cook et al., 1982; Bunn, 1979). Fagin and Little (1984) found that unemployed workers and their spouses showed an increase in psychosomatic symptoms and more behaviour problems with their children. The authors postulated that the symptoms were maintained because "it is better to be sick and unemployed than healthy and unemployed for a jobless man in our society" (p.117).

It is difficult to demonstrate a relationship between unemployment and longer term health problems due to the number of variables that impact a person's health. Unemployment might also affect the health of the unemployed through indirect channels. Brenner (1976, as cited in Kirsh, 1992) writes that with increases in unemployment and declines in the income of members of the population, there is a lowering of: "nutritional levels, a substantially greater prevalence of social-psychological stress and decreased

financial ability to utilize medical care facilities. These three factors, originating in national economic instabilities, would then have a substantial negative impact in the health of the population" (cited in Kirsh, 1992, p.60).

Who are the unemployed?

There are many theories, beliefs, and ideas of why the unemployed are unemployed. Some argue that those who are unemployed get a taste of unemployment and welfare benefits and are not pushed to find employment. Others argue that the unemployed do not have a commitment to work and the desire to succeed. Some believe that the unemployed are just lazy folks who dislike work. Often people blame the unemployed for their predicament and resent paying taxes to support them. However most of these beliefs, theories, and ideas are myths that have not held up to the scrutiny of determined study.

The research tends to show a different view of the unemployed, that they are not different from the employed before they lose their work, that they do not enjoy living off unemployment benefits, and that they can became trapped in a cycle of unemployment. Gallie and Marsh (1994) write,

> The upward surge in unemployment rates in the OECD countries in the 1970s and 1980s makes it very hard to believe that personal characteristics of the unemployed provide the underlying dynamic; we would have to believe that something approaching a mass epidemic of idleness had struck the labour forces of all industrialized countries. (p.9)

Gallie and Vogler (1994) examined the work histories and work attitudes of the unemployed and found that they were not distinctive from the employed and did not play a role in their inability to find work. They also found little difference in measures of employment stability of the employed and unemployed, there was no distinct difference in the frequency of job changes or the length of time people had spent in their longest job. Finally their research found no evidence that the unemployed's motivation or flexibility affected the time it took them to find work, rather their chances of finding work were dependent on the availability of particular types of work, and the misfit between the unemployed's qualifications and the qualifications required in the workforce.

Gallie and Vogler (1994) discovered a number of other attitudes that challenge some of the common perceptions of the unemployed. They found that substantial minorities of the unemployed were prepared to retrain or move in order to secure work, that over half of the unemployed would take any type of job, and that the unemployed did not use the amount of unemployment benefits they received as a bench mark for accepting a job.

Kirsh (1992) wrote about the experience of unemployed Canadians, and noted that many people who are eligible for U.I. benefits do not claim them, but live off their savings as long as they can. The majority of individuals who are collecting U.I. benefits would rather be employed, and that the majority of those who defraud the Unemployment Insurance Commission are companies and corporations, not individuals.

Conclusion

It is apparent that unemployment exacts large costs on society and places individuals in highly stressful situations which produce financial, family, and health problems. With the unemployment rate hovering around 10% in Canada, the government has come under pressure to create jobs. High youth unemployment and increasing long-term unemployment are traumatic events that the government appears to be having difficulty combating. In summarizing their research on the unemployed, Gallie and Marsh (1994) write,

> The unemployed form a distinctive group at the bottom of the social heap, who experience recurrent difficulties. However, it would be a cruel step to move from this descriptive statement to the conclusion that they were in this condition through some fault of their own or as a result of the operation of the system of welfare. Rather the results of this volume suggest that people may be caught in a spiral of disadvantage in which small events may have large repercussions. After the event we may identify a group with a distinct life-style at the bottom of the heap, but they were not destined to be there, and under different labour market conditions, as the work history analysis shows us, they would not have been there. (p.29)

Computers in Counselling

Computers have brought incredible changes to the way we work and communicate. In the past, computers were very large, very expensive, and had high

maintenance costs. These prohibitive features kept them out of the reach of the general public and accessible only to large corporations and universities. However, the advent of the microcomputer has brought the technology into our homes, influencing many professions, including psychology. With their shrinking cost and size, computers are now available to a larger portion of the population. The Globe and Mail (July 8, 1996) cited a recent Statistics Canada report which found that in 1995, 28.8 percent of Canadian homes owned a personal computer. That is up from 25% in 1994, and 19% in 1991.

Arguably, the areas of psychology most affected by the proliferation of computers have been assessment and career development. In general, most counselling and psychotherapy are accessible only to those who can afford a psychologists hourly fees, or have an insurance plan that covers a small number of sessions. Therefore hiring a psychologist for counselling, let alone career counselling, is definitely a luxury not available to the mainstream of society. However, the computer has made career guidance and counselling available to many more people, making it no longer a luxury for the elite, but a basic skill for most (Patterson, 1985). Some computer systems offer guidance by taking an individual through the entire career development process without any interaction with a career counsellor, some simply disseminate information about occupations and educational institutions, and others administer, score, and interpret personality and aptitude tests. These systems have freed counsellors and psychologists from these labour intensive tasks, and made career counselling available to a lot more people.

History of Computers in Counselling

Computers have been used in guidance and counselling since the 1960s (Bluhm, 1988). At first the computers performed in-take interviews, did educational course planning, and attempted to simulate psychotherapy. Presently, they administer, score, and interpret personality tests, provide structured career development, and provide information about occupations, schools, and financial aid. After studying the history of computers in counselling and guidance, Raymon (1990) developed a generational scheme that illuminates their evolution.

The first generation of computer-based systems used for career counselling were batch-processing systems. They contained large data files of occupational and educational information that were retrieved based on a client's response to a pencil-paper questionnaire. The client had no contact with the computer itself, because the questionnaire was entered into the computer by technicians. The computer then developed a list of information based on the individual's responses, which were passed back to the client. This method was rather slow, and resulted in a sometimes large delay between when the client filled out the questionnaire and when he or she received the results.

The second generation of computer-based systems, which came into use during the mid-1970's, put the user into direct contact with the computer. This allowed computer-based systems to perform a number of powerful new tasks. First, they were able to conduct structured interviews. Second, direct access allowed for the creation of

computer-stored records, allowing the client to save the information from their interaction with the computer and start again where they left off. Finally, because of computer's sophisticated search strategies, clients were able to change their search parameters and increase their knowledge of the world of work by recognizing how their decisions affected the occupations generated by the computer.

The third generation changed from systems that merely collected and stored information to systems that were highly interactive and took the user through an entire career process. This process included assessment devices, exercises, simulations, and instructional modules, as well as the precious storage of occupational information. Alternative treatments were developed depending on the client's responses to each of the different modules, making them more individualized. The most common computer systems of this generation were DISCOVER and SIGI.

The fourth generation began with the development of the microcomputer. The microcomputer became extremely popular due to its lower cost, decreased size, and ability to perform a number of tasks such as word processing, test administration, interpretation, and data storage. These benefits led to an increase in the number of professionals with access to computers, and allowed for the mass marketing of computer-assisted career guidance systems. The debut of the microcomputer sparked a growing interest in the implications and potential of the machines in the fields of career counselling, guidance, and test administration. This increased interest was marked by the number of special journal issues published by professional organizations. From 1983 to

1986, no less then eleven special issues on computer themes were published (Bluhm, 1988). These writings dealt with a wide variety of computer related issues ranging from ethics to validity to the future uses of computers.

Strengths of computers

There are a number of key capabilities of computers that made them a particulary attractive counselling and guidance tool (Rayman, 1990). First, they were able to hold large amounts of accurate information. Because career counselling is the art of enabling individuals to make informed, goal-directed decisions, providing up to date information is important. The computer allowed for inexpensive storage of information about: occupations, educational programs, colleges, universities, financial aid, and military programs (Rayman, 1990).

The second capability of computers that made them attractive to guidance counsellors was their ability to conduct structured interviews. This allowed for the elicitation of information needed by the counsellor and client and could be done wherever a computer was stationed. This sped up the counselling process by giving the counsellor advanced knowledge on the client's situation, and prepared the client for the issues to be discussed in counselling.

The third capability Rayman (1990) mentions is the computer's ability to quickly search through data files. Computers can manipulate and retrieve more information than a counsellor (Bluhm, 1988), making it much easier for clients to develop lists of schools, occupations, and other information based on their set criteria.

The next capability that made computers widely applicable to career counselling was their ability to administer and score assessment instruments. These included measures of interests, values, skills, abilities, and personality. Pyle (1984) notes that computers are often used to assess clients' needs when they enter a career/counselling centre. Using computers in this manner tremendously speeded up the counselling process, and gave individuals accurate information quickly. The computer was also more accurate at scoring assessment instruments, and capable of converting raw scores to standard scores, percentiles, grade equivalents, and stanines, which is a time consuming and error prone task for people (Maddux & Johnson, 1993).

The final capability mentioned by Rayman (1990) is the provision of individualized treatment to users based on an analysis of their needs. On-line assessment allowed the computer to score and then provide instruction in measured areas of weakness. Kramer and Gutkin (1990) believe that computers can take individualized treatment and assessment further through the use of adaptive testing. In adaptive testing, the computer poses future questions based on the client's past responses. Adaptive testing allows for a quicker assessment of the client's needs because the client does not have to answer every question. This increases the test's efficiency and makes the process easier for clients.

Other researchers have listed different strengths of computers that led to their proliferation in the counselling and career guidance fields. Sampson (1984) notes that most clients react positively to the experience of using a computer-assisted career

guidance system (CACG). In general it appears that CACG's are enthusiastically accepted by students and parents, with users preferring them over print and film career information sources (Cairo, 1983). Locke and Gilbert (1995) found that college students preferred computer assessments over questionnaires and interviews.

Sampson(1984) also found that clients' knowledge of self and the world of work is expanded, they are more specific about their career and educational plans, and they develop greater confidence in their career decision making ability. Pinder and Fitzgerald (1984) discovered that students who used a CACG called CHOICES increased their career decision making commitment. In researching the effect of computer guidance on career decidedness, Marin and Splete (1991) found that when given computer-based career guidance, adults increase their level of career decidedness and make progress in commitment to an occupational choice. Finally, Sampson (1984) mentions that after using a CACG system, clients seem more motivated to use additional career planning resources to assist them in making a decision.

A study done by Howard (1992) found that subjects were apt to be more truthful and less nervous when working with a computer rather then a clinician. Bluhm (1988) notes that since the computer is non-judgmental, "individuals seem freer to ask 'dumb' questions and reveal ambitions that might not be shared with another person" (p.132). Also the computer gives a sense of privacy and comfort that might influence what clients are willing to disclose. Locke and Gilbert (1995) found modest support for the hypothesis that people are more open about their problems when responding to a

computer. Similarly, Booth-Kewley, Edwards, and Rosenfeld (1992) hypothesized that individuals would answer questions in less socially desirable ways when answering a computer-based questionnaire. Although they found no difference in the amount of socially desirable answers between the computer and paper-and-pencil administrations, they discovered that the subjects found the computer questionnaire more interesting, important, and felt more aware of their thoughts and feelings.

Research studies have found computer based instruments are effective with psychiatric populations. Carr and Ghosh (1983) found that phobic patients showed no apprehension about completing a full behavioral assessment on a computer. A more recent study with psychiatric outpatients (Spinhoven, Labbe, & Rombouts, 1993) found that most reacted favourably to computerized assessments. They did mention that the computer assessments were not feasible for all patients. In their study, older age and lower levels of education were strong predictors for who would refuse computerized assessment, or have a negative attitude toward the use of computers.

Health care professionals also tend to react favourably to the use of computerized assessment instruments. Flowers, Booraem, and Schwartz (1993) found that clinical psychologists would use more tests relevant to their clients' situations if they were easy to administer and score. However if the tests were hard to score they tended not to use psychological tests, even if they were relevant to for their clients. In the same study, the researchers discovered that clients favoured computerized tests and rated their counselling as more satisfying when they were administered more tests.

Limitations of computers

Computers have proliferated in the fields of assessment, career guidance and counselling, and will play an important role in the future development of these fields. Although in many ways computers are well suited for these tasks, they have been criticized in a number of areas.

Maddux and Johnson (1993) are critical of people's assumptions that because an activity is computerized, it has been improved in an important way. Because computers are fast, efficient, and make very few errors, which North Americans value, we automatically assume that if something is computerized it is automatically better. However, this is not necessarily true. Maddux and Johnson (1993) argue that improving the way an idea is operationalized does not necessarily improve the idea itself. To illustrate this, they quote Weizenbaum (1976, as cited in Maddux and Johnson 1993), "It is important to understand very clearly that strengthening a particular technique--putting muscles on it--contributes nothing to its validity... If astrology is nonsense, then computerized astrology is just as surely nonsense" (pp.34-35).

Another area where computers have received criticism is their appearance of infallibility. Gati (1994) notes that because much of the information stored in computers includes well-defined data like names, addresses, prices, and other numerically expressed information, computers are perceived to be accurate and unbiased. However, most users are unaware of the human judgement that influences the selection, shaping, and presentation of the categorical and narrative information. Clients see the computer as

an unbiased machine and assume that all the information generated by the computer is impartial. Yet, the narrative reports generated by the computer are written by "experts", and may be susceptible to their biases.

Along a similar line, Zachary and Pope (1984) state that computers create an aura of objectivity that may not be justified. Because of this, there is an increased chance of the inappropriate use and interpretation of computer systems and the materials they generate. Instead of using the computer generated information as a tentative hypothesis that needs to be confirmed and supported by other data, users assume the information is accurate and objective.

Further criticism of computer testing and guidance relates to the on-line assessment instruments used by the computer to match people with certain professions. Often the client is compared with the average person in a profession to find a client-career match. Other guidance systems compare the client's scores with what "experts" determine to be the important aspects of a certain occupation. However, these measures of central tendency do not take into account the large amount of variance found in occupations (Gati, 1994). As a result a client might eliminate viable occupations from their list of career options.

One important limitation, which is often overlooked, is that certain computer systems may not be effective with all clients. Roselle and Hummel (1988) found that effective interaction with the computer-assisted career guidance program DISCOVER is related to the client's intellectual development. They found that students with higher

levels of intellectual development were able to manipulate the system more effectively then those with lower levels. They also found that some users would work through the process, and develop a list of "appropriate" occupations without understanding how the list was created, why the jobs were good choices, and what steps they should take next to pursue them. Dungy (1984) found that some users of SIGI were overwhelmed by the information generated and were left frustrated and confused because they felt no closer to making a career decision after using the system then before. A number of researchers have recommended that clients should be screened before using a CACG system, and some clients may need a counsellor to work through the system with them.

Accessibility, time, and cost have also been cited as limitations of computer-assisted career guidance systems. It takes approximately four hours to complete the SIGI and DISCOVER systems, which seems to be a constraint for some clients (Bluhm, 1988). Yost and Corbishley (1987) believe that the biggest disadvantage of CACG systems is their lack of access due to the high cost of leasing. It currently costs $1500 to lease DISCOVER for one computer for one year. The costs of four other well known systems range from $1200 to $2900 per year.

Validity and Reliability

The arrival of the microcomputer established a prevailing trend to transform traditional psychological tests into computerized formats (Lockshin & Harrison, 1991). The most vigorous attacks against this trend have been towards the validity of these computerized tests. In the early 1980s, Matarazzo (1983) commented that there was no

evidence in a peer-reviewed journal that the narrative descriptions generated by computer based systems were valid. Maddux and Johnson (1993) noted that there is accumulating evidence that one cannot assume the computer version of a test is equivalent to the original version. Although there is general agreement in the literature that the task of validation is difficult (Fowler, 1985), there have been increased efforts to prove both the validity and reliability of computerized measures.

Researchers have completed numerous studies to establish the validity of certain computerized instruments. The prevailing method of establishing validity in these computerized tests is to compare the generated results to those of the traditional format, and see if they are equivalent. If the traditional test format was found to be valid and reliable, and the computerized format is found to be equivalent to the traditional format, the computerized version is also judged to be valid and reliable. Current research has found that computerized tests and test interpretations of intelligence, personality, vocational interests, brain damage, and Post-traumatic Stress Disorder were equivalent to the traditional measures of these constructs (Choca & Morris, 1992; Kapes & Vansickle, 1992; Neal, Busuttil, Herapath, & Strike, 1994; Roper, Ben-Porath, Yossef, & Butcher, 1995). In one case, 33 clinical psychologists judged the computerized interpretations of WISC-R scores to be more thorough and provide a wider range of interpretations and recommendations, then a report generated by a clinical psychologist (Tsemberis, Miller, & Gartner, 1996).

With a large number of studies finding equivalence between traditional and computerized formats of psychological instruments. Van de Vijver and Harsveld (1994). caution that equivalence between paper-and-pencil versions still needs to be demonstrated rather then assumed. After comparing the paper-and-pencil and computerized version of the General Aptitude Test Battery, they found small, but noticeable differences, between the two types of administrations. They observed that the computerized subtests produced faster and more inaccurate responses, and stated that "computerization can induce shifts in the nature of the tasks and the strategies used by those taking the test" (pp.859). The chance that changing to a computerized format could result in fundamental changes to a test, is the main reason why test developers and users cannot assume that the new format is equivalent to the old.

Ethical Issues

A number of researchers have written about the ethical issues involved when using computers in counselling, assessment, and career guidance (Maddux & Johnson, 1993; Pope & Vasquez, 1991; Sampson, 1983; Zachary & Pope, 1984). One of these concerns relates to competence and the use of computer-based instruments by unqualified users. Corey, Corey, and Callanan (1993) found that the professional codes of ethics for most organizations contain guidelines that limit professionals to working in areas where they are qualified by training and experience. With the quick growth of computers in psychology and assessment, the American Psychological Association published "Guidelines for computer-based tests and interpretations" (APA, 1986). These guidelines

state that a user "should be a qualified professional with a) knowledge of psychological measurement; b) background in the history of the tests or inventories being used; c) experience in the use and familiarity with the research on tests or inventories, including gender, age, and cultural differences if applicable; and d) knowledge of intended application" (p.417). A more recent article, devoted to fair practices of student assessment, states that users should "ensure that all individuals who administer the assessment method, score the responses, and interpret the results have the necessary knowledge and skills to perform these tasks; ensure access to restricted assessment materials is limited to persons with the necessary qualifications; obtain information about the comparability of interchangeable forms, including computer adaptations" (Principles for Fair Student Assessment Practices for Education in Canada, 1993, pp.14-15).

Although most test developers and publishers screen the credentials of those wishing to purchase certain tests, they are not able to verify the purchaser's eligibility. Therefore, Lockshin and Harrison (1991) are concerned that psychologists with little or no testing experience will use computer-based interpretive software as a low-cost, in-house, clinical consultant. Because the computer can generate reports in relatively clear unambiguous language, practitioners may assume that they can "expand" their range of services without receiving the proper training and experience in psychological assessment (Sampson, 1990).

A second ethical concern is that of ensuring privacy and confidentiality. Confidentiality is an important foundation to counselling work because it is the basis of

trust between the counsellor and client. Numerous articles and books have been written about the protection of client information, and since computers are capable of storing such large amounts of personal information, certain methods need to be used to protect their privacy. These include using passwords to control the release of data and locks on computer room doors, terminals, and disk containers (Bluhm, 1988). Maddux and Johnson (1993) argue that no personal or assessment data should be placed on computer hard drives because it is difficult to control who has access to this information. Rather, they believe that the information should be stored on floppy disks, and kept under lock and key, with code numbers substituted for names.

Summary

Computer-assisted career counselling and assessment systems have become popular and viable alternatives to traditional counselling and assessment. The advent of the microcomputer has made guidance systems cheaper and more accessible. They have also freed counsellors to perform other tasks, such as providing refined judgements, dealing with sensitive situations, and helping clients with conflicting preferences. Research has shown that clients appear to enjoy working with computer systems, and tend to get more out of their career counselling after having used a computer-assisted guidance system. For counsellors who are aware of the inherent weaknesses in computer guidance systems, they can become a good tool to help those people looking for career guidance and counselling.

Social Learning Theory of Career Decision Making

The Career Beliefs Inventory (CBI) grew from Krumboltz's (1979) social learning theory of career decision-making, which is an application of Albert Bandura's social learning theory to the process of making a career selection. The theory rests on the supposition that people make their career decisions based on the lifelong sequence of learning experiences that are unique to each individual (Krumboltz, 1996). These learning experiences are a result of the interaction between our genetically and socially inherited attributes and the environments we occupy. This interaction results in self-observations about our strengths and weaknesses that influence our work related behaviours. These behaviours are then shaped and modified by natural or programmed reinforcements or punishments. Simply put, people's career decisions are influenced by their inherited characteristics, the environment they live in, and experiences they have had in the past.

To elaborate, the social learning theory of career decision making identifies four categories of factors that influence career selection. The first factor that influences the career decision making process is genetic endowment and special abilities. Our genetic characteristics (such as race, sex, physical abilities and disabilities) and abilities partially determined by genetics (intelligence and kinaesthetic abilities) affect our preferences and impose limitations on the availability of career options.

The second factor is the environmental conditions and events that enhance or constrain career opportunities. These events are largely out of personal control and

include family experiences, availability of educational opportunities, political climate, and community resources.

The third factor, which examines the individual's unique learning experiences, is divided into two categories: instrumental and associative learning. Instrumental learning experiences occur from the consequences of a behaviour. When people are reinforced for an activity, they develop a positive generalization about that activity. For example, if an individual lifts weights and receives attention and praise for their weight lifting activities, they are likely to form a positive view of lifting weights. Therefore people learn from the consequences of their performance. Associative learning experiences occur from observing others interact with the environment. Seeing others perform activities for which they are either praised or punished influences peoples beliefs of those activities.

The fourth factor that influences career decision making is task approach skills. These are the skills acquired through the interaction between genetic factors, environment conditions, and learning experiences. These skills include work habits, problem-solving skills, emotional responses, and cognitive processes.

These four types of influences interact with each other and lead people to the formation of beliefs about themselves, their choices, and the world they occupy. The outcomes from the interaction between the four influencers are classified into three categories: *self-observation generalizations, task approach skills,* and *actions. Self-observation generalizations.* These are beliefs an individual has about themselves based

on their past experiences, and includes beliefs about their strengths, weaknesses, interests, and values.

The second category is *task approach skills*. These are the cognitive and affective abilities that the individual uses when coping, interpreting, and predicting the environment. These skills include goal-setting, information-seeking, and planning.

The third and final category is *actions*. These are the overt behaviours individuals use when implementing their career decisions. These behaviours include applying for specific jobs, learning job skills, attending college or university, and other activities.

In summary, the social learning theory of career decision making is a career development theory that describes how an uncountable number of learning experiences combine to shape each person's career path (Krumboltz, 1996). People bring genetic attributes that interact with their particular environments to produce beliefs about themselves that influence their career related behaviours. These beliefs are continually being changed and modified through natural and programmed reinforcements or punishments (Osipow, 1983).

Career Beliefs Inventory

The Career Beliefs Inventory (CBI) is an instrument that can help people identify beliefs and assumptions that may be preventing them from achieving their career goals (Krumboltz, 1991). It provides clients with the opportunity to examine their beliefs and assumptions that have been formed by their previous experiences and learned behaviours, and judge whether they are accurate or inaccurate. Whether accurate or not, people act

on their beliefs as if they were true. The CBI allows people to identify inaccurate beliefs they are acting upon that may hamper the accomplishment of their career goals.

Krumboltz (1994) notes that the CBI does not tell people whether or not their beliefs are accurate. Rather, it raises people's awareness of their beliefs and allows for examination of how they may be preventing them from achieving their desires. Krumboltz (1991) also points out that inaccurate beliefs are not necessarily problematic. If the belief or assumption does not influence an individual's career behaviours, it is a waste of time countering the misconception.

Although it is impossible to identify every belief that can block people from achieving their goals, the CBI helps to identify categories of beliefs that may be troublesome. The CBI is made up of five categories that are broken down into 25 scales. The first category, *My Current Career Situation,* helps illuminate an individual's current employment, career plans, and willingness to talk freely. The second category, *What Seems Necessary for My Happiness*, examines the values people hold and the requirements they place on themselves. The third category is entitled *Factors That Influence My Decisions*, and helps identify what individuals take into account when they make decisions. The fourth category, *Changes I Am Willing to Make*, provides a measure of how flexible a client is in trying new occupations, moving, or learning new skills. The final category, named *Effort I Am Willing to Initiate*, attempts to uncover the obstacles that may prevent clients from taking action to solve their own problems.

The CBI was designed to help counsellors open up discussions with the clients about their career assumptions (Krumboltz, 1994). These assumptions influence how clients search for jobs, seek promotions, and view the world of work. If a person's beliefs are accurate and constructive, they will help the person achieve his or her goals. However, if the beliefs are inaccurate, people will act in a way that makes sense with their inaccurate beliefs but that might not help them achieve their career goals.

Copilot

Copilot is a computerized questionnaire developed by French psychologist Dominique Clavier, that grew out of his research on how to assist people enter the labour force (Clavier, 1996). With Europe facing the same double digit rates of unemployment as Canada, there was a need for employment services that were effective at helping people find work. The purpose of Copilot is to help job seekers and their counsellors identify the problems that are hindering their entry into the workforce.

Theory and Development

Copilot developed out of Clavier's qualitative research with groups of job seekers. Placed in groups ranging from 12 to 15 individuals, 1092 unemployed people related to the researcher leading their group the difficulties they were experiencing when looking for work. These difficult experiences were edited into 170 statements that referred to a specific problematic situation people encountered when job seeking. Along with developing a list of problematic situations, the researchers also discovered the importance of having a career plan on the successful entry into the work force (Clavier, 1996).

The 170 statements were grouped into twenty factors, related to four main areas: *Career Plan Relevance, Communication Skills, Initiative,* and *Difficulties Encountered. Career Plan Relevance,* encompasses the situations and factors related to the creation and implementation of a career plan. The second area, *Communication Skills,* encompasses the situations directly related to the communication used when implementing the career plan. The third area, *Initiative,* provides an indicator of an individual's energy level, and ability to devote time to the job search. The final area, *Difficulties Encountered,* encompasses the situations directly related to difficulties encountered at certain points in one's career and personal life. Each of the four domains interact with each other and the environment (Clavier, 1996). Improvement one area will positively affect one's performance in another area, and a deterioration in one area will negatively affect the other areas.

The interaction between the factors and the environment led to the integration of a "four-leaf" clover model which accounts for the effects that job search activities and the environment have on each other. The first leaf of the model relates to the environment. When looking for work, it is the first thing that needs to be considered. The second leaf relates to the person's self-knowledge in relation to work, while the third leaf represents the person's knowledge of where to search for work. The fourth leaf of the model represents the methods used to obtain the job sought. Each of the four leaves need to be addressed simultaneously if the job search is to be successful. Only when one knows the environment, their skills and values, the work places that requires those skills and values,

and how to gain recognition by potential employers, is the job search going to be successful. For example, if an individual is well in tune with his or her work related values, but has poor knowledge on job search locations, he or she will have a difficult time finding work he or she will enjoy or find meaningful.

The statements developed from the group research were incorporated into a paper-and-pencil questionnaire, in which the individual answered either "true" or "false" depending on whether or not they had experienced the situation explained in the statement. However to administer and score the questionnaire took over 3 hours, so a computerized format was developed that eased administration and eliminated the need for laborious hand scoring.

Originally developed for use in France, Copilot has been adapted for use in Canada (Guedon, Turcotte, Limoges, & Clavier, 1996). Copilot was revised after testing subjects in Quebec and then translated into English, where it has been used with clients at five Canada Employment Centres in Quebec and Ontario.

Copilot Report

After filling out the questionnaire, the software develops both a client and counsellor report. The client report gives a quantitative measure for each field, which is a percentage based on the number of situations they identified with, and provides recommendations to overcome perceived weaknesses. The generated recommendations are selected on the basis of the individual's response to certain questions. The more perceived difficulties a client is having in an area, the more recommendations are given to

overcome the specific situations the client identified with. Finally the client report provides a graphic description of the four-leaf clover model, indicating which of the four relevant job search elements the client has mastered, or has a perceived weakness.

The counsellor file lists the client's scores for each factor, and provides hypotheses for the client's job search difficulty. It also identifies specific problems that may need to be overcome before the client continues his/her job search.

CHAPTER 3 METHODS

Participants

Four groups of subjects which totalled 58, were employed in the present study. The first two groups consisted of students from the University of Alberta (U of A). The first group were 30 students from a fourth year education class. The second group were 28 clients at the University of Alberta's Career and Placement Services (CAPS). The mean age of the students was 27.7 years, and there were more women (47) then men (11). The groups were primarily composed of nonminority students (86%).

The other two groups were made up of students from Grant MacEwan Community College (GMCC). The first group was composed of 12 students in an Arts and Administrations class. The second group consisted of 12 students from a Legal Assistants class. The mean age of the students was 27.5 years, and they were mostly Caucasian (81%). Once again, there were more women (19) then men (5).

Materials

The paper-and-pencil version of the Copilot questionnaire, contains 170 statements which deal with job searching situations. The subject answers "TRUE" if they have experienced the situation, and "FALSE" if they have not. The 170 items are grouped into 20 scales, that are organized into 4 domains and presented in the following list.

Career Plan Relevance

- Career Assessment Quality
- Professional Worth
- Professional Self-Image
- Education
- Career Plan Clarity
- Targeted Job Choice Quality
- Convincing Ability
- Career Plan Acceptance

Communication Skills

- Written communication skills
- Resume
- Job Interview

Initiative

- Energy Level
- Gathering Information
- Organization
- Support System

Difficulties Encountered

- Availability
- Incentive
- Feeling of Failure
- Roadblock
- Accumulation

Since Copilot is a fairly new instrument, there has not been a lot of research on the reliability and validity of the questionnaire. However, recent studies have found that Copilot has strong internal consistency (0.94), and that the results generated by Copilot correlate significantly with the results generated by an assessment interview (Limoges, Guedon & Clavier, 1995). The paper-and-pencil version of Copilot was scored by entering the subjects' responses into the computerized version, which then scored their responses and produced the client report.

The CBI is a 96-item pencil-and-paper instrument written at the eighth grade reading level. The items are presented in a 5-point Likert response format. ranging from 1 (strongly disagree) to 5 (strongly agree). Some of the items are reversed to prevent a response bias.

The 96 items are grouped under 5 headings with 25 subscales. The following is a list of each heading with corresponding subscales for the CBI.

My Current Career Situation
- Employment Status
- Career Plans
- Acceptance of Uncertainty
- Openness

What Seems Necessary for My Happiness
- Achievement
- College Education
- Intrinsic Satisfaction
- Peer Equality
- Structured Work Environment

Factors That Influence My Decisions
- Control
- Responsibility
- Approval of Others
- Self-Other Comparisons
- Occupation/College Variation
- Career Path Flexibility

Changes I Am Willing to Make
- Post-Training Transition
- Job Experimentation
- Relocation

Effort I Am Willing to Initiate
- Improving Self
- Persisting While Uncertain
- Taking Risks
- Learning Job Skills
- Negotiating/Searching
- Overcoming Obstacles
- Working Hard

The Copilot evaluation survey consists of 11 questions relevant to the subjects experience with Copilot, and their subjective evaluation of the usefulness of the report for young adults. The questions are presented in a 3-point Likert response format, ranging from 1 (Very Much) to 3 (Not at All).

Procedure

The subjects from the fourth year education class at the University of Alberta were given copies of the Copilot questionnaire and CBI in class, but completed them on their own time. The subjects from Career and Placement Services (CAPS) at the U of A picked up their copy of the instruments at the CAPS office. The subjects from the two classes at Grant MacEwan Community College were also given copies of the instruments in class and completed them at their own discretion. After completing the two questionnaires, the subjects returned them to their educational institution where they were picked up and scored by the researcher. The subjects were then given the opportunity to sign up for a debriefing meeting where they received their results and had their scores interpreted.

Each subject received a report generated by Copilot, that analyzed their strengths and weaknesses, and provided a number of recommendations. The subjects were not given their results from the CBI. After receiving their report and going through the debriefing session the subjects were ask to rate the Copilot questionnaire by completing the evaluation form. Since not all the subjects came to a debriefing meeting, only 32 subjects completed the form.

CHAPTER 4 RESULTS

The first measure used to evaluate the usefulness of Copilot was the subjective evaluation form completed by the subjects after the debriefing meetings. Generally the responses were favourable, with a majority finding the report easy to read and understand (90.32%), practical (80.65%), and planned to try the Copilot recommendations (64.52%). However, a sizable minority did not find the Copilot report useful. The subjects' responses to each of the questions are presented in Table 1.

The relationships between the four Copilot domains were examined by calculating the correlations between them. These are presented in Table 2, and indicate a strong positive relationship between the four domains. These results are similar to those in a study done by Limoges, Guedon, and Clavier (1996), which led the authors to conclude that Copilot measures only one major variable; how the subject perceives his or her failure to enter the work force.

Unpaired t-tests were used to determine if their were any gender differences on the Copilot scales. There was a trend for the male scores to be higher then the females, but significant differences were only found on the Communication ($p=0.017$) and Initiative ($p=0.024$) domains. These results are different from those of Guedon, Turcotte, Limoges, and Clavier (1996), who found no differences based on gender.

The same statistical methods were used to determine if there were differences related to the subjects' previous work experience. The subjects were placed into two

groups, those with 1-5 years of work experience, and those with more than 5 years of work experience. Significant differences were found in three of the four domains: Career Plan Relevance ($p<0.01$), Communication Skills ($p<0.05$), and Initiative ($p<0.01$). The results are presented in Table 3.

The calculation of the parametric correlation between the subject's level of education and their Copilot domain scores revealed no significant covariation. The correlations between education level and the Career Plan Relevance domain (-0.03), the Communication Skills domain (-0.06), the Initiative domain (0.01), and the Difficulties domain (-0.14) indicate that their is practically no relationship between the subjects level of education and their amount of perceived job search difficulties.

Unpaired t-tests were used to compare the significance of the differences between the mean scores of the four domains for the four samples. Table 4 provides the means, variances, degrees of freedom, and t scores of the pairs of samples that were examined. There were no significant differences between the students from the University of Alberta and those from GMCC. However, there were significant differences between the subjects from CAPS and the other samples combined. Differences were also found between the two samples of students from GMCC, with the students from the Legal Assistants class having a higher level of perceived difficulties.

The relationship between Copilot domains and CBI scales were examined through the use of parametric correlations. The calculation of the correlation coefficients between the four Copilot domains and the CBI scales led to a number of modest relationships that

are reported in Tables 5 through 8. In order to maintain a .01 level of significance, only coefficients greater then +/-0.30 were reported.

Table 1
Subject responses to Copilot Evaluation form

1. Did discussing your Copilot results help you identify the nature of your employment difficulty?	Very much = 19.35% Somewhat = 58.06% Not at all = 22.58%
2. Did discussing your Copilot results help you to identify your strengths and needs?	Very much = 29.03% Somewhat = 58.06% Not at all = 12.90%
3. Did discussing your Copilot results help you to plan your next steps?	Very much = 32.26% Somewhat = 38.71% Not at all = 29.03%
4. Was it important to discuss your Copilot report with a counsellor?	Essential = 25.81% Not Sure = 45.16% Not Necessary = 29.03%
5. Was the report easy to read and understand?	Yes = 90.32% Not Sure = 6.45% No = 3.23%
6. The report content was practical.	Yes = 80.65% Not Sure = 12.90% No = 6.45%
7. I plan to try some of the Copilot report recommendations.	Yes = 64.52% Not Sure = 25.81% No = 9.68%
8. I would recommend Copilot to my friends.	Yes = 54.84% Not Sure = 25.81% No = 19.35%
9. Do you think Copilot would be a useful addition to the services at Career and Placement Services?	Yes = 64.52% Not Sure = 25.81% No = 9.68%

Table 2. Correlations between Copilot Domains

	Career Plan	Communication	Initiative	Difficulties
Career Plan	1			
Communication	0.84	1		
Initiative	0.85	0.80	1	
Difficulties	0.78	0.66	0.76	1

Table 3. Mean Copilot Domain Scores based on Subjects Work Experience.

	1-5 years	5-10 years	Pooled Variance	df	t	p
Career Plan Relevance	34.59	24.03	188.95	44	2.68	0.01
Communication Skills	44.94	35.97	228.58	50	2.02	0.05
Initiative	43.95	31.26	296.67	48	2.62	0.01
Difficulties	26.65	22.55	168.29	48	1.00	0.32

Table 4
Significant differences from unpaired t-tests between samples on Copilot domains.

Career Plan Relevance

	CAPS	Others	GMCC (LA)	GMCC (AA)	CAPS	ED
Mean	35.69	24.39	37.53	17.96	35.69	21.71
Variance	207.89	164.46	166.51	57.18	207.89	119.68
df	49		18		49	
t	3.80***		4.53***		4.72***	

Communication

Mean	43.94	37.37	50.39	28.4	43.94	35.75
Variance	204.71	230.94	95.83	167.12	204.71	216.16
df	60		20		56	
t	2.40*		4.70***		2.36*	

Initiative

	CAPS	Others	GMCC (LA)	GMCC (AA)	CAPS	ED
Mean	42.07	33.25	45.65	23.15	42.07	32.32
Variance	299.88	302.9	353.8	104.1	299.88	273.16
df	54		17		55	
t	2.56*		3.64**		2.37*	

Difficulties

	CAPS	Others	GMCC (LA)	GMCC (AA)	CAPS	ED
Mean	27.85	22.28	32.03	19.53	27.85	19.49
Variance	105.16	182.9	279.37	190.46	105.16	105.57
df	68		21		55	
t	2.48*		1.99		3.26**	

*p<.05. **p<.01. ***p<.001.

Table 5. Correlation Coefficients between Copilot's Career Plan Relevance domain and selected CBI scales.

CBI Scales		CBI Scales	
Career Plans	0.39	Improving Self	0.35
Openness	-0.35	Persisting While Uncertain	-0.33
Control	-0.35	Overcoming Obstacles	-0.41
Career Path Flexibility	-0.42	Working Hard	-0.49
Post-Training Transition	-0.31		

Table 6. Correlation Coefficients between Copilot's Communication domain and selected CBI scales

CBI Scales	
Career Path Flexibility	-0.42
Post-Training Transition	-0.41
Working Hard	-0.36

Table 7. Correlation Coefficients between Copilot's Initiative domain and selected CBI scales

CBI Scales	
Career Path Flexibility	-0.40
Post-Training Transition	-0.35
Overcoming Obstacles	-0.37
Working Hard	-0.45

Table 8. Correlation Coefficients between Copilot's Difficulties domain and selected CBI scales

CBI Scales	
Control	-0.33
Improving Self	0.36
Persisting While Uncertain	-0.35
Overcoming Obstacles	-0.37
Working Hard	-0.46

CHAPTER 5 DISCUSSION

The purpose of this study was to determine if Copilot is a useful instrument to use with post-secondary students. To achieve this goal, a number of research questions were asked and examined. The first questions to be answered dealt with the relationships between gender, education, and work experience with the subject's scores on the Copilot questionnaire.

The presence of significant gender differences were found for two (Communication Skills, Initiative) of Copilot's four domains. The mean scores for males were higher in all four domains, indicating that they perceived themselves as having more difficulty finding work, but the difference was only significant in two of them. These results are different from those found by Guedon, Turcotte, Limoges, and Clavier (1996), who found no differences based on gender.

There are a couple of possible reasons for the differences between the male and female subjects found in the study. First, only a small number of males participated in the present study, making it difficult to confidently compare the differences between male and female subjects. While a majority of the female subjects came from the 3 class administrations at the U of A and GMCC, most of the male subjects were clients at the U of A's career services office (CAPS). It is possible that the subjects who came from CAPS had more career concerns at the beginning of the study since they were seeking career guidance from the staff at CAPS, who recommended that the subjects complete

Copilot. The students from the class administrations volunteered to complete the Copilot questionnaire, but had not been previously looking for career guidance. This difference in the subjects enrollment into the study, could possibly lead to the gender differences found, indicating that the differences were not based on the subjects gender, but their present situation in regards to their career search.

A second hypothesis which could explain the difference between male and female subjects, is that male subjects tend to seek career help when they feel they are having a very difficult time, while female subjects seek career guidance before they feel they have become stuck in their career goals. While this present study was not designed to answer such a hypothesis, it is possible that in general male subjects are less willing to seek career guidance then female subjects, and seek help only when they are faced with a great amount of difficulties.

Examination of the effects of work experience on the subject's Copilot scores indicates that students with more work experience felt they had less difficulties searching for work then students with less work experience. Students who have worked for a longer period of time are likely to have worked for more employers and have had more experience searching for work. Students with less work experience have likely not faced the challenges of finding employment as often and therefore have not developed the necessary job search skills to help them efficiently find employment.

The lack of a relationship between the subjects' level of education and their Copilot scores indicates that education does not seem to affect their perception of the job

searching abilities. This is surprising because I thought that subjects with more education would have less difficulties looking for a job since they would have more marketable skills. However, it appears that the subjects' amount of education has no effect on the amount of difficulties they reported when searching for employment.

Further evaluation of the Copilot questionnaire lead to the examination of the relationships between the Copilot domains. The correlations between the domains were high, corresponding with previous research done by Limoges, Guedon, and Clavier (1996). Their results led them to conclude that Copilot measures only one major variable; how the subject perceives their failure to enter the workforce. The reason for the strong correlations among the domains is that each of the 170 statements from the questionnaire are used to calculate more then one scale score. Therefore, since the domains share a large number of items, a higher score in one area will lead to a higher score in the others.

The high correlations between the individual Copilot scales calls into question Copilot's ability to discriminate between the individuals job search difficulties. The strong relationship between the scales may hinder the questionnaires ability to diagnose specific areas of the subject's job search that requires refinement. If, as Limoges, Guedon, and Clavier (1996) assert, Copilot only measures one main variable, the questionnaire should only be used as a general evaluation of the subject's job search difficulties, rather than a tool that is able to diagnose specific difficulties.

One of the best ways to determine if Copilot is a useful tool to use with post-secondary students was to get the subjects evaluations of the tool. Their evaluations of the Copilot report were generally positive, but a sizable minority did not find the report very helpful. The use of classes at both the U of A and GMCC led to the inclusion of subjects who were not actively looking for work. Since the statements on the Copilot questionnaire deal with situations individuals encounter when searching for a job, the subjects who were not seeking employment found most of the items to be nonapplicable. In the future it would seem important only to use Copilot with people who are looking for a job and have had enough job search experience to be able to relate to the situations posed in the questionnaire.

A second aspect of the present study, apart from evaluating the Copilot questionnaire, was to examine if their were any differences in Copilot scores among the different samples. It was hypothesized that the subjects from CAPS would have the highest level of perceived difficulties since they were clients at the U of A's career and job information office. However, students in the Legal Assistants class from GMCC indicated the most difficulties in all four of the Copilot domains. The subjects from the U of A's Career and Placement Services (CAPS) had the second highest level of reported difficulties. Students from the senior education class at the U of A had the third highest level of reported difficulties, and students from the Arts and Administration class at GMCC had the lowest level of reported difficulties.

It appeared to make no difference on the subjects' Copilot scores whether they were students at a University or Community College. Rather, it is likely that the students' level of perceived difficulties depends on their current job seeking activities and their plans for the future. For example, the students in the Legal Assistants class at GMCC were nearing the end of their program at the time of testing and were starting to look for work. On the other hand, most of the Education students at the U of A were planning on continuing their studies at University and were not seeking long-term employment. The subjects with the lowest score, students in the Arts and Administration class at GMCC, were presently working in job placements. Their lower scores indicated that they were perceived themselves as having little difficulty when searching for employment, which could be the result of their current placement experience.

The final aspect of this study was to compare the subjects Copilot and CBI results. A number of small relationships were found between certain Copilot and CBI scales. Scale 25 of the CBI, *Working Hard*, measures whether the subject believes that hard work will bring success or that success is unrelated to effort. This scale was modestly correlated with all four Copilot domains, indicating that subjects who believed that hard work will bring success reported less job search difficulties then the subjects who believed that success was unrelated to their efforts.

Scale 24 of the CBI, *Overcoming Obstacles*, gives an indication if the subject believes that obstacles are blocking their progress or that obstacles can be overcome. This scale was correlated with 3 of the 4 Copilot domains (Career Plan Relevance,

Initiative, Difficulties), and showed that subjects who believed that obstacles can be overcome reported less difficulties on the Copilot questionnaire.

The 20th scale on the CBI. *Persisting While Uncertain*, was related to the Career Plan Relevance and Difficulties domains. Subjects who believed in always working hard even despite uncertainty had less problems in the two domains while those who needed clear goals to work hard reported more difficulties.

Scale 19 from the CBI, *Improving Self*, gives an indication of the subjects level of satisfaction with their current skills. This scale was also related to the Career Plan Relevance and Difficulties domains. Subjects who have the desire to improve their skills and performance reported more problems on the Copilot questionnaire then the subjects who were satisfied with their current performance. It is not surprising that subjects who were unsatisfied with their current level of skills and performance would report more difficulties then subjects who felt their current performance was satisfactory.

Scale 15, *Career Path Flexibility*, and Scale 16, *Post-Training Transition*, were related to the Career Plan Relevance, Communication Skills, and Initiative domains. Subjects who believed that several routes could lead to the attainment of their goals reported fewer problems then subjects who believed they needed to follow certain steps. Also, subjects who were willing to take a job that differed from their initial training reported less difficulties on the Copilot questionnaire then subjects who would only take a position that was consistent with their training.

The 10th scale on the CBI, *Control*, is related to the Career Plan Relevance and Difficulties domains. Subjects who believed that their career path was self-determined reported fewer job search difficulties then subjects who believed that their career path was influenced by others.

The relationships between the CBI scales and the Copilot domains seem to show that subjects with an internal locus of control perceive themselves as having less difficulties when looking for work then subjects with an external locus of control. Those individuals who believed in hard work, persistence, overcoming obstacles, and self-determination reported fewer problems looking for work then the subjects who did not relate success with effort and felt their career path was determined by others. These findings do not mean that subjects with the former list of attributes find work more quickly or easier then subjects with the latter list of attributes, only that is their perception. The CBI and Copilot only provide a measure of their beliefs and their self-perceptions about the difficulties then encounter when looking for work. The CBI and Copilot do not provide an indication of whether the subjects perceptions are accurate, meaning that the subjects perceptions of their skills may or may not be true.

In summary, the results of the present study show that the Copilot questionnaire and computer generated report were well received by a majority of the student subjects. For those individuals who were actively looking for work they found the Copilot report useful in identifying the nature of their difficulties and helpful in planning their next steps. These positive results only apply to those who were looking for work when they

completed the questionnaire. Since the 170 statements were derived from situations people encountered when looking for work, the individuals who were not looking for employment when they completed the questionnaire found many of the questions to be nonapplicable. Therefore it appears to be important that Copilot only be used with individuals who are actively seeking employment. Completing the Copilot questionnaire when one is not looking for work could easily result in frustration from the loss of time and the lack of relevant results.

The results from the present study show no reason why Copilot would not be an effective tool for helping post-secondary students in their quest for employment. Since the Copilot questionnaire and report do deal with some personal issues, it is important for client's to work with a trained professional. It should be the professional's responsibility to determine if the Copilot questionnaire is relevant to the individual's situation, and to work through the results with the individual. The most important factor in determining if the questionnaire is relevant, is the individuals present job search activities. Copilot does not provide a measure of the client's aptitudes, attitudes, or interests. Rather it gives them an indication of the difficulties they perceive to be hindering their entrance into the workforce. Therefore, if the person is not looking for work, Copilot will likely be ineffective because it will be irrelevant. However, if the client is searching for a job, Copilot appears to be a helpful tool in determining the individual's difficulties and helping them plan ways to rectify those difficulties.

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