

**How Do University Graduates Cope with Risk?
Exploring the Relationship between Education and Work**

An Analysis of the 1992 National Graduate Survey

Zeng Lin

A thesis submitted to the Faculty of Graduate Studies in partial fulfilment of the requirements for
the degree of

Doctor of Philosophy

Graduate Program in Sociology
York University
North York, Ontario

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by

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Abstract

University graduates in Canada have been significantly stratified by fields of study (FOS) in terms of income, unemployment rates, work prospects, and job satisfaction. Debates over the differential outcomes afforded by a university education focus on the tension between cultural and instrumental values, or the tension between liberal and vocational education. This dissertation, under an assumption that liberal education and vocational education are compatible, argues that an embedded liberal education, which reconciles liberal and vocational education, will more effectively prepare Canadian university graduates for the new century.

To argue for the thesis, FOS choice is considered an important expression of risk taking in the university context. Managing risk involves a variety of initiatives: engaging in part-time or full time study, making a decision to minimise student debt load, or gaining relevant work experience through a co-op education program. Such risk management strategies are designed to alter returns to the investment in education that four years of university represent. The study focuses on theoretical examination and potential policy implications in light of students choosing liberal or vocational field. The theory involves the notion of structure and agency and has a particular derivative — ‘structured individualism’. The policy aspect of the thesis involves the debate between liberal and vocational education which reflects on the debate about curricular utility or, more simply, the link between education and work. Empirically, the dissertation is actually dealing with two situations. The first situation is the school-to-school transition (university entry). The antecedent coping strategies, whose purpose is to optimise the FOS choice, are first explored. Contemporaneous coping strategies that students use aim to enhance the value of their FOS choice during their four year programs are studied empirically. The second situation is the school-to-work transition two years after graduation. Risk management associated with the FOS choice is examined through returns from labour market and the graduates’ personal satisfaction. Finally, the coping strategies subsequent to graduation, mainly concerned with continuing education as a means to minimise employment risk, are explored.

Through empirical analyses, I have observed that the existing university curricula, to a large extent, separate life skills from skills for the world of work. As a consequence of this separation, the labour market outcomes for liberal graduates are less promising than for vocational graduates. Inversely, educational outcomes for vocational graduates are less positive than for liberal graduates. The strengths and weaknesses of both liberal and vocational education invite us to appeal for an embedded liberal education to better prepare Canadian university graduates for the 21st century.

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Chapter One

Introduction

1.1 Objectives of the Study

University education plays a key role in the life course of many individuals in advanced societies. The competencies and associated credentials received from a post-secondary education confer a distinct advantage in the labour market and perhaps also in establishing a graduate as a community member and citizen (Little & Lapierre, 1996). The university experience itself is characterised by a series of transitions – from school entry, to enrolment in a particular field of study, to graduation into the world of work.

Relationships between university education and work are complex and difficult to predict, especially in the emerging ‘post-industrial’ economy where human resources, technology, and work-organisation forms change rapidly and combine in a multitude of novel ways. There nevertheless exists a growing literature on the period immediately following university during which graduates strive to establish themselves in a job (Don and Lapierre, 1996, Anise et. al. 1999). These analyses of the school-to-work transition process demonstrate its increasingly uncertain nature. The last two decades have witnessed a declining youth (and young adult) labour market and a corresponding disinclination by government and the private sector to involve themselves in stabilising linkages between educational institutions and the labour market (Allen, 1998;

Betcherman & Lowe, 1997). As these transitions between education and work have become less regulated, individuals have assumed more responsibilities in accumulating the skills and credentials required. Describing the movement of youth from school to labour market, Heinz (1999) suggests they now must organise such 'status passages' with greater attention to the utilisation of educational resources and the acquisition of relevant qualifications.

A strong connection between education and work is aided by various personal initiatives, among which, the choice of a field of study (FOS) is especially important, as graduates in Canada are clearly stratified by fields of study in terms of income, employment stability and continuity, and job satisfaction (Minister of Human Resources Development Canada, 1996). Differential labour market outcomes (henceforth LMO), then, suggest that FOS choice has a significant impact on one's future economic prospects and general wellbeing. The results of choosing well highlight the importance of this relationship and the gravity of the risks associated with FOS decisions.

Recent work in Canada with provincial data suggests that while agency is important in school-to-work transitions, so too are social structural factors. Social economic status (SES), gender, and ethnicity continue to exert a significant influence, as do more immediate situational factors such as region and ethnicity (Anisef et al., 1999; Allen, 1999; and Krahn & Lowe, 1999). However, the principal limitations of the existing

research on FOS choice and its consequences are:

1. comparisons are made between undifferentiated ‘general’ and ‘specific’ skill sets;
2. comparisons are made between graduates of colleges and universities;
3. returns to investment in education or training are limited to wage differentials;
4. analyses are limited to econometric predictions;
5. research is (typically) under-theorised – most studies invoke well-established economic principles; and
6. analyses typically have employed provincial, cross-sectional data.

With all these limitations, there is a **need** to examine further the relative influence of structure and agency in post-secondary transitions and to expand the scope of existing analyses beyond provincial contexts and economic returns.

While FOS choice is an important expression of risk in the post-secondary context, the actual management of that risk best represents the needed autonomous or agentic behaviour required of post-secondary students. Managing risk may involve a variety of initiatives from engaging in part-time or full time study, making a decision to minimise student debt load, or gaining relevant work experience through a co-op education program. Such risk management strategies are designed to alter returns to the investment in education that four (or more) years of university represent. The school-to-work transition or, more specifically, the linkage between FOS choice and desired labour

market outcomes, defines the nature of the risk involved. However, attempts to manage risk associated with FOS choice both anticipate that choice and extend beyond the immediate school-to-work transition process. It is necessary to distinguish between coping strategies that facilitate entry into a particular FOS and those specifically designed to enhance the link between FOS decisions and labour market outcomes. While the former are clearly antecedent to enrolment and FOS choice, the latter are contemporaneous with study in the chosen field and, in some cases, are subsequent to study and graduation. Risk management is thus seen to comprise three stages in the progression to employment, involving planning and decision-making behaviours that are antecedent, contemporaneous, and subsequent to FOS choice.

These initiatives demonstrate the individual's ability to exercise a measure of personal agency and are consistent with the recent emphasis on individualisation – traceable to the theoretical work of Beck (1992) whose notion of the 'risk' society has been applied to the analysis of uncertain and fragmented life course transitions experienced by young people. Individualisation is part of the dissolution of traditional parameters of industrial society including class, culture and consciousness, gender, and family roles. In Beck's (1992: 135) view, individuals must conceive of themselves as the centre of action, as the 'planning office' with respect to their own biography.

In few situations, however, are individual actions (and their consequences) wholly

autonomous undertakings. Most are constrained by social positions, personal histories, and the individual's immediate situation. The exercise of personal agency and the constraining influence of social structure underlie recent discussions in the literature on the life course in general and on school-work transitions in particular. Beck (1992) and Giddens (1994) raise the issue of emerging individualism in the risk society and this is further developed by Rudd (1997), Furlong and Cartmel (1997), and others who suggest that:

In order to get a better understanding of the way in which young people's lives are shaped it is necessary to explore the relationship between structural and individual factors in more detail. In particular, we need to assess the extent to which opportunity structures contribute to experiences as well as the extent to which individuals assess risk and negotiate opportunities on a subjective level. (Evans & Furlong, 1996, p.2)

Rudd and Evans (1998) further use the term 'structured individualisation' (SI) to describe such transitions as outcomes of both individual choice and activity, and structural influences. In Rudd and Evans SI model, structure continues to demonstrate its influence with traditional meanings (e.g., social class, gender, ethnicity, and region), but reserves an important role to be played by agency. As a consequence, structure interacts with agency in which structure constrains the effects of agency on the one hand, and the constraints imposed by structure are at an increasing speed overcome by agency on the other, especially at the life stage of university learning.

The derivative notion of SI and the difficulties encountered in dealing with this

construct are discussed by Lowe and Krahn (1995) who indicate that agency and structure are embedded in each other. Therefore, the relationship between structure and agency (individualism) is best understood by encapsulating structure-agency dynamics in a particular place and time. Anisef et al. (1999) assert that structure and agency have a "combined" influence on decisions and actions in life course. To extend the context of the structure agency configuration, we set the time in the 1992 National Graduate Survey of 1990 graduates. The place is the university¹, where school-to-work transitions mark one of the more important of these life course events; and, more specifically, serve to map the terrain over which issues of agency and structure combine in determining FOS choice and its consequences.

Table 1.1 maps the contention of the study, which focuses on theoretical

Table 1.1. Diagram of the Literature Review and the Empirical Analysis

Theoretical Literature	Transition Literature	Policy Literature	
Structured individualisation	Life Course	FOS-LMO link	
Situation 1	School to school transition (university entry)	Coping strategy 1 (Antecedent) Purpose: Optimise choice (Anticipate risk)	Choice: FOS (liberal – vocational)
Time 1	Roughly four years before 1990 graduation	Coping strategy 2 (Contemporaneous) Purpose: Enhance value of choice (reduce risk)	
Situation 2	School to work transition	Returns: FOS (liberal –vocational)-LMO	
Time 2	Two years after graduation	Coping strategy 3 (Subsequent) Purpose: endure lifelong learning (reduce risk)	

¹ This study consists of one cohort and it is difficult to use SI in a manner that clearly separates the effects of structure and agency, since time and place are fixed.

examination and policy implication. The theory involves the notion of structure and agency and has a particular derivative – ‘structured individualism’ (theoretical literature). The policy aspect of the thesis involves the debate between liberal and vocational education (policy literature) which further reflects the debate around curricular utility or, more simply, the link between education and work. In the university context, we see this expressed in the literature on FOS choice and its consequences in the labour market (transition literature). Empirically, we are actually dealing with two situations. The first situation is the school-to-school transition (university entry). We explore antecedent coping strategies, whose purpose is to optimise choice, in relation to FOS choice. After university entry, the contemporaneous coping strategies aim to enhance the value of their FOS choice during a four year study. The second situation is the school-to-work transition two years after graduation. The management of risk associated with the FOS choice is examined through returns from labour market and the graduates’ personal satisfaction. Finally, the coping strategies subsequent to graduation are explored, and are mainly concerned with continuing education as a means to minimise employment risk.

To summarise, the mapping starts with the theoretical issue of individualism where the perspective of SI is adopted. We situate this first in the school-to-school transition, which is defined as university entry with FOS choice, and second in the school

to work transition, which is defined as involving the link between FOS and LMO. Since this link is important and choice is the expression of the risk involved, structure-agency forces at play in this earlier transition point in the life course are investigated across the two situations.

The context of this study is outlined in the following discussion of the university and its role in preparing students for a new economic and social order. The overview of research attempts to explain the response of students to the changed realities of the processes of school-to-school and school-to-work transitions.

1.2 The University and the New Economy

It is important to place the transition questions in the context of changing global economy and workplace (Minister of Labour Canada, 1997), because the meaning of transition from school to the labour market can only be understood in this macro context. Despite the debate over what is the meaning of new economy, there is a consensus that “a major economic transformation has taken place over the past two decades” (Betcherman & Lowe, 1998:1). As a manifestation of this great transformation in Canada, the 1980's were especially trying times for the Canadian economy and society, characterised by persistent high rates of unemployment, slow growth in output and productivity and the stagnant real earnings (Ibid., p.1). Despite well-educated post-secondary graduates

having lower unemployment rates and higher job incomes, they have faced economic pressures similar to other less educated groups (Little & Lapierre, 1996).

The forces that initiated these changes in the last two decades were associated with the emergence of the new economy. Initially, it appeared as a decline of primary industrials, such as agriculture and manufacturing, and as an increase of service sector. Under the surface of these ups and downs, however, we have observed two key features of the changing economy: knowledge-based (generic) and skills-intensified (task-specific). These two important characteristics of the new economy are at the centre of debates over the relationship between education and the labour market. To understand the relationship, people tend to ask questions, “How are knowledge and skills taught in post-secondary institutes?” “To what extent have graduates applied these knowledge and skills to their workplace?” and “How does educational choice influence the labour market outcomes after their graduation?” Like other great transformations, the new economy is double-sided and has created opportunities as well as risks, to which individuals must respond.

This situation gave rise to a shift in government policy from its funding of higher education for personal development of a fortunate, privileged minority, to the notion that government support of the university system be predicated on social and economic returns to that investment. This simply meant that graduates should have the skills to

contribute to the country's economic productivity and social well being of the society.

Universities were assailed because they seemingly failed to serve the instrumental purposes of graduates despite the fact that university students – when compared with college and high school graduates – achieved greater employment stability and received higher wages (Anisef, Axelrod & Lin, 1999). At the individual level, university students must carefully choose what they should study in order to satisfy the government's new regulations.

1.3 A 'Mass Education' Mandate

While changes in the Canadian economy during this period gave rise to an extended debate over the instrumental value of a university degree, concerns about its utility or relevance in the labour market merely accentuated a broader debate already occurring over what should be the appropriate function of the university in a modern, knowledge-based economy. Historically, the task of any university was to advance and disseminate knowledge, and to serve as a cultural centre (Scott, 1995). However, how these university functions were implemented varied by time and place (Jones, 1998). One of the forces supporting the change of how universities function was the development of mass public education.

Mass education exists when a significant proportion¹ of a population is enrolled in educational institutions. Compatible with this description, mass education could be defined here as an education that provides society with the majority of skilled labour. Mass education has occurred in all industrial societies, as Furlong and Cartmel (1997) observed that “young people from all social classes tend to remain in full time education until a later age and higher education is becoming a mass experience rather than the preserve of a small elite” (p.8). Mass education, from its beginnings in primary schooling in the mid-nineteenth century to post-secondary education in the mid-twentieth century, has been called one of the victories of modernisation (Scott, 1995). Providing society with the skilled labour force has been always the mandate attached to these developments.

Besides this mandate, mass education at the post-secondary level has also changed perceptions and expectations of the society, as universities have evolved from ivory towers accessible only to an elite class into large, sprawling institutions with large and diverse student bodies. Universities' relationships with societies, labour markets, and governments have been changed accordingly. In Beck's model of a risk society (1992, and 1994), extensive attention has been paid to the side effects of science and technology, such as pollution and medical hazards. But the hazards and insecurities, such as

¹ Some define mass university education as a system where between 15 and 40 percent of the 18- 24 age group are enrolled (Scott, 1995:2).

unemployment and underemployment, of mass higher education have not yet been fully addressed. To explore the mandate of mass university education, one of the objectives of this dissertation is to investigate how university students cope with the hazards and insecurities which have arisen from the rapid expansion of university education in Canada.

The development of mass university education associated with the risks of university graduates in the labour market raises the question of how should students and educational institutes take actions to cope with these risks. It also invites debate over what value we should preserve in the university education, and how we can minimise the tension between cultural and instrumental values, or the tension between liberal and vocational education.

1.4 The Liberal Education Debate

At the university level, the debate between generic and task-specific skills took the form of disputes over claims for the enduring value of the traditional liberal education.

There exist historical analyses of the value of liberal education that have led to attempts to categorise university disciplines in terms of either their instrumental or cultural orientation. One study by Wagner (1998) attempts to establish a link to the labour

market through a historical analysis of Aristotle's categorisation of knowledge. This study clearly indicates that liberal and vocational (professional) orientations relate to the disciplines within universities (Wagner, 1998:333).

If the classification of liberal and vocational education is rational, then we have to answer the questions of "What is a liberal education?" and "What is a vocational education?" Responses vary, not only by time and place, but also by discipline and theoretical orientation. For the purpose of clarification, we might briefly define liberal education as a pedagogy which provides a broad, balanced, and human-centred education. Hence, the main function of liberal education is to advance and disseminate knowledge, which is consistent with the roles that traditionally the university has played. Vocational education, on the other hand, aims to provide specific skills for certain professions, in which skill training occupies the centre. Instead of providing further details of the definitions of liberal and vocational education, we shall focus on the debate over their relationships. For instance, people suggest that "liberal education" is not compatible with "vocational education" (Bloom, 1987), and therefore, individuals must opt for one form at the expense of the other. We argue, however, that liberal education and vocational education are compatible. Certainly, as regards educational theory, there is no united front, even among the proponents of liberal education. The perspectives among liberals on how to define liberal education have been historically divided into two major camps.

One camp is based in modern liberalism, which emphasises individualism as the driving force behind education. Another is built on nationalism, which stresses the interests of a nation. The former originates from the Enlightenment Movement, while the latter derives from the Renaissance and the Romantic Movements. The former champions the tradition of sciences, emphasising their applications, while the latter believes in the humanities, which include pure sciences.

The second reasoning is that the two educational models could complement each other if we carefully probe the dynamic changes in knowledge and skill structure. It is understood that both knowledge and skills are stratified, from abstract to specific, and from philosophy to concrete working skills. The boundaries between knowledge and skills have either intermittently or continuously changed over time via the development of human intelligence. The gap between knowledge and skills has been shrinking since society has reached the information age, making knowledge and skills mutually transmittable.

In brief, the debate over liberal and vocational education invites further investigation, and the argument of compatibility between liberal and vocational education needs support from an empirical analysis. These are the contributions to the debate that this study attempts to make.

1.5 The Individual's Response

The decision to choose a field of study represents a combination of personal interest, preparation, and opportunity. At the undergraduate level, subject-matter preferences usually can be met by the standard university curriculum. The more salient limiting factors are found in the characteristics and situation of the individual. Beck (1992) attributes greater importance to individual factors in constructing successful transitions to employment. One of the chief means of exercising agency is through the choice of an educational program or field of study that offers greater opportunity for gainful and meaningful employment. In general, Beck's theory assumes that personal agency, rather than social-structural factors, significantly influences the life course. Evidence drawn from studies of post-secondary education suggests, however, that agency is important in school-to-work transitions, but so too is structure. Factors such as social economic status (SES) and gender continue to exert a significant influence, as do more immediate situational factors such as region and ethnicity (Krahn & Lowe, 1997, and Anisef et al., 1999). How these structural factors frame individual expressions of agency such as choice of a field of study, enrolment in a liberal or vocational education program, or accumulation of related work experience represents the broad interpretative approach for the study (Anisef & Axelrod, 1993; Furlong & Cartmel, 1997; Sweet, 1997).

The influence of structural factors depends on life stage as well as educational

achievement. While SES may influence decisions and actions more directly at an earlier stage in the individual's academic career, Anisef et al. (1980) and Stokes (1988) found that SES have a strong impact on who goes to university and who goes to college. Other structural factors, such as gender, region, and ethnicity are assumed to exert a considerable influence in personal FOS choice. One example Anisef, Axelrod and Lin (1999) found is that women are more likely than men to select liberal arts. This study is about choice, but not in the same sense as participation and accessibility of the post-secondary education.

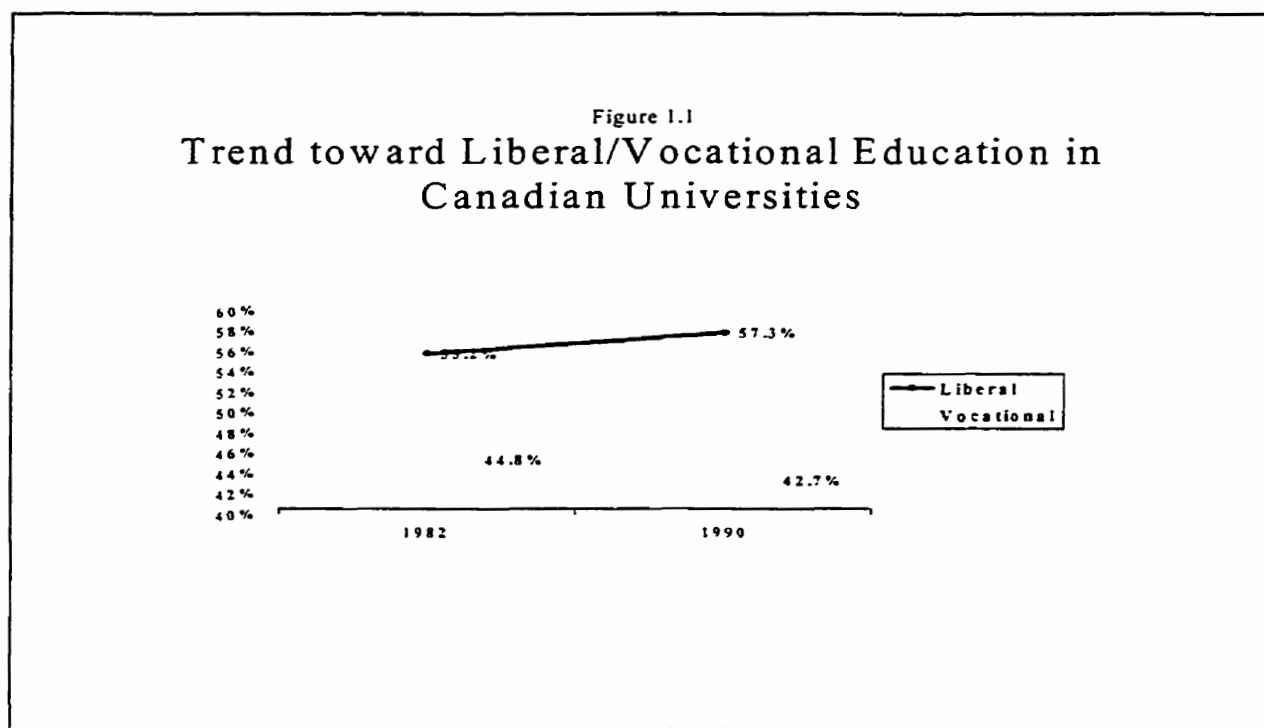
To further describe FOS as a rational choice, Lars Osberg (1997) indicates that:

The present trend in Canada is clearly to a system of greater individualised risk, as post-secondary funding falls and tuition payments rise. Students must now be much surer of their choices of area of study, since they are now faced with the prospect of a greater debt burden on graduation (pp.150-1).

In the context of choosing a university FOS, it is important to consider how university students have responded by using their coping strategies to offset the risk in the labour market.

The importance of individual response to risk exists in that the knowledge-based and skills-intensified economy has not only changed the labour market structure, but has also changed the relationships between education and labour markets. First of all, social class (SES) has diminished its influence on LMO at university level while individual

agency plays a more important role (Davies and Guppy, 1997). Second, the new economy “downloads the responsibility to individuals to ensure that they invest in themselves” (Betcherman, et. al., 1998:4). It can be reasonably concluded that the social trend is toward greater individual responsibility in determining social advantages. Interpretations of the future of work and its requirements call for adaptation through education. Data drawn from various years of the NGS do suggest a trend in the way people have responded to changes in the economic and social situation in Canada by modifying their



educational direction. A comparison of the 1982 and 1992 surveys (Figure 1.1), for example, indicates a trend toward higher liberal education enrolments. Though scholars

do express a concern for what they see as an uncertain future for liberal education (Axelrod, 1999, Bloom, 1987; Emberley & Newell, 1993), a longer period is needed to test the stability of the trend shown in figure 1.1. The complex meanings of higher enrolments in liberal education are elaborated upon throughout the data analysis reported in this dissertation. An important initial understanding is that underlying this trend is the selection of vocational or liberal FOS which are linked to career decisions -- and more generally to life chances. It is important to understand the basis for choice of what is clearly a form of risk-taking.

While previous interpretations of the antecedents to participation in advanced learning emphasise social structure, Beck (1992) suggests these structural factors are more salient in the new economy and in the minds of individuals who increasingly are responsible for planning career directions. Beck's analysis provides an interpretative framework for analysing the influence of structure and agency on FOS choice. In other words, "structured individualisation" will form the framework to explore the causes and consequences of FOS selection (Rudd, 1997).

1.6 The FOS - Outcomes Model

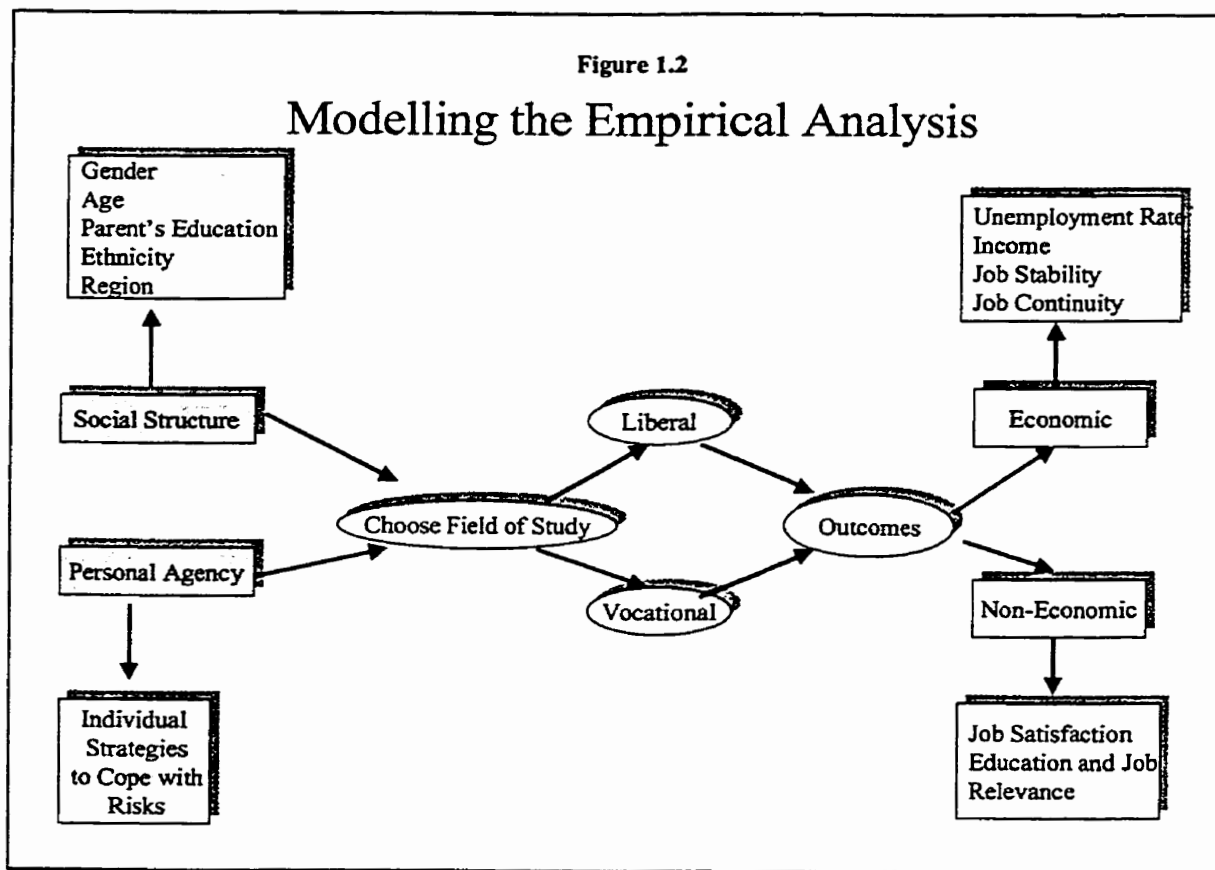
From a perspective of personal agency, life can be seen as a chain of choices, and different choices, to a large extent, will produce different outcomes. Researchers that

study accessibility of post-secondary education concentrate on the questions of “who chooses post-secondary education, and who does not.” Of those who decide to go onto post-secondary education, further questions arise: “who chooses university?” and “who chooses college?” (Anisef, et al., 1985). This dissertation extends the analysis by focusing on the choice of FOS by university graduates, and the relationship of such choices to employment and other outcomes, two years after graduation. Data from the National Graduate Study in 1990 are employed to conduct this analysis.

The economically stressful period of the 1980’s provides a unique opportunity to examine the role of structure and agency in explaining FOS choice and the relationship between FOS and educational returns. Figure 1.2 outlines the position of FOS choice in the transition processes under study. Antecedent pathways to enrolment and choice are shown as the first part of the diagram, which indicates how social structure and personal agency influence the selection of FOS. At this stage, FOS choice is treated as a dependent variable, and the structural and agentic variables are regarded as independent variables. Specifically, gender, age, parental education, ethnicity, and region are defined as individual’s social position. Individual strategies of coping with risks (such as post-secondary education before the university program, work experience) are regarded as examples of personal agency.

In the second part of the diagram, FOS is considered as an independent variable,

which shows the direct impact on labour market and other returns. Specifically, the outcomes are divided into two parts: economic and non-economic. The former includes employment status, income, job stability and continuity, and the latter covers job satisfaction, and education and job relevance.



It should be noted that coping strategies involve the management of risk and transitions refer to the movement from school to the initial job. There are several assumptions underlying this study. First, FOS choice is not a random process in which the

whole selection is based on social structure and personal agency. Second, socio-demographic or structural variables retain their ability to constrain, but not determine, selection of FOS as different pathways, considered as evidence of personal agency, to university display more explanatory power in this selective process. Third, FOS choice between liberal and vocational education is an expression of risk-taking, which results in differential labour market and other outcomes, such as income, and personal satisfaction. Fourth, strategies (e.g., part time study, co-op program participation) of coping with potential risks in the labour market, an exercise of personal agency which university graduates used during or after their study, may significantly enhance monetary and non-monetary returns to the educational investment.

1.7 Significance and Implication of the Study

1.7.1 Significance

This study expands and elaborates previous research on the link between FOS choice and the labour market outcomes. The analysis contributes to the existing literature in several ways.

First, it introduces the theory of risk society to guide the discussion surrounding FOS choice and the LMO. Second, the analysis tries to link students' risk management to FOS choice, which extends the existing literature to the areas beyond the only

relationship between FOS choice and labour market outcomes (see Allen, 1998; Cote and Sweetman, 1997; Davies and Guppy, 1997). Third, it attempts to classify FOS choice as liberal or vocational demonstrates a historical significance and a contemporary urgency debate over university education. Fourth, this study employs a nationally representative database (the NGS), which enhances a national profile of the university graduates in Canada. Fifth, it broadens assessment of returns to investment in a university education, which extend the outcomes beyond labour market to better accommodate the potential of the liberal education. Sixth, it adopts an empirical approach to an issue (liberal versus vocational) that previously has been dealt with primarily on the basis of anecdotal evidence (Bloom, 1987; Emberley & Newell, 1993).

1.7.2 Implications

Theoretically, the examination of structure and agency factors has implications for the generalized notion of “structured individualisation”.

The distinction between liberal and vocational FOS -- and the analysis of returns to investment in these educational areas -- suggests alternative directions for the relative emphasis given each in the changing curricular directions currently contemplated by universities in Canada.

Job Future (1996) developed by Human Resources Development of Canada aims

to provide students with job prosperity. However, it provides neither direction on how to select a FOS, nor awareness of the fluctuations of the labour market and the risks of chosen FOS, nor case studies on how to deal with risks in the labour market. This study has potential to broaden these areas based on the experience of 1990 university graduates.

Mass post-secondary education funded by tax revenue in Canada has been strongly influenced by government policy (Cameron, 1997). However, a good post-secondary education policy should be made by well-informed decision-makers. The information revealed from this study could provide suggestions on how to reengineer Canadian universities in the new economy. The reasoning is that individual choice of FOS depends, to a large extent, on the fields provided by universities. Therefore, the question of personal choice shifts attention to the curriculum concerns of the university. It is noted that this dissertation does not directly deal with institutional arrangement or university restructuring. However, the outcome research reported in this dissertation will identify the labour market experience of university graduates in different FOS, particularly in either liberal or vocational fields. This empirically-based information will provide decision-makers with some ideas about the directions Canadian universities could take, if students are to be well prepared to move into the 21st century.

1.8 Delimitation of the Study

First, this dissertation deals only with university graduates with bachelor degrees, and does not include those with Master's and PhD degrees. Second, only those FOS with clear liberal or vocational orientations are selected (see details in Chapter Three), and excludes (24.4%) of graduates in other FOS. Third, with only one cohort, it is a bit difficult to use SI in a life course manner and be able to clearly separate the effects of structure and agency, since time and place are relatively fixed. However, it is possible to do so with multiple generations or cohorts (Heinz, 1991), which will be the task of a future study.

1.9 Organisation of the Thesis

The dissertation tries to answer the question “How do university graduates cope with risk?” After describing the scope of the study in Chapter One, Chapter Two explores the nature of the new economy, the theory of risk society, the development of mass public education, especially mass higher education, in Canada and its impact on other parts of the society. As a reflexive process, Chapter Three explores the historic development of liberal education, which also requires that we reassess the meanings of university education. From a historical perspective, debates over liberal and vocational education within universities are introduced to rationalise the decision to dichotomise the various

FOS as liberal and vocational. Chapter Four lays the foundation for examining how students manage risk through the strategies they developed during their university study; NGS as the data source is introduced and variables used in the analyses are described. Chapter Five serves as the core of this dissertation. The first part of the chapter deals with analysing the causal relationships of social structure and personal agency and FOS choice. The second part of Chapter Five explores the relevance between university education and employment, which will further test the choice of liberal or vocational education through subjective evaluation of university graduates on skills related to critical thinking, writing, speaking, and decision-making. The final chapter provides a summary of and commentary on the findings. It then offers specific recommendations as to how universities might embed liberal education in their curricula and programs. Assuming that liberal and vocational education are complementary – a view supported by the findings of this study – it is argued that an embedded liberal education will more effectively prepare Canadian university graduates for the new century. Finally, the dissertation concludes with suggested avenues for future needed research.

Chapter Two

Field of Study in A Risk Society

University entry and graduation represent two important points of transition in the life course of well-educated youth. The first is a school-to-school transition¹; the second is a school-to-work transition. Research suggests that the first transition, especially FOS selection, has an important impact on the second transition, as it does matter what one studies in her/his post-secondary programs according to LMO (Cote & Sweetman, 1998). A similar study also reveals the importance of FOS choice, as the educational investment returns of graduates in Canada varied widely by fields of study (HRDC, 1996). Differentiated consequences highlight the risks associated with FOS decisions, and urge us to rethink how university students have coped with the risks resulting from a changing workplace, risk society, and the development of mass public education. Beck's theory of risk society (1992) is introduced to explore analysis of uncertain life course transitions experienced by young people. The theory of risk society raises the issue of emerging individualism, which is further developed by Rudd and Evans (1998) who claim that youth transitions are influenced by both structure and agency which are combined together organically as 'structured individualisation'. Moreover, Lowe and Krahn (1995) suggest that the relationship between structure and agency is best understood by

¹ This simply means educational background before university entry, no matter where applicants come from (either from work or from high school).

contextualising structure-agency dynamics in a particular place and time. Guided by the theory of risk society and its development in youth transition literature, this study focuses on 1992 National Graduate Survey (NGS) of 1990 graduates, and places us at the university level where the school-to-school and school-to-work transitions take place. To answer the question of how university graduates cope with risk, this chapter first introduces the theory of a risk society, then reviews transition literature, especially risks in transition from school to work. Finally, mass education, a feature of the risk society, is explored to assess its influence on these transitions.

2.1 Theory of Risk Society

The theory of a risk society, developed by German sociologist Ulrich Beck, is gaining momentum in North America. It stems from the emergence of the environmental movement in the 1970's (Beck, 1995), but rapidly breaks the boundaries of the environment movement into the areas that include almost all social arenas. As it is a relatively new approach, it is necessary to briefly outline the theory of risk society in a way that the questions addressed in this dissertation can be adequately explored.

2.1.1 Core Concepts of the Theory of Risk Society

The core concept of the theory of risk society is “reflexive modernization, which is a characteristic of the new risk society” (Lash & Wynne, 1992:3). Different from the

industrial society which built on ordinary modernization (commonly referred to industrialisation and urbanisation),

reflexive modernization means the possibility of a creative (self-) destruction for an entire epoch: that of industrial society. The 'subject' of this creative destruction is not revolution, not the crisis, but the victory of Western modernization (Beck, et al., 1994:2).

The process of creative self-destruction displays that the more modernized a society becomes, the more the foundations of the industrial society are dissolved, consumed, changed and threatened (Beck, 1994:176). With the gradual collapse of the old foundations of the industrial society, the ability to deal with the resulting fear and insecurity becomes an essential cultural qualification; thus, cultivating such an ability becomes an essential mission of pedagogical institutions in the risk society (Beck, 1992:76). Here, the concept of creative self-destruction, which initially sounds pessimistic, implies an optimistic component. The newly created society may overcome some of the problems induced by the industrial society. As can be seen in the ensuing discussion of how individualisation and education in the risk society have exposed the feudal side of the industrial society (e.g., gender inequality) under attack.

Beck's concept of reflexive modernization echoes the Marxist theory of capitalist alienation². One of the differences, however, is that while Marx emphasises the demise of

² Alienation means the ironic relationship of being controlled by the products of one's own action (Collins, 1988:102). Influenced by Hegel's philosophy, Marx once predicted that capitalism creates its own gravediggers, a working class who will finally destroy capitalism (Marx and Engels, 1971).

capitalism, Beck stresses its victory. The demise of capitalism is the birth of communism according to Marx (Marx & Engels, 1971), who believed in the linear progress of human history, which has evolved from a primary to an advanced communist society.

Nevertheless, Beck rejects a Marxist notion concerning the linear development of communism, and instead explains that industrial society has experienced its reflexive stage of creative self-destruction, challenging the perspective of a linear progress. As a result of these differences, a significant watershed has emerged between Marxism and the theory of risk society.

Beck's risk society, because of its critical view of industrial society, is widely regarded as a postmodernist theory (Heinz 1991; Lowe & Krahn, 1995). However, Beck and his colleagues carefully distance themselves from both modernism and postmodernism. In the introduction to Risk Society, Scott Lash and Brian Wynne (1992) characterize the theory of reflexive modernization as a compromise between modernism and postmodernism. As more societies modernize, more agents (subjects) acquire the ability to reflect on the social conditions of their existences and thus are able to change them in the direction in which the new social conditions move. The controversy between modernists and postmodernists is thus overcome in a third way through reflexive modernization, a critical view examining modernism and postmodernism which does not totally separate them (Beck, 1994:174). With these distinctions from Marxism, modernism and postmodernism, the theory of risk society is rapidly gaining momentum

in Europe and North America (Lowe & Krahn, 1995; Rudd, 1997).

2.1.2 Characteristics of the Risk

Under the framework of reflexive modernization, “risk” occupies the central position, and may be defined as “a systematic way of dealing with hazards and insecurities induced and introduced by modernization itself” (Beck 1992:21). Risk here is primarily defined as a method of coping with uncertainties instead of consequences (e.g., danger, opportunity). As a systematic method of dealing with uncertainties, risk bears important features.

First, risk essentially expresses *a future component* (author added), but also pertains to the anticipation of destruction in the sense that risks are already present (Beck, 1992:33). Therefore, risk is a sense of future possible devastation, in which the real destruction has not yet been done. Risk consciousness, however, is at least in part a reflection of previous (indirect) experience of devastation. Simultaneously, there exists an opportunity underlying risk, which is called creative destruction.

Second, risk is a random phenomenon, which has no clear direction that shows its impact. As Giddens (1994) suggests,

On the one side, we can easily discern many new opportunities that potentially free us from the limitations of the past. On the other, almost everywhere, we see the possibility of catastrophe. And in many instances it is difficult to say with any degree of surety in which direction things will move (p.184).

Such uncertainty often places individuals in a gambling situation while making critical decisions, and even careful investigations cannot totally prevent them from being in such a situation.

Third, risk tends to be perceived as an individual instead of a social crisis, and this may be referred to as localization. The meaning of localization is expressed here as a social crisis appearing as an individual crisis, since the crisis is not perceived as rooted in the social realm (Beck, 1992:28 & 100). Unemployment, mainly perceived as a personal problem, is a typical example of the localization of risk.

Finally, risk society is a global society because risk can easily transcend national boundaries as risks shift from one society to another unpredictably, as with air pollution and other natural disasters. Moreover, a globally standardised media network and rapidly improved telecommunication make institutional and national boundaries, in a certain sense, no longer valid (Beck, 1992:133).

2.1.3 Why Do We Feel More Risky?

The previous discussion on risks may give us an impression that we are currently facing more risks than did people who lived in previous eras. One might question whether this perspective is justified or are we actually safer than people who lived in earlier times? After investigating the process of civilisation, Lubbe (1993) concludes that: “the achievements of modern technology and organisation have made us far safer from natural

catastrophes today than at any other time” (p.25). The human achievement of safety against natural disasters, however, does not prevent us from an increase of risk consciousness. The reason for this is that as human society increases its awareness of risks, it simultaneously decreases its willingness to accept vital risks (Lubbe, 1993:26). Therefore, it can be concluded that “risk is all in the mind - a construct” (Ibid., p.7). However, this claim is a one-sided argument as risk consciousness is neither a pure construction of the mind, nor a factual reality. Previous experience, even learnt consequences of destruction, indicate possible material sources of risk consciousness. Hence, risk consciousness results from the interaction of human society with its changing environment in general and the workplace in particular, and may include both human construction and material foundations in our risk consciousness.

Although in some areas, we are much safer than people who lived in previous eras (for example there is less risk of famine), in other areas, we experience greater risks (such as pollution or traffic accidents). In connection to the issues discussed in this dissertation, we encounter a rise of similar risk consciousness in relation to LMO among university graduates in Canada while exploring the transition from school to work associated with FOS choice. On balance, humans are not really facing more risks than they did in the past, but the process of individualisation, which frees people from the existing social structures, may play a role in enhancing our risk consciousness.

2.1.4 Individualization

All progress humans have made through modernization in the past several centuries seems, paradoxically, to have resulted in an increase of risk consciousness. A key mechanism that contributes to the increase is the process of individualisation. However, the theory cannot be accepted without considering that if the whole society were individualized, how could we explain the utility of social structures (Heinz, 1991; Krahn & Lowe, 1996).

To address these concerns, the logic of individualisation, the role of education, and the implications of individualisation to individuals and society in a risk society will be discussed.

2.1.4a Logic of Individualization

Individualisation is a process that responds to changing socio-economic conditions. The rationale is that when modernization reaches the reflexive stage, it involves not only structural change, but also a changing relationship between social structure and social agents. As a consequence, agents tend to become more individualized, that is, decreasingly constrained by structures. In effect, structural change forces social actors to become progressively more free from structure. And for modernization to advance, these agents must release themselves from structural constraint and actively shape the modernization process (Beck, 1992:2).

Beck continues:

Individuals must then, free of these structures, reflexively construct their own biographies. In the sphere of work the process of structural change leads to individualisation in two senses, through the decline first of class structure and second of the structural order of the Taylorist workplace. The resultant individualisation again opens up a situation where individuals reflect upon and flexibly restructure the rules and resources of the workplace and of their leisure time (1992:3).

Beck follows with a discussion of the changing workplace and FOS choice, briefly touching on these two aspects of individualisation. The whole process of individualisation, with people who are relatively free from social class and existing working rules, empowers personal agents to become active forces who construct their own biographies. However, Beck's thesis of individualisation has been criticized for neglecting the forces of social structure. It has been criticized as premature, according to Heinz (1991), to interpret these social changes as a radically new pattern of social relations between institutions and individuals who have been set free from class relations and cultural traditions (p.13). Perhaps Beck was misunderstood in this respect, insofar as he argues that "structures also play a central part, in the sense that structures change structures" (1992:175). It can also be argued that individualisation does not deny the functions of social structures, but reassesses the influence of two determinants of life course, social structure and personal agency. We should not exclude either social structure or personal agency factors from the analysis while applying Beck's theory of risk society in studying FOS choice among university students in Canada. The view that

includes both social structure and personal agency when studying individual FOS choice is quite different from the view of traditional structuralism which usually treats agency as a residual factor. Therefore, the objectives of this study aim at theoretical examination and policy implication. The former refers to the notion of structure and agency and its derivative 'structured individualisation'. The latter involves the debate between liberal and vocational education underlying the concern over links between education and work.

2.1.4b Role Played by Education in the Process of Individualisation

Individualisation means that the relationships between social structure and social agents are changed when modernization arrives at the reflexive stage. The central meaning of individualisation is that individuals hold more responsibility for their destinations. Then, the question is "Who are the agents"? To answer this question, we have to pay some attention to the role played by mass education, especially the university. It is understood that universities, via their knowledge production and dissemination, are significant forces in modern society. A detailed discussion of mass education is placed in the last section of this chapter, which highlights that mass education is part of the risk society, and has a significant influence on university education policy. For the moment, however, how mass education accelerates the process of individualisation will be explored.

First, mass higher education, especially at a university level, accelerates the

process of individualisation. As individualisation depends on a broad dissemination of knowledge, the university has emphasised on this process. According to Beck (1992), an educated person with reflexive knowledge of the conditions and prospects of modernity is an agent of reflexive modernization (p.93). Mass higher education has provided a large number of well-educated people who make individualisation possible in an entire society. Moreover, mass higher education functions as the institution to disseminate and create knowledge, which has led to a significant rise of risk consciousness since the pioneer work of the environmental movement (Meadows et al., 1972). Beck (1994) suggests that:

The social and natural worlds today are thoroughly infused with reflexive human knowledge; but this does not lead to a situation in which collectively we are the masters of our destiny. Rather to the contrary: the future looks less like the past than ever before and has in some basic ways become very threatening (p. vii).

In this connection, mass education, which distributes and creates knowledge, does make us more aware of possible risks.

Second, mass education not only changes the ways that educational institutions disseminate and create knowledge, it also changes patterns of how students act on campus. According to Beck (1992), the impact of modern education makes contemporary students fundamentally different from traditional ones (p.97). Arguing against the structuralist perspective, he claims that education makes a certain degree of self-discovery and reflection possible, and as the years of schooling increase, traditional orientations, ways of thinking, and lifestyles are recast and displaced by universalistic forms of

learning and teaching, as well as by universalistic forms of knowledge and language. The university gains importance in this process because the most important educated persons who can effectively act as agents in the process of reflexive modernization are mainly trained through universities in contemporary society, especially in the areas of liberal education (Anisef, Axelrod, & Lin, 1999).

Third, “education and attentiveness to information open up new possibilities of dealing with and avoiding risks” (Beck, 1992:35). This is the meaning of creative self-destruction in an industrial society, an optimistic view of the theory of risk society. The problems or promises contributed by mass education in creating a risk society make us understand why it has been often regarded as a scapegoat as well as a solution for the major problems we are facing. Therefore, “everywhere educational reform is accompanied by a dependency on education. More and more groups get caught up in the race for educational credentials” (Beck, 1992:97).

2.1.4c Implication of Individualisation

The whole process of individualisation in a risk society undermines the structural forces of industrial society. One of the examples is that industrial society is based on an unequal gender division of labour, because:

industrial society never is and never was possible only as industrial society, but always as half industrial and half feudal society, whose feudal side is not a relic of tradition, but the product and foundation of industrial society (Beck, 1992:89).

In other words, such a division of male and female roles ensures the functions of the traditional nuclear family. “Without the nuclear family, there would be no bourgeois society with its typical pattern of work and life” (Beck, 1992:104). Obviously, the traditional division of labour based on gender is under attack in the risk society, so too is it under scrutiny in the transition from schooling to work.

Closely connected to the division of labour based on gender is that a contrary organisational principle separately applies to productive and family work (Rerrich, 1986). The market principle applies to productive work, but unpaid family work is taken for granted, something imposed as a natural dowry through marriage (Beck, 1992:107). As well, the feudal side of industrial society has been expressed in education. Universities, for example, were traditionally for men, where only men spoke to and wrote for other men (Smith, 1997:163). In the stage of reflexive modernization, the foundation of the family (e.g., marriage, sexuality, parenthood), gender roles, and separation of productive and family work are called into question in the course of the actual equalisation of gender (Beck, 1992:104). The egalitarian movement of gender roles seems to gradually diminish the feudal sides of industrial society. This sets the stage for us to briefly explore gender role in transition from school to work (Chapter Five). Again, risk society, viewed optimistically in this respect, may provide better ways to deal with risks associated with gender inequality.

2.1.4d Beyond Linear Progress

The theory of risk society treats industrial society as a double-edged sword: its victories are accompanied by its risks. One of the biggest risks we are facing is that we are still living on the legacy of an industrial society which depends on perpetual growth (Gellner, 1983). This perpetual growth is usually assumed to support steady employment, even full employment. Under such an assumption, any severe economic recession will become a vital problem of the society, which can remove a popular government from office if massive unemployment persists. Therefore, economic growth and job creation are the paramount tasks of any government in an industrialised country. To fulfil these duties, the industrial society seems to repeat a history underpinned by the perspective of linear growth:

How is it possible that our society fails to recognise the vast challenges it faces. All past societies believed, always falsely, in their own immortality – while we Olympians of today have truly scaled the peak of development. Indeed, this is precisely what distinguishes our epoch from all others, none of which thought any differently... The provincial self-consciousness of the age, its incapacity to look beyond the narrow horizon of the prevalent unquestioned assumptions, was and is the end-of-societal-history thesis (Beck, 1995:3).

Indeed, the ideas of progress and linear development are deeply rooted in human nature³, reinforced by the great achievements of capitalist development in the past several centuries. Despite these achievements, Beck argues that the “civilised world is no more

³As a simple expression of this idea, people anticipate that their future will be better than their past and parents dream that their children will be better off in the future.

than a (disproved) hypothesis that we have not yet put behind us, and now is the time for the counter-hypothesis” (Beck, 1995:13). Actually, even the counter hypothesis cannot get rid of nature being perceived as a disproved hypothesis. Competition between the hypothesis and counter-hypothesis is the way science develops according to Popper (1959). The result of this competition is that the idea of linear progress (one of the forms of determinism) has to be abandoned.

Challenging the idea of linear progress, the past few decades have witnessed conflicts over progress erupting in science, particularly with respect to technology. Not only is science internally divided, and continually contradicting its own safety claims, but also progress in the science of risk represents a decline of scientific authority on safety matters (Beck, 1995). Risk calculations can be interpreted differently, and experts who work in the same areas often provide contradictory recommendations (such as healthy food, or effective medicine). Similar conflicts have exploded in social sciences, which are often expressed as serious controversies over questions such as university restructuring, crime control, or government spending. All of these signify that development in both natural and social arenas is beyond linear progress, which has had a profound impact on the ways how higher education is teaching and doing research.

In brief, the theory of risk society is an attempt to form a counter hypothesis against the idea of linear progress. The core claim is that industrial society has entered its reflexive stage in which risk and risk consciousness substantially rise. To cope with

actual/perceived risks, agents who have been educated are becoming individualized. These individualized agents actively seize opportunities to optimize their life course by detaching themselves from existing social structures. They are still facing risks, but the way they make choices shows that they differ significantly from traditional agents.

2.2 The Changing Workplace and Individual Response

Like many other developed countries, the workplace in Canada has been significantly changed since the beginning of the 20th century, especially over the last two decades when the risk society has gradually taken shape world-wide (Furlong & Cartmel, 1997). To cope with risks and new opportunities brought through these changes, Canadians have increasingly invested in their education and training. It is essential, therefore, to assess the link between education and work under such a new circumstance. The investigation starts from the question of what changes have occurred in workplace, and how they influence the youth transitions in their life course.

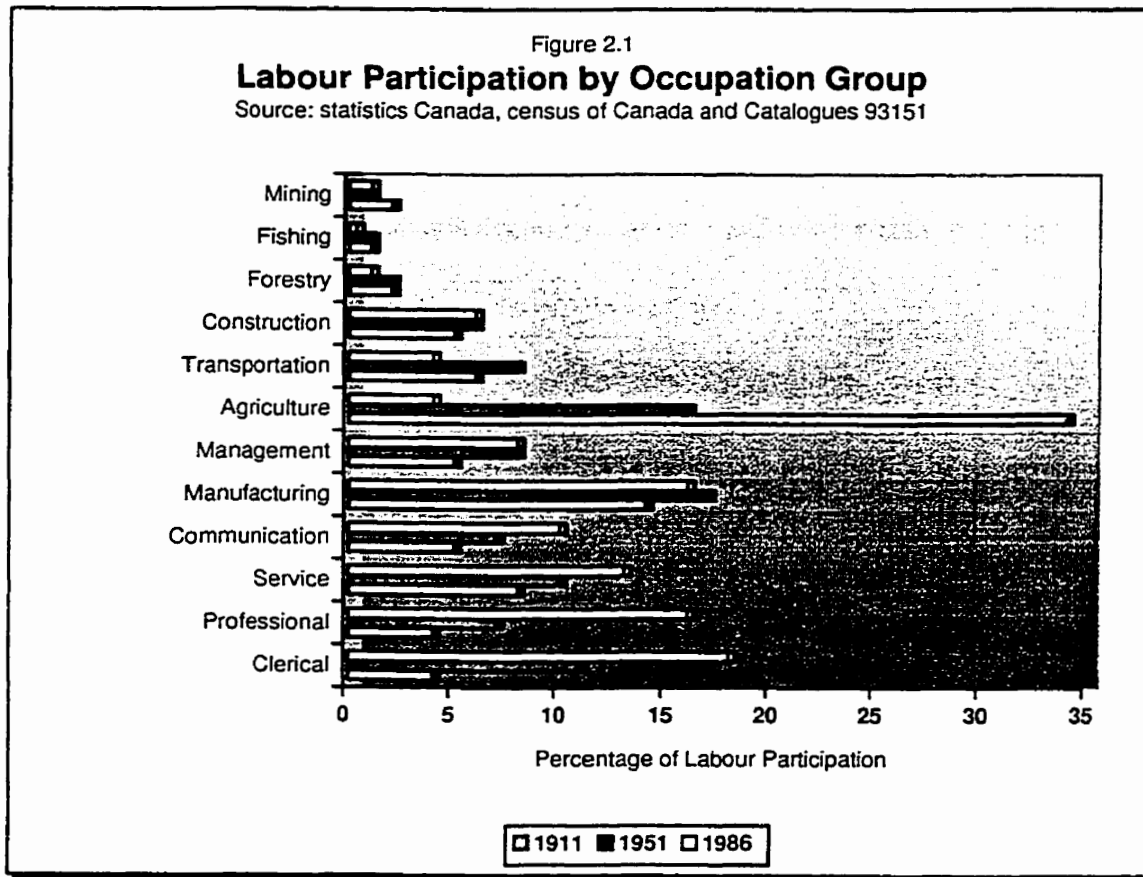
2.2.1 The Changing Workplace

There are many different ways to measure the changes that have occurred in the workplace. Nevertheless, this dissertation explores the changes that have happened in occupational structures, the nature of work itself, and the accepted employment standards. It should be noted that all these changes are interrelated in nature; their separation only

serves the purpose of facilitating a detailed discussion.

2.2.1a Changing Occupational Structure

Occupational structures in Canada have significantly changed over the 20th century. Figure 2.1 shows that the agricultural workforce in Canada, for example, has



substantially declined. In 1911, 34% of the total labour force worked in agricultural occupations; by 1986, only 4% of workers were employed in this sector. These figures indicate an increase of efficiency in agricultural practices, which, as a consequence,

provide the surplus labourers for other newly developed industries. More slowly than agriculture, occupations in the mining, fishing, and forestry industries have also experienced varying degrees of downsizing. In contrast to the decline in employment in primary industries, opportunities in the service sector have steadily increased over a long period. For instance, only 4% of the labour force was employed in clerical occupations in 1911; by 1986, clerical workers represented 18% of the total workforce. A significant increase in professional occupations is also observed. In 1911, only 4% of the labour force was employed in professional occupations which rose to 16% in 1986. Although manufacturing, transportation and construction occupations experienced ups and downs between 1911 and 1986, the general employment trend in these fields has been declining. From these occupational structural changes, we conclude that Canada's economy has moved toward service, especially an information service, economy.

2.2.1b Changing Nature of the Workplace

Under the surface of occupational structural changes, however, we have observed that two key features of the changing economy are reflected in knowledge-based and skills-intensified characteristics. It should be noted that most studies do not strictly distinguish knowledge from skills. However, it is critical in this dissertation to distinguish both. The term, knowledge-based, refers to general, including academic, personal management, and teamwork skills (Betcherman et. al., 1998:8). "Skills-intensified"

involves specific techniques, including “know-how” and job specific skills. These two important characteristics of the new economy are immediately at the centre of debates over the relationships between education and LMO, as well as the debate over liberal (knowledge-based) and vocational education (skill-intensified). Research suggests that two different types of education have produced different LMO (Job Future, 1996), which reinforces the importance of FOS choice among university students.

The changing workplace can be encapsulated by asking the question “What is work?” In answering this question, Gellner (1983) suggests that work in an industrial society “is no longer ploughing, reaping, thrashing. Work in the main, is no longer the manipulation of things, but of meanings” (p. 32). It is understood that changes in the workplace have developed through a gradual but irreversible process. In the past two decades, the workplace has required not only manipulating but also understanding meaning in order to fulfil tasks. If the meaning of the changing workplace is fully comprehended, a liberal education that provides flexibility to cope with changes should prevail in university education.

2.2.1c Declining Work Hours

Along with the changes in occupational structure and the workplace, a discussion of a long-term decline in the number of working hours in OECD countries measures the changing nature of the new economy from another angle. A century ago, for example,

people worked on average about 2,770 hours per year. Today that figure is approximately 1,700 hours for a majority of countries (OECD, 1996b: 36). In other words, people in the OECD countries are currently spending about 60% of the time that people a century ago spent working. Obviously, the increase of productivity has provided an opportunity to decrease working hours which has also been underpinned by the changes in occupational structures and the nature of work. This trend continues as is evident by the solutions (e.g., the four-day work week) for chronic unemployment in advanced economies (Betcherman & Lowe, 1977). Similar to other changes in the workplace, the long-term decline in working hours has meant an increase in the time available for other activities, such as family life, travel, leisure, education, and training.

2.2.1d Non-standard Employment

It will take more time to test a hypothesis that claims full time employment is a result of mass production, while part time, contract work, and self-employment link to an information age. However, with the changes in occupational structure, work nature, and working hours, the relationships between employer-employee have changed accordingly. As the result of all these changes, a substantial increase in non-standard employment (e.g., part time, short-term contract work, and self-employment) has occurred over the past twenty years (Betcherman, et. al., 1998:33-4). In 1997, for example, the non-standard employment represented 32% of all employment, compared to 25% in 1976 (ibid. p.33).

An increase of non-standard employment has contributed to economic anxiety, and has challenged the traditional idea of job security. Fear of job loss constitutes the greatest insecurity within low-income groups as well as the middle class (Betcherman & Lowe, 1997:5). If there is a logical link among these changes in the workplace, it must be due to the increase in human knowledge, and technology progress. In Beck's words (1992), this is the victory of modernisation, which leads us to discuss the risk and opportunity in the process of FOS choice.

2.2.2 Risks and Opportunities

In English, the word "risk" usually carries a negative meaning; for example, Merriam-Webster's Collegiate Dictionary defines risk as "a possibility of loss or injury". Risk in Chinese, however, conveys two meanings: danger and opportunity. The wisdom of this definition is that it places the risk in a crossroad situation where alternative choices can result in either negative or positive consequences. The meaning of risk in this dissertation often includes the two meanings. In addressing the risks university graduates experienced in transition from school to work, this dissertation explores what risks and opportunities they faced and how they responded while selecting their FOS.

2.2.2a Risks

For young people, the LMO are situated at the centre of the risk concern because

employment status plays a central role in shaping the sense of individual identity, which is often described in terms of either pride or crisis. One thousand youths interviewed by The Toronto Star provide us with some resoundingly pessimistic images of modern youth in Toronto (Ferguson, Talaga & Menon, 1997). Some of the problems, such as unemployment, and unpaid education debt, are directly linked to a lack of jobs. Other problems, for instance, underemployment and lower earnings, are related to mismatches between education and employment status. Some university graduates even thought that poor FOS choice has resulted in their unemployment. In the following sections, we will explore risk as dangers (e.g., unemployment) and as opportunities (e.g., social mobility).

- **Unemployment**

“Structural Functionalism” and “Human Capital Theory” assume there is a natural link between university education and the labour market. According to these theories, the university functions as an institution which provides a skilled labour force for the labour market. As individuals, university graduates are rewarded for their educational investment by obtaining decent jobs. However, such a link has become increasingly problematic in recent years. As Gellner (1983) reveals, industrial society depends on perpetual growth, seen by many traditional theorists and politicians as an opportunity to provide full employment. However, the concept of this unlimited growth has been increasingly challenged, as has the idea of full employment. Under government economic stimulation programs, a forced slow growth has created the so-called jobless growth (OECD, 1996a),

which further dims the prospect of employment.

There is consensus that unemployment has become a chronic problem, to some extent, in almost all industrialised countries. As a consequence, the working culture of an industrial society is challenged by the flexibility of working times and places, which blurs the boundaries between work and non-work⁴. As a result of this flexibility, the previous legal and social premises of the employment system are “modernised away” by mass unemployment which, tentatively defined as a popular experience in a given population, is integrated into the occupation system in new forms of pluralised underemployment with all the associated hazards and opportunities (Beck, 1992:13). As an example of mass unemployment, Beck (1992) observes that one-third of the population was unemployed at least once in Germany between the years 1974 and 1983. Similarly, the longitudinal study of baby boomers in Ontario reveals that about 42% of respondents were unemployed at least once between 1978 and 1994 (Anisef, et al., 1996). From a national perspective of unemployment, Table 2.1 indicates that youth unemployment has been a serious problem

Table 2.1 Unemployment Rates for Selected Age Groups by Educational Attainment

Age Group	Year	Less than Grade 9	Some Secondary	Graduated from HS	Some PSE	PSE Certificate	University Degree	Total
15-24	1993	30.7	26.1	19.4	13.7	15.0	9.7	19.5
	1983	37.4	26.0*	NA	16.9	14.2	9.6	23.4
All ages	1993	19.1	19.2	12.6	11.9	10.4	5.3	12.3
	1983	17.1	16.7*	NA	12.3	9.2	4.7	13.9

* Also includes those who have graduated from high school. Source: Profile of Post Secondary Education in Canada 1994

⁴ For example, the non-standard employment (including part time work, short tenure work, and self-employment) as a percentage of total employment in Canada has increased from 25.2% to 30.5% during the periods from 1976 to 1995 (Betcherman & Lowe, 1997).

in recent decades. However, education does play a role in reducing unemployment as university graduates display the lowest rates. Despite a better employment picture for post-secondary graduates in general, university and college graduates in the 15 to 24 age group are still suffering from serious unemployment. Their unemployment rates, as Table 2.1 suggests, appear stable over the decade from 1983 to 1993 and are often close to or higher than the national average of unemployment figures for all ages.

In addition to the general picture of high unemployment for fresh university graduates, unemployment rates significantly differ from one field to another. For instance, graduates in health professions and education experienced a lower unemployment rate of 4 and 5% respectively in 1986, while 16% of those from fine/applied arts, and 13% from humanities were unemployed (Department of the Secretary of State of Canada, 1990:31).

Indeed, unemployment, as a part of the employment structure, is increasingly becoming a part of the life course or personal biography for many university graduates. Unemployment, as Empson-Warner & Krahn (1992) discovered, has a negative impact on personal occupational expectations. They found that those who experience unemployment are likely to lower their occupational expectations afterward. From a life course perspective, Adelman (1994) argues it is not surprising that people would reduce their occupational expectations when they grow up with more unemployment. This seems to support Beck's prediction that in a risk society, unemployment is becoming an individual

crisis.

● Underemployment

More prevalent than unemployment, underemployment among university graduates increased during the growth peak of higher education in the 1970's (Collins, 1979). There are two types of underemployment: visible and invisible⁵. As a form of visible underemployment, the trend of part time work, especially involuntary part time work, has gone up in Canada: "In 1989, 15% of all employed people worked part time, compared with 13% in 1979 and 11% in 1975" (Parliament, 1994:258). With respect to invisible underemployment, Anisef's (1973-1994) survey of Ontario baby boomers shows that both university and college graduates experienced high rates of underemployment after graduation, though the underemployment rate for both groups declined over a longer period of time. It is worth mentioning that people who studied in social science and humanities had a higher underemployment rate than those who studied in both pure and applied sciences, and people who studied in pure science had a higher underemployment rate than those who studied in applied sciences (Anisef, et al., 1996). It is evident that

⁵ The International Labour Office classifies two types of underemployment. The first type "visible underemployment," refers to shorter than normal periods of work. The second type is "invisible underemployment," describes persons whose earnings are disproportionately low, work in occupations that do not permit the full use of their capabilities and skills, and/or who are employed by firms where productivity is abnormally low (ILO, 1975:4; Huaamanns, Mehran & Verma, 1990:121).

people who are trained in the fields of pure science, social sciences, and humanities depend more on government funding to support their employment opportunities, and so when governments endeavour to balance their budgets, positions opened in these fields are likely to diminish.

Moreover, underemployment is also expressed as a deflation of academic credentials. Early 1990's university graduates in Canada have had difficulty finding teaching positions; however, this was absolutely not the case in the 1930's when people were complaining about how first class honour graduates can be induced to make teaching a life work (Sibley, 1993:116). Although the question seems bizarre today, it does suggest that teaching as a profession in the 1930's was thought of as an occupation that did not match the credentials of university graduates. Now that mass university education has inflated university credentials, job opportunities for university graduates in 1990's are not as promising as those in the 1930's. It appears that unemployment and underemployment will continue to be underlying theme in the life course of graduates as long as mass university education continues.

- **Student Debt**

Post-secondary education-related debt is much debated in Canada, especially when universities have significantly increased tuition to make up for shrinking government funding (Little & Lapierre, 1996:35). Table 2.2 illustrates that almost half the

university bachelor degree graduates borrowed money to finance their education. Among 1990 graduates, the average amount of money⁶ borrowed by these graduates is \$8,660 for

Table 2.2 Incidence of Borrowing & Amounts Owed at Graduation (Bachelor's only)

Cohort	1982 Graduates		1986 Graduates		1990 Graduates	
Gender	% Borrowed	Mean amount borrowed \$	% Borrowed	Mean amount borrowed \$	% Borrowed	Mean amount borrowed \$
Men	46	5410	44	8240	47	8660
Women	41	5120	39	8110	44	8710

Source: Finnie, Ross, and Gaetan Garneau "Student Borrowing for Post-secondary Education". In *Education Quarterly Review*. Summer 1996, Vol. 3, No 2, p. 13.

men and \$8,710 for women. Research indicates that those who found full time jobs had little problem repaying loans, while those who worked part time, or who were unemployed, or who were not in the labour force encountered great difficulties doing so (Finnie & Garneau, 1996:26).

There is a variation of repaying student debt across FOS. Finnie and Garneau (1996) reveal that graduates who have been trained in professional fields (such as education, law, and medicine) tend to have higher debts than those who have been educated in non-professional fields (such as social sciences and humanities). However, those graduates trained in professional fields have little problem repaying their student loans, in contrast to those who graduated from non-professional fields (1996:24). The

⁶ It is difficult to compare the student debt in three different cohorts without using constant dollars.

debt picture of professional graduates seems to revive the human capital theory, in which a positive relation between educational investment and economic returns is present. However, the difficulty of repaying student loans for non-professional graduates challenges the theory of human capital. The uneven returns across FOS suggest that investment in university education is not risk free.

All risks of unemployment, underemployment or educational debt are directly or indirectly linked to the changing workplace and chosen FOS under the circumstance of mass post-secondary education. However, risk, as described earlier, also contains opportunities.

2.2.2b Opportunities

Risk usually accompanies structural opportunity in certain times and places where rapid changes take place. Despite risks looming in transition from school to work, mass education provides equal opportunity of schooling that is one of the ladders for social mobility. Simultaneously, a changing workplace formulates flexible work conditions in which personal value and personal freedom (or individualisation as Beck describes) can be greatly enhanced.

- **Educational Opportunity**

Historically, educational opportunities open to the public are dependent on time

and place. In Canada, for example, mass education refers to elementary education in the middle of 19th century, secondary education in the early 20th century, and post-secondary education in the late 1960s (Lawr & Gidney, 1973; Gidney and Millar, 1990; and Scott, 1995). Despite schooling being an essential part of life in today's society, the changing workplace reinforces the belief that the global information economy will push education, especially post-secondary education and training industry, steps forward (OECD, 1996b). In a learning society, one of the features of risk society, "lifelong learning for all" was the manifesto of the Education Committee of OECD in 1996 (Ibid.). As well, the changing workplace means that human capital investment is critically important in one's personal life. With the changing employer-employee relationships, education and training investment is increasingly becoming part of personal responsibility (Betcherman, McMullen & Davidman, 1998:4). Finally, patterns of transition from school to work have gradually changed. Seen from traditional eyes, quite a few exceptional conditions are replacing normal ones. Heinz (1991) describes that the time sequence of the life course in terms of schooling, working, marriage and bearing children has been significantly altered for youth in Germany and Britain. This "abnormal" time sequence, described as a non-linear form of transition pattern by Anisef (1996), is not localised in Europe, but is also quite visible in Canada. Krahn (1996, p.1) further summarises the transition pattern of Canadian youth as a longer term, bi-directional, and multidimensional process. The changing workplace puts more stress on education and training in which the role largely

played by states and employers is gradually replaced by more individual responsibilities.

- **Social Mobility**

The changing workplace provides more opportunities for social mobility of well-educated people, especially university graduates. As Axelrod (1990) indicates, university has long been deemed by Canadian youth as a stepping stone toward a higher status (p.165)⁷: until the end of 60's, mobility studies indicated that success in education would positively affect people's locations in the American occupational structure (Blau & Duncan, 1967). This hypothetical relationship still holds true for the Ontario baby boomers, because those who have a higher occupational status are usually well educated (Anisef et al., 1995). The conclusion from these studies seems to be that people who have more education tend to show more social mobility.

In contrast to the North American optimistic sentiment of social mobility⁸ precedent in the 1970's, Bourdieu and Passeron (1990) argue that the education system has played a role in reproducing the existing social structure, and rewards those who

⁷ Social mobility refers to individual's change in social structural position. There are two types of social mobility of intra and inter generations, in which things could move up and down.

⁸ In *The American Occupational Structure* (1967), Blau and Duncan reveal the upward occupational mobility in both intra- and inter-generations in the United States. This work is one of the representative works which spread an optimistic view of social mobility in North America.

possess capital in economic, social and cultural domains⁹. The conclusion is that the education system does not produce social mobility but reproduces the existing social strata.

Apart from either claiming that education plays a role in social mobility or asserting that education reproduces the existing social structure, Beck (1992) maintains that education is little more than protection against risks of downward mobility (p.94). For university graduates, this means that university credentials may reduce risks in the labour markets, but will not immunize them from unemployment or underemployment.

It is obvious that both Bourdieu's and Beck's views do not support a causal relationship between education and social mobility. The sense of our time is that schooling, mainly post-secondary education, might protect people from downward mobility, but it does not guarantee a positive direction for social mobility. Moreover, downward mobility would be inevitable if education or training were not appropriately received (Beck, 1992).

● **Flexibility and Personal Development**

As described earlier, fewer working hours and non-standard employment indeed break up the traditional view of job security and continuity. However, the new work

⁹There is a semantic difference between "social mobility" and "social reproduction". The former tends to be optimistic, and the latter pessimistic (Bourdieu & Passeron, 1990:ix).

scheme would provide both flexibility for the work and opportunities for personal development if we perceive the “non-standards” in a positive manner. Never before has a rapid technology development broken so many traditional boundaries. The lines between workplace and home, school and working, education and entertainment are no longer crystal clear. Now people have begun to talk about “the death of work” (Paquette, 1997; Rifkin, 1995), “the death of distance” (e.g., Internet). While risk looms, we can observe that opportunities are being opened to those well-prepared people who possess employable knowledge and skills. This underscores the importance of personal responses to the changing economy.

2.2.3 Individual Response to the New Economy

Individual response to the new economy varies in many different ways. This dissertation focuses on graduates’ responses to the changing workplace by their FOS selection while individuals are studying at universities.

In *The Reflections on the Changing Workplace in Canada*, Osberg (1997) indicates that risk has been greatly individualized while post-secondary funding falls and tuition payments rise. Students must be much surer of their choices of area of study, since they are now faced with the prospect of a greater debt burden upon graduation (pp.150-1). The sense of risk of chosen FOS has been reinforced by a factor that FOS has played an important role in stratifying Canadian university graduates in terms of income,

unemployment rates, work prospects, and job satisfaction. For example, the full time earnings of the highest 10% of graduates from medicine are \$114,500, their unemployment rate is about 5%, lower than most graduates in other areas of study, and 98% of them are satisfied with their work (HRDC, 1996:188-9; Little & Lapierre, 1996:30). In contrast, for the highest 10% of history graduates, full time earnings are \$53,200, less than half of that made by graduates from medicine. As well, they experience a higher unemployment rate, although 82% of them are satisfied with their work, which indicates reasonable job satisfaction (HRDC, 1996:166-7). Researchers who studied American college students in the United States reveal a similar tendency (Davies & Guppy, 1997). Facing the risk of FOS choice, university students have responded from both their structural positions as well as personal agency.

2.2.3a Response Based on Social Structural Positions

Social structural positions are not constant in influencing FOS choice in a changing economy. Based on structuralist perspectives, researchers attempt to link FOS choice and educational returns to individual positions in a social structure. In this regard, gender, ethnicity, family background, and region of origin are frequently introduced to explain how FOS choice has been made.

Gender, for example, has remained an important factor to divide university students into different FOS. Wannell & Caron (1995) reveal that women are more likely

to study in nursing (95%), social sciences, and humanities, while men still dominate in the fields of engineering (85.4%), computer science (80.4%), and other sciences (p. 22). The division of FOS is not only explained by gender, it is also interpreted in terms of race and social class. For instance, Aronowitz and Giroux (1985) suggest that liberal arts programs within colleges of the United States are “dumping grounds” for minority and working class children. Despite the choice of FOS appearing as an individual preference, it is one that is significantly influenced by gender and social class, where even personal academic achievement is controlled (Davies & Guppy, 1997). In addition, regional differentiation is widely used to characterize the Canadian university system, because the policy-making major roles have been played by the provinces and territories (Jones, 1997). This informs us that the importance of region in selecting FOS cannot be neglected. To what extent region affects selection of FOS has not been fully assessed in the literature, but will be addressed in this dissertation. In brief, individual response to the choice of FOS from social structural positions is still relatively strong in the existing literature, and this will be further tested in the empirical analysis.

2.2.3b Response Based on Personal Agency

In contrast to the response from social structural positions, personal agency is increasingly playing an active role in selecting FOS. Faced with increased risk, it is rational for students to react either by ‘diversifying their portfolios’ by opting for

generalist, rather than specialist, credentials, or decreasing their level of investment (Osberg, 1997:151). This may partly explain why university enrolment has moved toward a liberal direction as described in Chapter One.

Students often take different pathways to university (Anisef, et. al., 1979). Some people, for instance, go directly to university, while others enter from world of work. Some prefer to study in their home province, and others leave home to register in other provinces. The assumption is that these antecedent choices are students' responses to the new economy or are strategies of coping with risk, which have impact on their choice of FOS. However, there is no systematic study to identify how these antecedent choices affect students' choice of FOS in the literature.

After the FOS choice is made, university students continue to respond to risk through their contemporaneous choices. For example, students' full and part time registration status seems related to certain FOS. The past few decades have witnessed an increase of part time students in universities. Proportionate growth in part time enrolment is particularly marked in the fine/applied arts (Mouelhi, 1995:38-41). However, how these relationships link to liberal/vocational education is still unclear. Further research in this area is needed.

It is understood that taking a second major, joining a co-op program, participating in the labour force before completing university education, and continuing education and training after completing a university program are common risk management practices

among university students in Canada. It is again assumed that these contemporaneous behaviours are the responses to the new economy, which may moderate the risk of choosing a FOS. However, little research has been done in this area, which forms one of the tasks for this dissertation.

2.2.4 FOS Choice and Policy Implications

Individual responses to the new economy in relation to FOS choice indeed have policy implications to university restructuring, simply because FOS choice is constrained by the structures of available university programs. Hence, researchers ask the question: “How could universities diminish the stratification of their graduates in terms of LMO?” (Evers & O’Hara, 1996). In other words, “Should university students be liberally or vocationally educated in an information age?” Obviously, there is no simple answer to this question. People who advocate liberal education claim that traditional liberal education has become bankrupt in Canada (Emberley & Newell, 1993). They claim that utilitarianism and relativism in education are the major causes of this crisis (Bloom, 1987). Similarly, those who are in favour of vocationalism suggest that we need to rethink vocational education (Coulter & Goodson, 1993) and make the skills possessed by post secondary graduates match the needs of labour markets (Evers & O’Hara, 1996). One of the supporting reasons for vocational education is that graduates with a direct education-to-job relationship are more likely to be satisfied at work, and less likely to

have part time jobs than those who do not have education-related jobs (Bowlby, 1996:35-40; Little, 1995:35). A pluralist approach tries to bridge the two extremes, and suggests that academic and vocational education should be integrated (Stasz et al., 1994). As the second mandate of this dissertation, the policy implications involved in the debate between liberal and vocational education will be empirically examined. Curricular utility or, more simply, the link between education and work will be an agenda in Chapter Five.

2.3 The Expansion of Mass Education

The previous sections frequently mentioned mass education, but what is mass public education? Roughly, mass public education can be defined as an education that provides society with a majority of the skilled labour force¹⁰. It is understood that the expansion of public education in Canada has experienced three important stages of development: elementary, secondary, and post-secondary. This expansion is not only qualitative but also quantitative. Qualitatively, mass public education has grown step by step from its infancy in the turn of the century, to encompass mass secondary education at the 1950s, and finally, mass post-secondary education from the 1960s to 1980s (Axelrod, 1997; Gidney & Millar, 1990). Quantitatively, it embraces almost every Canadian citizen

¹⁰ Some define mass education as a system where between 15 and 40 percent of the school age groups are enrolled (Scott, 1995:2). Others divide the expansion of education into three phases: elite, mass, and universal (Trow, 1973:18). "The movement of a system from elite to mass higher education or from mass to universal higher education, does not necessarily mean that the forms and patterns of the prior phase or phases disappear or are

who can receive a certain amount of formal schooling, and a large proportion of youth have the opportunity to pursue a post-secondary education.

Over the last one hundred and fifty years, every stage of the expansion in mass education has played a role in reshaping the configuration of our society; in turn, education itself has come under siege and become an institution to be restructured. The results of this restructuring have historically paved the way for another wave of expansion in public education. The articulation of education with other parts of the society forms the dynamics of social development with three major components involved in this process of modernization: industrialisation, urbanisation, and mass public education (Scott, 1995; Trow, 1973). If industrialisation and urbanisation have physically changed our planet, then mass education has intellectually nurtured the people who have made these material changes. Hence, mass education regularly attracts massive public attention, causing people to think of schools as scapegoats at one time and solutions at another (Livingstone & Hart, 1995).

Despite the importance of primary and secondary education, post-secondary institutions such as universities, colleges and trade-vocational schools have replaced secondary schools as the major producers of the skilled labour force (Little & Lapierre, 1996). In this regard, post-secondary education, especially at the university level, is gaining momentum. It is vital for the purpose of this dissertation to explore mass

transformed.” (Trow, 1973:19).

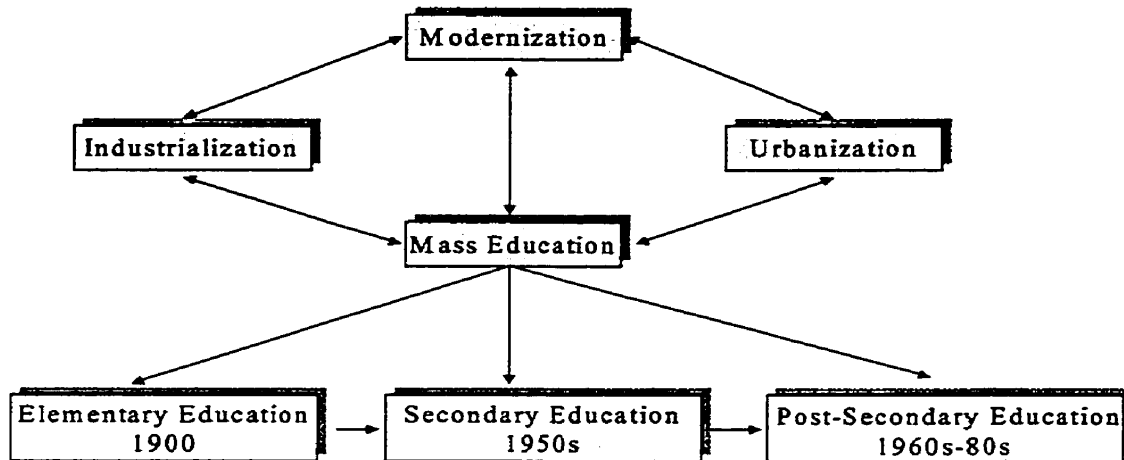
education in some detail, because rethinking the meaning of educational expansion, reassessing how individual students respond to the changing workplace in selecting FOS, and redirecting university pedagogy toward 21st century depend on it. Therefore, a historical review of the emergence and growth of mass public education is the first objective of the following section.

2.3.1 Mass Education and Modernization

Mass public education, together with industrialisation and urbanisation, is one of the core components of modernization (Scott, 1995). Mass schooling prepares much of the skilled labour force to sustain material production and urban construction. In this sense, mass public education has been the engine of modernization.

Figure 2.2 illustrates the linkages between the expansion of mass public education and other aspects of modernization in Canada. As an initial sign of modernization, the process of industrialisation, though it varied across regions, began in the mid-nineteenth century (Smucker, 1980). While lagging behind the United States in the process of industrialization, Canadian society experienced an initial boom of urban construction, which pushed the city growth rate over 30% in 1860 (Biggs & Bollman, 1994:70). In 1901, 60 % of the Canadian population was still rural, and the majority of Canadians were not living in urban centres until 1921 (Brown, 1987:393-7). It is no coincidence that the development of mass public education in Canada lagged slightly behind the process of

Figure 2.2
Expansion of Mass Education in Canada



industrialisation and urbanisation. In Ontario, for example, only 2,643 pupils enrolled in Grammar Schools and 144,979 in Common schools in 1851; these numbers increased to 4,766 (80% increase) and 310,239 (114% increase) in 1861, respectively (Gidney & Millar, 1990:325). Historically, educational expansion is always followed by population growth, extraordinary economic, technological and political development (Axelrod, 1997:24). The massive expansion of secondary education at the mid-century, for example, was associated with the post World War II economic boom and the population growth (Owram, 1996). This expansion can be briefly described as a rapid increase in school number, in educational expenditure, and in number of secondary school teachers. There were a very limited number of high schools in English Canada in 1900 Axelrod 1997:62).

However, in 1948 Ontario alone had 239 high schools, 114 continuation schools, and some 60 vocational schools (Gidney, 1999:15). In 1945, provincial and local spending on elementary and secondary education was \$62 million; by 1960 that figure was close to half a trillion dollars... (Ibid., p. 56). The number of secondary school teachers rose from fewer than 5,000 in 1950 to over 33,000 in 1970 (ibid., p. 56). The massive expansions of elementary and secondary education were conducive to industrialisation and urbanisation in that it provided societies with skilled labour forces.

2.3.2 Three Waves of Expansion of Mass Public Education

The first wave of mass public education (1861-1881) was elementary schooling, in which literacy and numeracy were the paramount aims (Gidney & Millar, 1990:325 and 337; Lawr & Gidney, 1973:61). The curriculum in elementary education provided the essential basis for nation-wide communications to enable the construction of the modern nation-state (Gellner, 1983). Within a half-century, mass public education extended to the secondary level (1950's). One of the major aims of secondary education was to prepare young people to meet the demands of the newly developed industries for well-educated labour forces (Lawr & Gidney, 1973:164-66; Porter, 1965:161). In order to address such needs, job related or vocational education grew substantially. The debate over job related education echoes what we have observed today; that is, if vocational education develops at the expense of academic education, it would be a mistake to mislead the students (Lawr

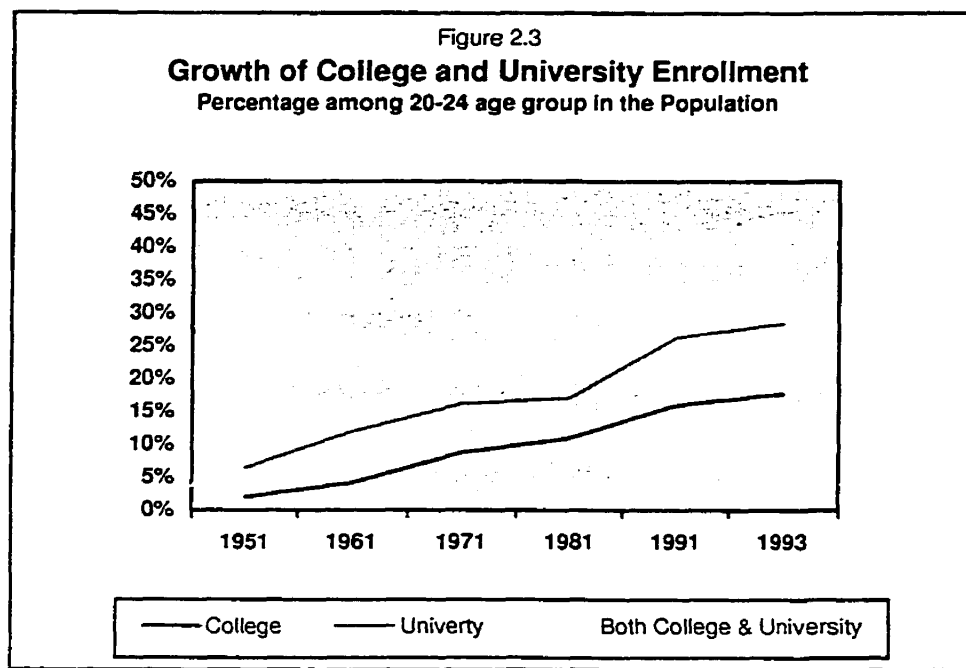
& Gidney, 1973:161; Gidney, 1999). However, this alliance of industrialisation and mass secondary education produced the early prosperity of capitalist development in Canada (Lawr & Gidney, 1973:159).

The third wave of mass public education, influenced by the United States, came to Canada in 1960s. The launch of Sputnik¹¹ sparked the fear that North America lagged considerably behind the USSR in science and technology. The sense of national crisis rapidly won public support which endorsed government decisions (federally and provincially) to significantly expand the development of public higher education (Divine, 1993:vii). Following the example of the United States, Canada invested heavily in higher education during this period. As a result, new universities such as York were built, and university enrolment increased drastically (Nobert & McDowell, 1994:29). All these changes have profoundly affected every aspect of the Canadian society. As a result of the expansion of higher education, Canada with its well-educated citizens has stepped into the information age (OECD, 1996b).

Theoretically, the expansion of post-secondary education in Canada was informed primarily by human capital theory (Ahamad et al., 1979). This theory hypothesises that a heavy investment in education would facilitate rapid socio-economic development and personal well-being. Under the instruction of human capital theory and the influence of

¹¹ The Soviet launch of the world's first artificial earth satellite in 1957 created a crises in confidence for the American people, which resulted in the massive federal aid to higher education in the United States (Divine, 1993:vii).

the United States, Canada's post-secondary education system has undergone a rapid expansion¹². In order to depict the trend of expansion, Figure 2.3 illustrates the ratio of



university and college enrolment in the 20-24 age group of the population from 1951 to 1993. Figure 2.3 shows that while full time enrolment in college was only 2.0% of the 20-24 age group¹³ in 1951, it had increased to 16.0% in 1991, and while university enrolment

¹² There are many ways to measure the expansion of higher education, such as student enrolment, and the number of higher educational institutions. One relatively accurate way to measure this expansion, however, is to compare university and college enrolment to 20-24 ages group in a population, because such a measurement will exclude exaggerating growth rate without considering changes in population.

¹³ When discussing higher education, statisticians and researchers usually use 18-24 year olds as a social age group. However, information about this age group was not available

was only 6.5% in 1951, it had climbed to 26.3% in 1991. The trend of a rapid expanding post-secondary enrolment becomes more striking when college and university enrolments are combined. In 1951, only 8.4% of the 20-24 age group went to either college or university full time; by 1991, 42.2% of them enjoyed the opportunity of pursuing a post-secondary education. Despite the declining size of the 18 to 24 age group in the population over the 1990's (Nobert & McDowell, 1994), enrolment in higher education institutions in Canada has continued to increase. As the result, college enrolments levelled off in 1993 to 365,065 students and full time university enrolment rose to 585,200. By 1993, 46.1% of the 20-24 age group were enrolled in either colleges or universities, which is almost six times higher than in 1951. As Mouelhi (1995) comments, "concerns of declining university enrolment, predicted 10 or 15 years ago, appear to have been greatly exaggerated" (p.35).

2.3.3 Meaning of Mass University Education

Once mass public education has reached the university stage, the university acts as a major player distributing and producing knowledge in an information society. Yet, at this stage of reflexive modernization, the university is experiencing a profound transformation: it has shifted away from serving society's elite and moved towards

for the 1951 and 1961 census publications. In order to keep the comparison consistent, this social age group has been substituted with the 20-24 age group.

serving society's masses.

This transformation has subsequently changed the nature of university education. From an individual perspective, the alteration means that university education is no longer a privilege of upper- and middle-class children; working-class children now constitute a considerable proportion of the university student body (Davies & Guppy, 1997). More importantly, for the majority of students, university attendance is no longer solely motivated by a love of learning, but is also driven by the desire for a decent occupation and viable income (Little & Lapierre, 1996).

From a government perspective, the state acts as the major funding agency for public education and increasingly is involved in university education, too. This involvement reinforces the pressure for university restructuring to meet the demands of the labour market. For example, the Ontario government has recently ordered the province's universities to report the employment rates of their graduates as a measure to determine financial support priorities for different fields of study (Talaga, 1998, COU, 1999). The implications of such a measure are chilling: those fields having higher rates of unemployed graduates could be truncated, even eliminated.

If the performance of universities is only measured by labour market, then they will be treated as job training institutes. The tragedy of such a measure is twofold. First, the Ontario government could assign the role of universities, which other institutions, such as colleges and trade-vocational schools, have played. By focussing on job training,

the university will lessen its role as the producer of knowledge and advocate of critical thinking (two skills necessary to deal with risks and uncertainties). Second, if this policy persists, the fluctuations of the labour market will push unemployment rates higher for different FOS at different periods. Piece by piece, universities will be dismantled.

A vicious cycle may be forming. Universities, if they are forced to function as training machines, will be chronically damaged by limiting their services only to the requirements of the labour market, instead of being concerned with broader tasks. As a consequence of this limitation, other parts of society, which are not wholly subject to the demands of the market (such as social values or national unity), will be at risk. In turn, markets will suffer from this malfunctioning of the society.

Hence, any viable recommendations for university restructuring must avoid creating such a vicious cycle. Because the future is unknown, the best way to avoid the cycle is to study history; the lessons of history can be taught to instruct the present. Moreover, the discourse surrounding liberal education today - including the debates over soul and body, the elite and the mass, knowledge and skills, education and training, the unconventional and the conventional is, directly, or indirectly associated with the ideas of liberal education in ancient Greece. History, then, can help clarify the modern meanings in our debates about liberal and vocational education.

In summary, Chapter Two outlined the study's theoretical basis which derived from Beck's (1992) theory of a risk society. Beck proposes that, in modern societies,

individuals must assume greater responsibility for their futures. Life chances are no longer strongly influenced by social structure positions. Greater individual agency is, for example, demonstrated by university students who take actions that both reduce risks and take advantage of opportunities in the labour market. The perspective adopted in constructing the conceptual framework for this study is a derivative of the Beck thesis in which personal agency is seen to be qualified by social structure.

As an important element of the risk society – and the particular context for this study -- the expansion of university education in Canada was explored with reference to the debate over the relative value of instrumental or cultural components of university education.

Chapter Three

Historical Perspectives on Liberal and Vocational Education

The purpose of this chapter is twofold. First, it describes the historical foundation that underlies the debate about liberal and vocational education, and which will help us rethink the current curriculum concerns in the university. Second, it provides the rationale for dividing FOS into liberal and vocational choices.

Before giving a historical perspective of liberal and vocational education, two important points must be made. The first is a question that relates closely to the debates over university restructuring: "Should universities provide students with liberal or vocational education?" (Bloom, 1987). Although the question is not entirely new, present concerns with the fate of mass university education tend to rejuvenate old controversies. In this regard, history may teach us a lesson.

In addition, there is little consensus among scholars about what constitutes the essential components of liberal or vocational education. Some argue that "wholeness" and "balance" are the central concepts of liberal education (Emberley & Newell, 1994:76). Others suggest liberal education was born from a fear that individuals would live only partial lives (Rothblatt, 1993). It does seem that the ancient ideal of liberal education

started from human dissatisfaction with the natural status of society. This dissatisfaction is the impetus of civilisation; otherwise, we would always be in a state of nature like any other creatures. The philosophy of education, then, has always been a struggle between two approaches: the natural and the nurtured (Ozmon & Craver, 1999). The former considers education to be a natural, not a forced process. The latter emphasises education to be a nurtured, not a natural process. The truth is probably somewhere between these two extremes, mixing the two approaches in different proportion in accordance with the time, the place, and the subject (Ibid. p.31-33).

3.1 Plato's Liberal Education

Proponents of liberal education, whether they adhere to a conservative or progressive tradition, consider Plato to be one of the most important pioneers of pedagogical practice. Yet, it seems that the modern proponents of Platonic liberal education have neglected two components that are closely related to Plato's theory of liberal education. The first component concerns the social and political context of ancient Greek society in which Plato developed and practised his theories of education. The second concerns Plato's idealist philosophy that acts as the foundation for his notion of liberal education.

3.1.1 Greek Society and its Elite Education

To argue that Plato's theory of liberal education was influenced by the social conditions of ancient Greek society, we must first investigate its cultural system of social stratification. Ancient Greek society was primarily stratified along lines of slavery (Gallant, 1991; Popper, 1971; Russell, 1945) and it was a common practice for Athenians to employ slaves in agriculture. Slaves were not only used as labourers, but also were traded among their masters. Hence, slaves - as the property of their masters, and treated as labourers and trading materials - were largely excluded from the audience of Plato's liberal education (Jameson, 1977/78).

The differentiation of social classes among citizens was further stratified within ancient Greek society. This social stratification is fully addressed in Plato's *Republic* and his other dialogues. According to this system, citizens of the Athenian city-state were divided into three classes: common people, soldiers, and guardians. Guardians, as the ruling class, wielded the most political power; moreover, Plato thought only the ruling class constituted the audience of liberal education. Thus, receiving liberal education was a standard method to distinguish those who would be future rulers from those who would be ruled.

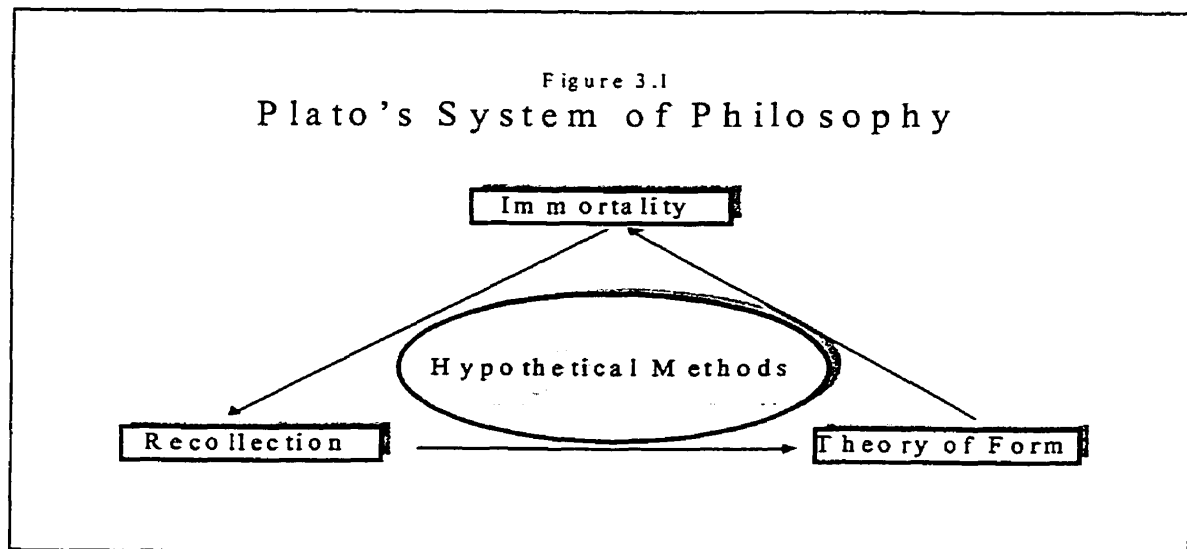
This rigid social stratification reinforced the belief in ancient Greek society that all manual work was vulgar. Stuijk (1987) reveals that the ruling classes based their material existence upon slavery. Slavery allowed the ruling class the leisure to cultivate arts and

sciences, and to place a great emphasis on culture and philosophy and rhetoric - all which could be studied without sullyng the hands. That explains why Plato's disciples at the Academy were the young men of the wealthier social class (Sharples, 1985); Plato himself, it is said, even had royal ancestry (Popper, 1971). One of the consequences of the leisure class's aversion to manual labour was the partial lack of success in experimental science in ancient Greece (Russell, 1977), as compared to its full achievement in mathematics and philosophy. Contemporary debate over liberal and vocational education is deeply rooted in this tradition which symbolises the abstract feature of liberal education. The social stratification and social value toward manual work in ancient Greek society implied that receiving education was the privilege of the leisure class, but not the right of the working people.

Plato's vision of liberal education illustrated above is strikingly different from modern mass education. The point here is that many modern proponents of Platonic liberal education have neglected the social conditions of ancient Greece, while nonetheless urging us to return to Plato's liberal education (Emberley & Newell, 1993). Indeed, Plato's liberal education was for the elite, in contrast to modern mass education. The fact is that mass education did not exist before capitalist development. Rothblatt (1993) suggests that liberal education is historically associated with a privileged elite, and a modern proponent of liberal education, Allan Bloom (1987), asserts that liberal education is only for those elite universities in the United States.

3.1.2 Idealist Philosophy

Plato's theory of liberal education is not only linked to the social conditions of ancient Greece, but is also associated with his idealist philosophy. Without understanding Plato's philosophy, we cannot understand the essence of his liberal education. Figure 2.1 displays the major components of his system of philosophy and their relationships. These components include the immortality of the soul, the recollection of knowledge, and a theory of forms (or ideas). The hypothetical method, sitting in the centre of the diagram, was used by Plato and Socrates as a tool to recollect knowledge. By simply describing



their relationships, the theory of immortality occupies a central position in his philosophy, insofar as it provides the precondition for recollecting knowledge as well as for providing

a destination for the soul. By applying idealist philosophy to his theory of liberal education, Plato separates the soul from the body. The soul is immortal, it deals with the ideal world; the body is mortal, it copes with a real, sensible world.

Most of Plato's essential concepts in his idealist philosophy are dichotomous: reality and appearance, ideas and objects, reason and sense perception, soul and body. These pairs are connected - the first in each pair is always superior to the second, in terms of its reality and its goodness (Russell, 1945:134). We are told that sight and hearing are inaccurate witnesses; true existence, if revealed to the soul at all, is revealed in thought, not in sense. Plato's philosophy completely rejects empirical knowledge (Russell, 1945:136). Hence, while we are in the body, and while the soul is infected with the evils of the body, our desire for truth will not be satisfied (Ibid., p. 136-7). Plato's theory of immortality, then, encourages asceticism, which liberates the soul from its slavery to the body and its corporeal needs. The present body is only a temporary shelter for our soul, but the soul is the master of the body. Therefore, liberal education nurtures the soul. Plato's liberal education, then, implies a "liberation," because it requires that the soul be liberated from the body. Guided by asceticism, Plato's teaching was not oriented towards money, because money is an agent of degradation (Baker, 1966:74).

Like many other people of his time, Plato believed in reincarnation (see, his *Meno* & *Phaedo*; also Sharples, 1985). Immortality of the soul makes reincarnation possible. Furthermore, the reincarnated soul has the potential to possess the prior existing

knowledge. Through recollection, we gain our knowledge. Hence, education is not a matter of putting knowledge into a soul which does not possess it, but rather of turning the eye of the soul, as it were, towards the light of truth. By this doctrine, Plato is able to claim that knowledge is prior experience, as is exemplified by a mathematical equation: "2 + 2 = 4" is true or false, but we know of its truth or falsehood without having to ask or rely upon any authority or experience. In other words, knowledge is a recollection that is brought by the soul from a previous existence (Russell, 1945:139).

The task of the philosopher is to arrive at knowledge of forms through hypothetical methods. The inference, then, is that Plato's liberal education only teaches knowledge. Insofar as opinion is of the world, presented to the sense, knowledge is of a super-sensible eternal world (Russell, 1970:121). This distinction between knowledge and opinion provides further justification for the exclusion of slaves from liberal education. Plato believed that slaves only have opinion, which is limited to a sensible world; they do not have knowledge. In other words, slaves' understanding is confined to things of this world, and they have not understood the core of Plato's philosophy, knowledge (Sharples, 1985:14).

3.1.3 From Philosophy to Education

If the social conditions of ancient Greece and the concepts of idealist philosophy play a part in Plato's theory of liberal education, then the Republic is a good place to

facilitate a further inquiry. According to the Republic, the rulers of the government must be out of Plato's educational design. The government must be guided by knowledge, not by opinion, and only rigorously trained lovers of wisdom gain true knowledge (Zeitlin, 1993:115). Strikingly, almost all contemporary debates over liberal education are rooted in Plato's Republic. Debates, typically, are centred around questions such as: What is teachable? Should we teach basics, or applications? Should education serve the market? Is liberal education a conventional or unconventional education?

"What is teachable?" appears to be a common sense inquiry. However, this was a central question within the debates surrounding liberal education in ancient Greece. In this debate, Plato directly applied his idealist philosophy to education, claiming that only knowledge is teachable (Plato, 1980¹). As we described earlier, knowledge is defined as form, which is prior experience. Belief or opinion, according to Plato, relates to sensible particulars (Sharples, 1985:13). Knowledge is infallible, since it is logically impossible to be mistaken; opinion, on the other hand, is fallible, since it can be mistaken. Therefore, anything we need to learn from experience is not teachable in Plato's Academy. If we translate Plato's answer to the question "What is teachable?", we would say: Don't teach skills, only teach knowledge.

Should we teach basics or teach applications? Plato's opposition to skills training is extreme for most modern proponents of liberal education. However, the belief within

¹ Most Plato's works are published in recent years.

theories of liberal education that only knowledge can be taught has profound implications to other debates surrounding modern pedagogy. As discussed earlier, Plato's theory of form provides a pivotal assumption of liberal education, that is, once students understand forms (or "basics" in modern discourse), they should have no problem understanding the sensible world (or "applications"). The roots of the contemporary slogan "Back to basics" can be found here.

The debates swirling around "What is teachable?" can also be found within the question, "Is liberal education a conventional or an unconventional education?" (Emberley & Newell, 1993). The origins of this debate appear in Plato's *Meno* where he asks if virtue is acquired by teaching or by practice. By using the hypothetical method, Socrates describes moral virtue as the health of the soul. The health of the soul is the most important thing for men, because the soul is more important than the body (Sharples, 1985:5).

This observation presupposes the Socratic conception of teaching - only knowledge can be taught. However, there are two ways of teaching: Socratic and Protagorean. The object of Socratic teaching is knowledge; the object of Protagorean teaching is convention, and convention serves practical purposes (Seung, 1996:83-4). The distinction between these two methods of pedagogy appears paradoxical, because our definitions depend upon what one means by "knowledge" and "teaching." Virtue may be teachable, but not in the way Protagoras suggests (Sharples, 1985:5). This debate is

another version of the question "What is teachable?" Emberley and Newell (1993:11) strongly embrace the tradition of Plato by arguing that a liberal education is an unconventional education.

The question "What is teachable?" also has implications for the question of whether or not education should serve the market. While discussions of a market economy are premature for ancient Athens, it is nonetheless important to note that Plato refused to receive money from his teaching, because money was regarded as degrading. This act of refusal became a principle of liberal education. Modern proponents of liberal education often rail against the influence of the market, and often attack pro-business education (Bloom, 1987; Newson & Buchbinder, 1988).

In brief, Plato was the most important pioneer of liberal education. He practised his education in a society which was strictly stratified along lines of domination - masters and slaves, rulers and ruled (Gallant, 1991). His liberal education is a direct extension of his idealist philosophy. Unlike modern mass public education, Plato's notion of liberal education was oriented around an elite, private education. Some scholars argue that Plato's liberal education in ancient Greece was born out of a fear that individuals would live only partial lives (Rothblatt, 1993:52). Actually, this concern was related to the belief that reincarnation only pertains to whole lives. At the same time, the anxiety was also associated with the turbulent social reality of the time Plato was writing (see Plato's *Meno & Phaedo*; see also Sharples, 1985). The core concern of this conservative

tradition was to protect the general population from the degeneration produced from the changes in education, yet these changes are mandated by the demands of states, markets, and societies. Unlike progressive education, the basic principles of Plato's liberal education were built on universal, eternal and collectivist ideas, instead of individualist ideas (Seaton et al., 1992).

From a secular perspective, the ancient ideal of liberal education emerged from dissatisfaction with the natural status of human society. Closely connected to this secular view, the philosophy of education has been historically divided into two major approaches: nurture and nature. The proponents of liberal education view education as a nurturing process. In other words, schooling is seen as a positive intervention in the natural ways of children's physical and intellectual development. Such an intervention protects the population from degeneration; students could liberate their souls from their bodies, and societies could liberate the ends from the means, the wholes from the parts. Thinking in terms of modern discourses of pedagogy, Plato's conservative approach to liberal education is in line with western civilisation (Bloom, 1987).

By asking the question "What is teachable?", Plato introduced most of the central concepts within the conservative tradition of liberal education. These principles include: resisting market pressures, valuing unconventional wisdom, and instilling knowledge instead of skills training and applications. From a micro perspective, these approaches appear to run counter to the principles of a child's natural development. Education,

according to Plato, is about nurture, rather than nature. It is not surprising that the modern proponents of Platonic liberal education, under the guise of "national interests," emphasise "the basics" - a rigid curriculum, strict streaming - in order to enhance society's ability to compete globally in the current information age (Emberley & Newell, 1993). In brief, the debate over liberal and vocational education in ancient Greece provides a rationale for us to visualise FOS as both liberal and vocational.

3.2 The Origin of Modern Liberal Education

Ancient Greece provides both the soil and the seeds needed to develop a modern vision of liberal education. Just as Plato's theory of liberal education is grounded in the materiality of ancient Greek society and in the idealism of classical philosophy, the rise of modern liberal education is directly linked to liberalism and modernity.

The two different approaches of liberal pedagogy are related to two major camps of liberal education. The first camp is the conservative tradition initiated by Plato. The second school is the progressive tradition developed by John Dewey - although many modern writers, including Thomas Hobbes, David Hume, John Locke, and John Stuart Mills, set the foundation for this tradition in the early stages of capitalism (Hobbes, 1994; Locke, 1960).

3.2.1 The Enlightenment and Modern Liberal Education

The Enlightenment is a name given by historians to an intellectual movement that was predominant in the Western world during the 18th century (Lively, 1966). The Enlightenment itself was strongly influenced by the rise of modern sciences, especially Newton's natural philosophy (Gilmour, 1989). Fundamental to a belief in the unity and distinctiveness of one's own ideas was the assumption that there is a body of truths, about man and society as well as about the world of nature, which can be rationally perceived, universally agreed upon and usefully applied to the welfare of mankind (Lively, 1966:xiv). As well, it was thought that science should replace religion as the means of knowing nature and the destiny of humanity. According to the writers of Enlightenment, everything in nature can be explained in empirical rather than spiritual terms. To understand the world is to know what its structure is and how it works, to discover its mechanism not its purposes, to describe rather than explain. These views inevitably brought Enlightenment thinkers into conflict with organised Christianity (Lively, 1966: xv). The Enlightenment also consolidated belief in the unity of all humanity, the universal rights of men, and the uniformity, if not equality, of all rational beings (Cranston, 1994:22). These three important features of the Enlightenment - scientific spirit, anti superstitious principles, and universal human rights - have had a strong impact on modern public education, especially the university, which the progressive tradition of liberal education has taken for granted.

It can be argued that the whole process of modernisation is the realisation of the principles of Enlightenment:

A major legacy of the industrial-capitalist colossus is the unbroken dominance of the false alternative: whoever disputes the rationality of science - so it is claimed - awakens the slumbering ghosts of irrationality□ The ensemble of identifications - industry = progress = science = enlightenment = modernity - is now in motion, with a continuity and momentum that determine industrialism's law of development (Beck, 1995: 5).

However, this legacy is controversial. On the one hand, it created the miracle of the industrial society; on the other, it left many unsolved problems, such as environmental degradation. More seriously, there has never been a questioning of that latent faith in progress which has grown so precarious today with the growth of risks: the faith in the method of trial and error, and the possibility of a systematic mastery of extrinsic and intrinsic nature that was being gradually constructed by more and more better educated individuals in a risk society (Beck 1992:200). The Enlightenment itself created resistance through its very success, and opened the door to the Romantic Movement.

3.2.2 Romantic Movement and Conservative Tradition

The Romantic movement, started as a counter reaction against the Enlightenment where a Platonic version of liberal education was rediscovered by proponents of the conservative tradition. Russell (1977) describes that the intense interest in and revival of the aesthetics and principles of ancient Greece which flourished in Italy in the 15th

century, and the courtly culture which spread to the northern nations, is to be attributed, in its inception, to love of learning for its own sake. This love of learning, obviously, was only available to the aristocratic man of leisure, who could, if he chose, learn for pleasure, without any utilitarian purpose (p.124). Following the tradition established in the Renaissance, the Romantic Movement flourished in Europe between the middle of the 18th and 19th centuries. Romanticism was intricately interwoven in the history of its age, an age when philosophers, artists, writers, and composers responded with fervour to the forces of nationalism sweeping Europe, but rejected the notions of Enlightenment that had dominated European thought since the early 18th century. The Romantic Movement in the 18th century is, in part, a reaction against that age. Against universality of Enlightenment, the tone of romanticism is conservative in which nationalism is the major concern (Cranston, 1994:4). However, the Romantic Movement in Europe was very complex: in some countries it was expressed as a revolt, but in others it was a revival. In the earliest expressions of romantic theory by Jean Jacques Rousseau, it is seen as a revolt against rationalism, although there was different form of expression in Great Britain, Italy, Spain and Germany (Cranston, 1994). The Romantics emphasised history, nationalism at a macro level, and spiritual life, passion and individual experience at the personal level. Through these principles, the Romantic Movement has an important impact on modern liberal arts education, and cultural studies, which are the major sources of conservative liberal education. Dewey's concept of progressive education, especially his social

experience and natural development are partly rooted in this tradition (Baker, 1966).

Cranston (1994) summarises that English romantic conservatism rested, like the romantic nationalism of Herder in Germany, on a belief in the primacy of history - as opposed to the empiricist sociology of the Enlightenment - for its understanding of society and the human condition (p.51).

The Enlightenment and Romantic movements appear remote from a point of view of contemporary society. Nevertheless, the basic debates launched by the Enlightenment and Romantic movements are still relevant today. For example, the fear of new information technology in contemporary society echoes the tradition of Romantic Movement, where the resistance to the Enlightenment was created (Gates, 1995). Bloom's attack on progressive education also implies a fear that human spirits are soaked in modern technology (1987). It seems that in a risk society, neither tradition of Renaissance or Enlightenment would create a panacea for the re-engineering of universities. However, both traditions are still powerful forces within us.

The Enlightenment embraces sciences and its applications, which are closely related to vocational education. The Romantic movement, on the other hand, emphasises learning for its own sake, which links to a conservative tradition of liberal education. The debate of these two traditions further provides us with a rationale to separate FOS into a liberal or vocational direction.

3.3 Dewey's Progressive Education

John Dewey is one of the most influential scholars in contemporary liberal education. His influences are not only academic but are also practical (Baker, 1966), although Dewey's influence in education is debated. Some argue that his importance and relevance for guiding contemporary educational theory and practice are limited (Paringer, 1990:1) while others suggest that Dewey still serves as a key resource. Even radical critics (e.g., Giroux and McLaren, 1989, the leading exponents of a critical praxis) have become more explicit in situating their own radicalism in the legacy of Dewey. Paringer (1990), from a critical perspective, attempts to de-construct the premises of Dewey's liberal reform, but thinks that we should not lose sight of Dewey's progressive capacities (p.13). In other words, his importance in education cannot be ignored, because removing Dewey from the contemporary discourse on education and schooling does not help solve the current problems in education.

3.3.1 Framework and Sources

Dewey was a productive scholar whose research has covered almost every topic that we have discussed in contemporary education (Dewey, 1930, 1966). His philosophy of education evolved in different stages. In his earlier years, Dewey was influenced by Hegelian idealism, but after 1904, his progressive education formally took shape (Baker,

1965:v). Paringer (1990) reveals that Dewey's social theory consists of the four pillars, particularly as regarding educational practice: "democracy", "science", "nature", and "experience" (p.3) in which liberal democracy is the theory's central concern (Dewey, 1966).

Although Dewey's philosophy of education is a compromise between the two traditions of the Enlightenment and Romantic movements, he strongly endorses the Enlightenment tradition (Rothblatt, 1993:51). The first two pillars, democracy and science, for example, are directly rooted in the tradition of the Enlightenment movement. The last two pillars, nature and experience, however, are from the tradition of the Romantic Movement, especially Rousseau (Baker, 1965:2). Significantly different from conservative tradition of liberal education, the foundation of Dewey's liberal education is based on modern liberalism in which individualism is the driving force (Dewey, 1966:91-9). To clarify his philosophical foundation, he wrote the book Individualism Old and New in 1930. Dewey's philosophy of education was also influenced by Henry James' pragmatism (Russell, 1945). In this connection, it is not surprising that Dewey's educational theory is criticised as utilitarianism. However, Dewey is not an absolute utilitarian, because he does hold Plato's philosophy of education, mainly his knowledge of ends and his universal education, in high regard (p.88-91). From the beginning, Dewey named his education as liberal education. According to Dewey's liberal education, the individual should be liberated from feudal authoritarianism and religion, to implement the

principles of democracy and science. Nevertheless, his version of liberal education consists of the tradition of the Enlightenment, and it is distinctly different from Plato's liberal education.

3.3.2 Criticism

Dewey's progressive education has had a significant impact on modern education, but has also received a great deal of criticism. It seems that the controversy is rooted in his unique standpoint, which tries to reconcile extreme positions of education (Dewey, 1953). Nonetheless, Dewey's conciliatory position invites criticism from the left and right. From the left, Paringer (1990) rejects the premise of the "natural" in Dewey's theory of liberal education, and asserts that Dewey's premise conveys an ideological commitment which assumes that the existing capitalist system is natural (p.4). From the right, Bloom (1987) accuses Dewey of educational utilitarianism, lack of moral education, and a pro-business tendency. In many cases, the conservatives thought that criticising Dewey's progressive education was equal to attacking current education practice, which was assumed to be shaped by Dewey's pedagogy. From the perspective of risk society, Dewey's progressive educational model shares basic assumptions with the theory of modernisation, because supporting social development and economic growth (without risk concerns) was frequently discussed in his major works (Dewey, 1909, 1966, & 1980). As one of the legacies of industrial society, Dewey's liberal education and his notion of

linear progress, challenged by history itself, are grounded in a thorough review of the philosophical underpinnings of contemporary educational discourse (Paringer, 1990:vii).

John Dewey's legacy gives us another reason to divide FOS as liberal and vocational orientations. However, this does not mean we will classify Dewey as belonging in either the liberal or vocational camp. It is understood that his pedagogy stands in the mid-point between these two extremes, and belongs to the legacies of the industrial society.

3.4 Contemporary Debates over Liberal Education

A heated recent debate about liberal education in universities seems largely focused on a single question: Should universities provide students with job related skills? Obviously, there is no simple answer to this question. People who advocate liberal education claim nonetheless that the current educational practice in Ontario makes liberal education bankrupt (Emberley & Newell, 1993). Bloom (1987) insists utilitarianism and relativism in education are the major causes of the crisis in liberal education. Those who are in favour of vocationalism, however, suggest that we need to rethink vocational education (Coulter & Goodson, 1993) so that the skills possessed by post-secondary graduates match the labour market (Evers & O'Hara, 1996). A pluralist approach tries to bridge the two extremes, and suggests that academic and vocational education be integrated (Stasz et al., 1994).

Again, the question of what liberal education is comes up as the main concern.

Bloom (1987) contends that liberal education should answer the question: “What is man?” Along with this question, he gives the following definition:

a liberal education means precisely helping students to pose this question to themselves, to become aware that the answer is neither obvious nor simply unavailable, and that there is no serious life in which this question is not a continuous concern (p.20-1).

Humanity is one of the core concerns of Bloom’s remarks. Along with this central concern, liberal education is closely affiliated with liberal arts education. Crimmel (1993) narrowly defines liberal education as liberal arts which includes language, philosophy, history, literature, and abstract science (p.116). Of course, liberal arts education is becoming important in the risk society, because it deals directly with human beings and society at large, but it is a part, not the whole, of liberal education.

From an epistemological perspective, conservative liberal education stresses learning for the love of learning, and vocational education emphasises learning for its mastery of skills. However, not every proponent of liberal education denies skills learning as a means, but argues that liberal education should serve the ends of human society. If the aim of education is to exclusively prepare students with specific skills, then such an education would make students blind on broader issues and impair their creativity. Referring to this theme, Emberley and Newell (1993) define liberal education as a balanced education that emphasises the wholeness, not the fragmentation of a person.

The core of vocational education, which assumes that work is a necessary part of the most meaningful lives, is that education must serve the labour market and reflect its changes. Material and spiritual production can only be conducted through working. Like the conservative tradition of liberal education, people who advocate vocational education do not deny the value of knowledge, but they argue that the knowledge has to be useful to be worth the time spent studying. The first step of learning must start from practice which produces marketable skills, and not until the second step will knowledge be advanced through practice. Therefore, those who work in the area of vocational training appeal for a liberal vocational education (Silver & Brennan, 1988). People who investigate the education of engineers suggest that this must go beyond utility (Moulakis, 1994). These seemingly contradictory arguments reflect a deep concern over *ad hoc* vocational education.

The debates on liberal education have been misunderstood by both conservatives and progressives and expressed through their uncompromising approaches. Rothblatt (1993) suggests that

there is no subject that cannot be taught illiberally, no subject that cannot be taught liberally. The philosophical and sociological as well as psychological implications of virtually any subject can be drawn out and developed to a point where they meet the broad requirements of a liberal education (p.64).

The importance of this argument is that it theoretically breaks down the traditional boundaries built in between liberal and vocational education.

The two conflicting education models could be reconciled, if we carefully probe the dynamic changes in knowledge and skill structures. It is understood that both knowledge and skills are stratified from abstract to specific, from philosophy to concrete working skills. The boundaries between knowledge and skills are either intermittently or continuously changed over time via the development of human intelligence. We cannot, as Plato suggested, reject all empirical accomplishments as a part of our knowledge while the gap between knowledge and skills has been considerably shrinking in an information age. Furthermore, knowledge and skills are mutually transmittable, which would prevent people from drawing an absolute line between them. Finally, if we mechanically follow Plato's instruction of "only knowledge is teachable", then most departments of universities would be closed forever.

Lifelong employment in a single job is becoming increasingly unrealistic in most industrialised countries. In the past decades many people have changed their employment/job title frequently (Anisef et al., 1995). To accommodate changes in occupation, generic training is more important than specific skills learning for the majority of the population (Gellner, 1983:27). The assumption is that anyone who has completed the generic training common to the entire population can be retrained for most other jobs without too much difficulty (Gellner, 1983:28). Work, in the information age, does not mean moving matter. The paradigm of work is no longer the manipulation of things, but of meanings. It generally involves exchanging communications with others, or

manipulating the controls of a machine. Gellner's generic training argument supports an embedded liberal education, which bridges the gap between conservative and progressive tradition of liberal education. Generic training is not the path for professionals, as Gellner (1983) observes that skill training has prestige only at the end of the educational process, if it constitutes a completion of a prolonged previous unspecialised education.

Specialised schools intended for a younger, earlier intake, have negative prestige (p.27). Thus, students who study medicine and law in university have prestige, but job training received by workers after high school displays a negative impact on their life course.

The above discussions about the relationship between liberal and vocational education – between knowledge and skills -- have reinforced the rationale for dividing FOS choice into liberal and vocational categories while we study how university students have responded to the new economy and changing workplace.

In brief, Chapter Three examined the debate over liberal and vocational education from an historical perspective. Plato's liberal education was explored in relation to social conditions in Ancient Greece that gave meaning to a distinction between those pedagogies emphasizing the teaching of abstract knowledge (principles) and those emphasizing application skills. Two modern intellectual movements, Romanticism and Enlightenment, also were investigated. The former underlies a conservative interpretation of liberal education while the latter is consistent with a pragmatic interpretation. Finally,

contemporary liberal-vocational debates were reviewed as derivatives of these movements.

Chapter Four

Data Description and Research Methods

This chapter lays the groundwork for the rest of the dissertation, and begins with a description of survey information, then raises relevant research questions, and follows with a description of research methods. The final part gives a detailed description of each variable used in this study.

4.1 Data Source

The empirical analysis of the dissertation is built on responses from 1992 National Graduate Survey (NGS) of 1990 graduates. The following sections will briefly describe the data source and its limitations.

4.1.1 National Graduate Survey (NGS)

On behalf of Human Resources Development Canada, Statistics Canada conducts the NGS to learn about graduates' labour market experiences after graduation. Along with early labour market experiences, the surveys gather a wealth of information on education training, personal characteristics and earning estimations. In June 1992, 36,000 randomly selected 1990 graduates were interviewed by telephone two years after graduation.

Similar surveys of 1982 and 1986 graduates were also conducted. The resulting research sharpens the focus on evaluating the existing post-secondary education system and ascertaining the accountability of the universities (Little, 1995). Different from the original objectives of the surveys, this project seeks to explore the question of how university students have responded to a changing workplace through the FOS selection they have made. As well, their monetary and non-monetary returns as the consequences of their FOS selection will be explored.

4.1.2 Sample Selection and Data Limitation

Sample selection

NGS are broadly based and comprehensive surveys in which three cohorts of post-secondary graduates, university, college and trade vocational schools, are included in each phase. Limited by resources, this dissertation is restricted in several aspects of utilising the data set. First, one of the surveys, NGS 1990, will be used to explore how university students have responded to a changing workplace by selecting their FOS. Second, the original data set includes graduates from trade-vocational schools, colleges, and universities. This study focuses on university graduates, excluding the graduates from the other institutions. Third, university education in Canada has become a mass public education system; however, this assessment is not applicable to graduate programs.

Because the research did not yield evidence to support the claim that graduate education (e.g., Master's and Ph.D. programs) has become mass education, we excluded students who had graduated from Master's and Ph.D. programs. Only those who obtained bachelor degrees in Canadian universities are the subjects of this study. As a result of these restrictions, the weighted sample size¹ for NGS 1992 is 107,951.

Data Limitation

The entire study is based on a secondary analysis of the NGS with associated advantages and limitations. There are several advantages. First, the NGS is a representative survey of Canada, allowing us to explore nation-wide issues. Second, by asking hundreds of questions, the surveys contain abundant information about university graduates that can serve multiple purposes (e.g., how university graduates have responded

¹ **A.** The NGS uses a stratified systematic random sample design, with a difference in sampling fractions between strata. Thus, some areas are over-represented in the sample (relative to their population) while some other areas are relatively under-represented. This means that the unweighted sample is not representative of the target population. The survey weights must be used when producing estimates or performing analyses in order to account for this over- and under-representation (Statistics Canada: Guideline for Analysis, 1982 and 1990). Accordingly, all data analyses in this study are based on weighted samples. **B.** For inferential statistics, a normalised weight is used, so that an individual's statistical weight is normalised by dividing his/her weight by the average weight of all individuals. Consequently, the sum of the normalised weights is equal to the actual sample size.

to the risk of the labour market via their selection of educational programs). Third, it is widely believed that the surveys of Statistics Canada are under-utilised (Canadian Initiative on Social Statistics: A Joint Project of SSHRC and Statistics Canada, 1999). By conducting secondary analyses, this study maximises the existing resources effectively as well as efficiently.

However, some disadvantages are inevitable when conducting secondary analysis. Whenever research is based on an analysis of data that already exists, it is obviously limited to what exists. Any incomplete information is not retrievable in the public data files. As well, the surveys were not designed for the purposes of this study. Therefore the content validity² of measurements must be carefully handled. Restrictions imposed by Statistics Canada for the purposes of confidentiality can partially suppress important variables, such as occupation. This sets limits on testing some key hypotheses. Moreover, special care must be taken to handle the variables with missing values; recoding will be given while reconstructing these variables. As a consequence of these limitations, any conclusions related to the “defective” variables must be cautiously treated.

² Content validity refers to the degree to which a measure covers the range of meanings included within the concept (Babbie, 1992:133).

4.2 Research Questions and Research Methods

Objectives

One objective of this dissertation is to investigate how university students cope with risk to enhance their educational returns. Underlying this objective is the contention of the study that involves theoretical examination and policy implication. The theory contains the notions of structure and agency, and the policy involves the debate between liberal and vocational education. In the university setting, we are actually dealing with two situations. The first situation is the school-to-school transition (university entry). Antecedent coping strategies optimise the FOS choice, and contemporaneous coping strategies enhance the value of the FOS choice during a four-year study. The second situation is the school to work transition two years after graduation. The management of risk associated with the FOS choice is examined by returns from labour market as well as personal satisfaction. Finally, the subsequent coping strategies, (continuing education after graduation, for example) endure lifelong learning to better survive the risk society.

Research Questions

Conceptually, two major questions are asked in this study. First, how, by the selection of FOS, university students reflect their responses to a changing economy?

Second, what have been the outcomes of FOS selections? To evaluate these two questions, I am operationally dividing them into the following five parts.

Part 1: Establishing the FOS-LMO Link

Question one: Do labour market outcomes for graduates differ for those who chose a FOS classified as 'liberal education' or 'vocational education'?

The rationale for this question is that risk (including both opportunity and danger) is associated with the FOS choice. Hence, FOS choice is regarded as a process of risk taking. The underlying assumption is that LMO and personal returns represent realised FOS choices, and the FOS reflects these potential outcomes and returns. In this regard, a bi-variate analysis will be conducted, which treats FOS choice as an independent variable, employing LMO as dependent variables. The null-hypothesis H_0 is that those who studied in both vocational/professional and liberal fields would have similar labour market outcomes. The results of the null-hypothesis test will determine whether the alternative hypothesis H_1 should be accepted: that is, those who study in vocational/professional fields are less likely to experience negative LMO than those who studied in liberal fields. If there is a relationship between educational choice and LMO, it is reasonable for us to continue with the analysis of evaluating the role of personal agency in choosing FOS.

Part 2: Assessing the Role of Agency in FOS Choice

Question two: What is the relative influence of structure and agency factors on FOS choice?

Question three: Do structural factors differ between those who choose to enrol in a liberal area as opposed to a vocational FOS?

Question four: Do antecedent coping strategies differ between those who choose to enrol in a liberal education as opposed to a vocational FOS?

All three questions try to identify the relative influence of structure and agency on FOS choice (where agency variables are antecedent to FOS choice). It is hypothesised that although the FOS choice is influenced by both social structure and personal agency, agency exerts its impact in responding to the new economy, changing workplace and risk society. To examine the relationships of how social structure and personal agency influence the FOS choice, a multivariate analysis will be developed. Specifically, a logistic regression will be conducted in which FOS choice is the dichotomous dependent variable, and social structure and personal agency are independent variables. For the purpose of elaboration, a series of bi-variate and multivariate analyses will be conducted (see Table 4.3 and 4.4 in Chapter 4) to assess the specific impact of social structure and personal agency.

Part 3: Comparing Agency Variable Profiles of Liberal and Vocational Groups

Question five: Do graduates who choose liberal or vocation FOS differ in their risk management strategies after enrolment?

University students enter the second stage after they have chosen their FOS. Then the question is concerned with whether FOS choice indicates different risk management strategies after enrolment? (Table 4.5). The hypothesis is that graduates from liberal fields adopt different strategies than those who graduated from vocational filed. A multivariate crosstabulation will be conducted to address the question.

Part 4: Assessing the Role of Agency in Determining LMO

Question six: What is the relative influence of structure and agency factors on LMO for graduates who choose liberal or vocational FOS?

Question seven: Are relationships between agency factors and LMO mediated by FOS?

Question eight: Are relationships between structural factors and LMO mediated by FOS?

Question nine: What is the relative power of agentic and structural factors in this mediated relationship, stated in question seven and eight?

To assess the relative influence of structure and agency on LMO, a series of (linear and logistic) regressions will be conducted (Table 4.6). The regressions will be divided into two models. The first model contains only structural variables and the second

model contains both structural and agentic variables. In this way, the increments, if any, in the explanatory powers of the models can be attributed to agentic components. If the agentic variables play an important role in influencing LMO, we would assess the agency factors first (see question seven). Having emphasised the importance of personal strategies of coping with risk, we also examine structural factors in assessing the relationships between structural factors and LMO mediated by FOS (see question eight). Question nine asks what is the relative power of agentic and structural factors in the mediated relationship described in previous questions. Most of the data analyses in this part will be bi- or multivariate crosstabulations.

Part 5: Comparing the Employment Relevance of Liberal and Vocational FOS and the Educational Satisfaction Derived by Each Group

Question ten: Are the skills acquired in a liberal FOS more relevant to the respondent's current employment than those acquired in a vocational FOS?

Question eleven: Are graduates of a liberal FOS more satisfied with their programme than are graduates of a vocational FOS?

In this final section of the data analyses, we try to bridge two parts, education and outcomes (monetary and non-monetary). Then, question ten asks: Are the skills acquired in a liberal FOS more relevant to the respondent's current employment than for those

Table 4.1 Research Questions and Research Methods

Part	Question	Method
Part 1: Establishing the FOS-LMO Link	1. Do LMO for graduates differ for those who chose a FOS classified as 'liberal education' or 'vocational education'?	Bi-variate analysis
Part 2: Assessing the Role of Agency in FOS Choice	2. What is the relative influence of structure and agency factors on FOS choice? 3. Do structural factors differ between those who choose to enrol in a liberal area as opposed to a vocational FOS? 4 Do antecedent coping strategies differ between those who choose to enrol in a liberal education as opposed to a vocational FOS?	Logistic regression, Multivariate crosstabulation
Part 3: Comparing Agency Variable Profiles of Liberal and Vocational Groups	5. Do students who chose liberal or vocation FOS differ in their risk management strategies after enrolment?	Logistic & linear regressions, Multivariate crosstabulation
Part 4: Assessing the Role of Agency in Determining LMO	6. What is the relative influence of structure and agency factors on LMO for graduates who chose liberal or vocational FOS? 7. Are relationships between agency factors and LMO mediated by FOS? 8. Are relationships between structural factors and LMO mediated by FOS? 9. What is the relative power of agentic and structural factors in this mediated relationship, stated in question seven and eight?	Multivariate crosstabulation
Part 5: Comparing the Employment Relevance of Liberal and Vocational FOS and the Educational Satisfaction Derived by Each Group	10. Are the skills acquired in a liberal FOS more relevant to the respondent's current employment than those acquired in a vocational FOS? 11. Are graduates of a liberal FOS more satisfied with their programme than are graduates of a vocational FOS?	Multivariate crosstabulation

respondents who have chosen a vocational FOS? As a self-assessment of university education, the final question asks whether graduates of a liberal FOS are more satisfied with their programme than are graduates of a vocational programme. Table 4.1 summarises the research questions and methods in this dissertation.

4.3 Case Selection and FOS Classification

4.3.1 Case Selection

As described in the previous sections, only university graduates in the NGS are analysed in this study. Hence, selecting cases from NGS is the first step toward the data analysis. To select the study sample, the first variable used as a criterion for case selection is “Certlev”; “Revised 1990 level of certification” (Table 4.2). The result is that only graduates with a bachelor certificate are selected.

Table 4.2 Variables Used for Data Selection

Variable Name	Question	Recoding
<i>Certlev</i>	<i>Revised 1990 level of certification, to take into account respondent corrections from a04 to data supplied by institutions.</i>	
<i>Respfos</i>	<i>Major field of study code for the studies completed in 1990, as agreed to by respondents at the time of interview.</i>	<i>Strata4 Starat5</i>

To make the research comprehensible, we did not include every graduate with a bachelor degree. Instead, we selected the variable “Respfos”, “Major field of study code

for the studies completed in 1990” as a secondary criterion for filtering the data and selecting cases. As a result, liberal or vocational FOS is specifically linked to university programs. In other words, the classification of FOS is reasonably accurate and whether the program is liberal or vocational, the field is clearly understood.

4.3.2 Classification of Field of Study

It should be noted that most researchers directly use the variable “FOS” from Statistics Canada³. However, the FOS variable doesn’t reflect the liberal/vocational program orientations previously discussed (Walker, 1998). For example, the category “Fine Arts and Humanities” typically subsume the fields “fine arts”, “applied arts”, “English literature”, “translation” which generally are considered to be examples of liberal education programs. However, “applied arts” and “translation” are actually vocational fields in that they are more obviously related to actual areas of work. To more clearly reflect these instrumental differences, the various FOS were assigned to either Liberal or Vocational categories in two stages. Table 4.3 lists the initial divisions that involve: (1) Education, (2) Liberal Arts and Social Sciences, (3) Applied Arts and Social

³ FOS is usually classified as Education, Fine Arts, Humanities, Social Sciences, Commerce, Agriculture/Biology, Engineering, Nursing, Other Health, Math/Physical Science.

Sciences, (4) Liberal Sciences, and (5) Applied Sciences. These were further regrouped, such that (1) and (2) comprised the Liberal Education category; and (3), (4), and (5) were

Table 4.3 Classification of Liberal and Vocational Education

Liberal		Vocational		
I. Liberal Arts /Social Sciences	II. Liberal Sciences	III. Education	IV. Applied Arts /Social Sciences	V. Applied Sciences
<ul style="list-style-type: none"> 1) <i>Fine Arts</i> 2) <i>Music</i> 3) <i>English Literature</i> 4) <i>History</i> 5) <i>Philosophy</i> 6) <i>Economics</i> 7) <i>Geography</i> 8) <i>Political Science</i> 9) <i>Psychology</i> 10) <i>Sociology</i> 	<ul style="list-style-type: none"> 1) <i>Biology</i> 2) <i>Math</i> 3) <i>Chemistry</i> 4) <i>Physics</i> 	<ul style="list-style-type: none"> 1) <i>Elementary/ Secondary Teacher</i> 2) <i>Post Secondary Education Teacher</i> 3) <i>Kindergarten teacher</i> 4) <i>Physical Ed</i> 	<ul style="list-style-type: none"> 1) <i>Business;</i> 2) <i>Law</i> 3) <i>Applied Arts</i> 4) <i>Translation</i> 5) <i>Social Work</i> 6) <i>Religious Study</i> 7) <i>Theology</i> 	<ul style="list-style-type: none"> 1) <i>Architecture</i> 2) <i>Engineering</i> 3) <i>Dentistry</i> 4) <i>Medicine</i> 5) <i>Nursing</i> 6) <i>Pharmacy</i> 7) <i>Computer Science</i>

combined to make up the Vocational category. The vocational category is broadly equated with professional education. In addition to the obviously 'applied' FOS, the vocational category includes some post-baccalaureate FOS. For example, medicine requires a bachelor's degree as a prerequisite to enrolment. In the case of engineering, nursing, and education, however, liberal education courses often are taken concurrently. Either concurrently or sequentially, an instrumental component has been added to the students' repertoire of skills and thus serves to define membership in the vocational category.

4.4 Description of Variables

The dissertation assesses the relative impact of social structure and personal agency on FOS choice and educational investment returns. To serve these objectives, the variables are divided into four groups: social structure, strategies of coping with risk, labour market outcomes, and educational returns.

4.4.1 Social Structure Variables

Table 4.4 describes the variables that are defined as social structure. As extensively seen in the literature in recent decades (Smith, 1997), “gender” is the variable

Table 4.4 Variables of Social Structure

Variable Name	Question	Recoding
<i>Sex</i>	<i>Sex of respondent.</i>	
<i>Gradeage</i>	<i>Derived variable representing age in completed years at the time of completion of reference year studies</i>	<i>Age2</i>
<i>Visbmin</i>	<i>Derived variable indicating whether the respondent has identified himself/herself as a member of a visible minority ethnic or racial group, as defined by Interdepartmental Agreement in the spring of 1992 .</i>	
<i>Mothed90</i>	<i>Mother's education level relative to the graduate's level at the time of graduation in 1990.</i>	
<i>Fathed90</i>	<i>Father's education level relative to the graduate's level at the time of graduation in 1990.</i>	
<i>Prres</i>	<i>The main region of residence of the graduate during the 12 months before enrolling in the program he/she graduated from in 1990.</i>	<i>region</i>

used as an indicator of individual social structural position. The second variable, “gradeage”, is a “derived variable representing age in completed years at the time of

completion of reference year studies.” Instead of highlighting age as a continuous variable, we want to identify university graduates who went to university at normal age (24 years of age or younger) as opposed to those who attended as mature students (25 years of age and up). Therefore, the age variable is recoded as the variable “age2” which contains two attributes, “24 years of age or younger” (normal), and “25 years of age or older”. The third variable, “Visbmin,” represents a “derived variable indicating whether the respondent has identified himself/herself as a member of a visible minority ethnic or racial group”. After exploring the biologic (mixed with social) traits, this study tries to identify the influence of social and cultural capital which may influence the educational choice and labour market outcomes. Unfortunately, there is no information about parents’ income and occupation in this data set. Instead, parents’ educational attainments will be used as one of the main components of social and cultural capital. Hence, “Moth90” and “Fath90” are introduced, to indicate “mother and father’s education level relative to the graduate’s level at the time of graduation in 1990.” “Prres” is the last variable referring to individual social structural positions, which represents “the main region of residence of the graduate during the 12 months before enrolling in the program he/she graduated from in 1990”.

4.4.2 Agency Variables

The second set of variables refers to the strategies university students employed when coping with risk. The coping strategies are divided into two parts according to the

time sequence of antecedent or contemporary enrolment in the university program. Table 4.5 shows the pathways where students entered universities. The first variable, “Edbefor,” is “a recoding of the highest level of studies completed before [student] enrolled in the university program”, and indicates if the students have post-secondary education before entering university. Geographic mobility is a common practice among Canadian university students, and “Mig” is the variable which indicates “the type of inter-

Table 4.5 School to School Transition Pathway Variables

Variable	Question	Recoding
<i>Edbefor</i>	<i>A recoding of the highest level of studies completed before enrolled in the university program.</i>	<i>Edbefo2 Edbefor4</i>
<i>Mig</i>	<i>Derived variable indicating the type of inter-provincial migration to take the studies that the respondent graduated from in 1990.</i>	<i>Migadd</i>
<i>b03</i>	<i>During the 12 months before you enrolled in the program, what was your major activity?</i>	<i>b03add2</i>
<i>g34</i>	<i>Did you ever borrow money to finance any of your education through the student loan program?</i>	

provincial migration the respondent took to follow the studies graduated from in 1990.” Different from region of origin, this mobility reflects the motivation of pursuing university education. Working is part of student lives in Canada at both high school and post-secondary education levels. In this regard, “B03” refers to the question of “during the 12 months before you enrolled in the program, what was your major activity?” While the question includes a variety of activities, we are mainly concerned if the activities are linked to employment which may affect university program selection. Therefore, the question is further collapsed as two categories, “work” and “not work”. G34 is the

question, “Did you ever borrow money to finance any of your education through the student loan program?” In exploring the question, we try to identify if a different way of financing university education would affect FOS choice.

As the second part of the coping strategies, the variables referring to the periods within or after university graduation are introduced. Table 4.6 shows how university students take a second major, participate in a co-op program, study part time, work full

Table 4.6 Variables Associated with Strategies of Coping with Risks

Variable	Question	Recoding
<i>a08a</i>	<i>Did you have any other major field of study or specialisation for your program in 1990?</i>	
<i>a18</i>	<i>Did you take a co-op program?</i>	
<i>a11</i>	<i>Did you take the program part time or full time?</i>	<i>All add</i>
<i>b8</i>	<i>Before you completed this program, did you ever work full time? That is usually 30 or more hours a week.</i>	
<i>g29</i>	<i>Since you completed this program in 1990, have you completed any other university, college or trade-vocational degree, diploma or certificate programs? Do not include apprenticeship programs.</i>	

time, and continue education to respond to the changing workplace. Accordingly, “A08a” refers to the question “Did you have any other major field of study or specialisation for your program in 1990?”; “A18” asks “Did you take a co-op program?”; “A11” inquires “Did you take the program part time or full time?”; and “B8” asks “Before you completed this program, did you ever work full time?” Last, Q29 asks “Since you completed this program in 1990, have you completed any other university, college or trade-vocational degree, diploma or certificate programs?”

4.4.3 Outcome Variables

The third set of variables is the outcomes or returns of the university education investment. The outcomes are in two separate parts, labour market returns and education outcomes. Table 4.7 demonstrates the labour market outcomes. Variable “lfstat3” is a “derived variable of labour force status from June to July, 1992,” which indicates that the graduate was employed, unemployed, or not in the labour force. “Lwj6ft,” a “derived variable which represents whether the main last week job had been held for six months

Table 4.7 Variables of Labour Market Outcomes

Variable	Question	Recoding
<i>Lfstat3</i>	<i>Derived variable of labour force status “last week” (I.E. June-July, 1992).</i>	
<i>lwj6ft</i>	<i>Derived variable indicating whether the main last week job had been held for six months full time.</i>	
<i>c22</i>	<i>Is this a permanent or temporary position</i>	
<i>Unempmos</i>	<i>The total number of months the graduate was unemployed between the end of reference year studies and June 1992.</i>	<i>unemploy</i>
<i>Lwjjanrpy</i>	<i>Last week job annual rate of pay. Derived variable indicating the annual rate of pay at the last week job.</i>	<i>income</i>
<i>c30</i>	<i>Considering all aspects of the job you had last week, how satisfied were you with the job?</i>	<i>c30add</i>

full time,” reveals job stability. “C22” queries “Is this a permanent or temporary position?” which indicates job continuity. “Unempmos” is a derived variable that represents “the total number of months the graduate was unemployed between the end of reference year studies and June 1992.” Insofar as the main concern of the study is long-term unemployment, the variable is recoded as the dichotomous variable “unemploy,” which indicates if the graduate was unemployed in a longer term perspective. “Lwjjanrpy”

is a “derived variable indicating the annual rate of pay at the last week job”. The last variable “c30” indicates overall job satisfaction.

4.4.4 Relevance of Education and Work

The last set of variables is the relevance of education and work that includes educational returns and the relationships between education and work. Specifically, variable g10, g13 and g14 in Table 4.8 indicate the educational return referring to job

Table 4.8 Variables of Educational Outcomes

Variable	Question
<i>g10</i>	<i>To what extent do you feel your program provided you with the skills needed for a particular job?</i>
<i>g11</i>	<i>To what extent do you feel your program provided you with an in-depth knowledge of a field of study?</i>
<i>g12</i>	<i>To what extent do you feel your program provided you with an opportunity to improve yourself generally?</i>
<i>g13</i>	<i>To what extent do you feel your program provided you with improved chances of a good income?</i>
<i>g14</i>	<i>To what extent do you feel your program provided you with knowledge about career opportunities in your field of study?</i>
<i>g15</i>	<i>To what extent did your program develop your skills in writing well?</i>
<i>g16</i>	<i>To what extent did your program develop your skills in speaking well?</i>
<i>g17</i>	<i>To what extent did your program develop your skills in thinking independently?</i>
<i>g18</i>	<i>To what extent did your program develop your skills in making decision?</i>

related skills. The questions asked are “To what extent do you feel your program provided you with the skills needed for a particular job?” (g10); “To what extent do you feel your program provided you with improved chances of a good income?” (g13); “To what extent do you feel your program provided you with knowledge about career

opportunities in your field of study?” (g14). The questions g11 to g12, and g15 to g18 indicate those educational returns that reflect general employment skills. The questions are “To what extent do you feel your program provided you with an in-depth knowledge of a field of study?” (g11); “To what extent do you feel your program provided you with an opportunity to improve yourself generally?” (q12); “To what extent did your program develop your skills in writing well?, in speaking well?, in thinking independently?, and in making decision?” (g15-g18).

Table 4.9 describes the relationships between education and employment status. Underemployment or education and job mismatch underpins all these variables. “Rellwj” is a derived variable that indicates “the relationship of studies completed in 1990 to the

Table 4.9 Variables of Relevance of Education and Work

Variable	Question
<i>Rellwj</i>	<i>The relationship of studies completed in 1990 to the last week job, in respondent's opinion.</i>
<i>c29</i>	<i>In this job, to what extent did you use any of the skills and knowledge acquired from the program?</i>
<i>jobq190</i>	<i>The completed level of education needed to get the last week job, compared with the highest level of qualification of the graduate at graduation in 1990.</i>
<i>g19</i>	<i>Given your experiences since completing the program in 1990, would you have selected the same FOS or specialisation?</i>

last week job according to respondent’s opinion”. There are three attributes: (1) job directly related to FOS; (2) job somewhat related to FOS; and (3) job not at all related to FOS. Question “c29” further queries “In this job, to what extent did you use any of the

skills and knowledge acquired from the program?” The variable “jobql90” refers to “the completed level of education needed to get the last week job (i.e., the job held by graduates before interview during the periods of June-July, 1992), compared with the highest level of qualification of the graduate at graduation in 1990”. The last variable g19 asks “Given your experiences since completing the program in 1990, would you have selected the same FOS or specialisation?”

Chapter Five

Risk Management and Educational Choice

This chapter presents the empirical analyses and results of the model of FOS choice and its outcomes. To answer the research questions raised in Chapter Three, the first part of this chapter tries to establish the link between FOS choice and labour market outcomes. After the linkage is established, the rest of the chapter deals with the question of how social structure and personal agency affect FOS choice, and how FOS choice affects the graduates' outcomes. The relevance of education and employment will be discussed in the last part of the chapter.

5.1 FOS Choice and Labour Market Outcome

The initial enquiry tries to establish a link between FOS and labour market outcomes and starts from the question: "Do LMO for the liberal graduates differ from the vocational graduates?" To measure LMO, six indicators are used, which include employment status, job stability, job continuity, long-term unemployment experience, annual job income, and job satisfaction.

By using bi-variate crosstabulations¹, Table 5.1 demonstrates that FOS choice did

¹ To correct for the dependence of Chi Square values on sample size, phi coefficients

in most cases have a significant impact on the initial LMO of 1990 graduates. When examining the most frequently used indicator of LMO --employment status-- we found that the liberal graduates have a slightly higher unemployment rate (10.8%) than those who have graduated from vocational education (9.0%), and more liberal graduates (7.1%) than vocational graduates (5.4%) are not in the labour force. In terms of job stability, liberal arts graduates are more at risk of being employed on a short-term contract basis (29.1%) than those vocationally educated graduates (21.6%). As regards job continuity, however, the graduates from liberal fields are more likely to have permanent positions (75.3%) than those from vocational fields (72.7%). As described in Chapter Two, unemployment is a common experience in developed countries, a situation from which university graduates are not excluded. For instance, two years after graduation, 28.2% of the 1990 university graduates in Canada have been unemployed at least once. Liberal education graduates are more likely to experience unemployment (almost three in ten, 29.9%) than graduates from vocational education (one in four, 25%). Furthermore, there exists a significant income gap of 13% (\$4,152) between the two FOS groups. The average annual job income is \$28,82 for the graduates from liberal programs, and \$32,973 for the graduates from vocational programs. This difference may be explained in part by the fact that some of the vocational categories such as medicine lead to employment in particularly well remunerated jobs. Overall, the 1990 graduates are very

were calculated.

satisfied with their jobs: 49.2% of them are very satisfied, 41.2% satisfied, and less

Table 5.1 Educational Choice and Labour Market Outcomes (count columns)

FOS	Liberal	Vocational	
Variables	%	%	Row Total
Labour force status last week (June-July, 1992).			
<i>Employed</i>	82.2	85.4	68151
<i>Unemployed</i>	10.8	9.0	8184
<i>Out of the labour force</i>	7.1	5.6	5259
Column Total	46757	34837	$X^2=149, df=2, p<.00, \phi=.043$
Did last week's job last 6 months of full time?			
<i>Yes</i>	70.9	78.4	50496
<i>No</i>	29.1	21.6	17564
Column Total	38306	29754	$X^2=496, df=1, p<.00, \phi=.085$
Is this a permanent or temporary position?			
<i>Permanent</i>	75.3	72.7	47833
<i>Temporary</i>	24.7	27.3	16663
Column Total	35858	28638	$X^2=55, df=1, p<.00, \phi=.029$
Have you been unemployed since graduation in 1990?			
<i>Yes</i>	29.9	24.9	19700
<i>No</i>	70.1	75.1	51361
Column Total	39997	31064	$X^2=222, df=1, p<.000$
Annual rate of pay at the last week's job (June-July, 1992)			
<i>Mean</i>	\$28821	\$32973	Differ \$4152
<i>Standard Deviation</i>	\$12901	\$12203	
Column Total	34205	27419	$F=1653, p<.00$
Consider all aspects of the job you had last week, how satisfied were you with the job?			
<i>Very dissatisfied</i>	3.6	1.9	1944
<i>Dissatisfied</i>	8.6	4.3	4607
<i>Satisfied</i>	45.0	35.7	27975
<i>Very satisfied</i>	42.8	58.1	33803
Column Total	38455	29874	$X^2=1778, df=3, p<.00, \phi=.161$

than 10% either are dissatisfied or very dissatisfied with their jobs. However, vocational

education graduates tend to be more satisfied with their jobs than liberal education graduates. In brief, among six indicators of LMO, five of them favour vocational graduates. Therefore, a link between FOS choice and labour market outcomes has been established.

5.2 Social Structure, Personal Agency, and FOS Choice

The existing relationship between FOS choice and LMO provides us with a rationale to further explore the forces behind FOS choice and LMO. In this regard, social structure and personal agency are introduced to measure the influence. As described previously, social structural positions are measured by gender, age, ethnicity, parents' education, and region of origin. Personal agency (antecedent) is represented by the following four variables: (1) if there is a post secondary education experience before entering a university program; (2) if the individual moves out or stays at parental home to pursue education; (3) if the graduate has a student loan; and/or (4) if the individual has work experience. In addition to using these variables, we explored three questions related to personal agency: First, what is the relative influence of structure and agency factors on FOS choice? Second, do structural factors differ between those who choose to enrol in a liberal area as opposed to a vocational FOS? Third, do antecedent coping strategies differ between those who choose to enrol in a liberal education as opposed to a vocational FOS? To answer these three questions, a logistic regression was conducted as a

systematic way to explore the relationships. The detailed answers are provided by a series of crosstabulations.

5.2.1 Logistic Regression

To assess whether the introduction of personal agency results in an increment of the model's explanatory power on FOS choice, two separate logistic regressions were conducted. The first regression contains the structure variables, which exclusively identify the structure impact on FOS choice. The second regression contains both structure and agency variables which identify the increment of the agency variables. Table 5.2a suggests when agency variables are added to the model, we observe a substantial increment in the predictability of the model. Specifically, when the model of the logistic regression with FOS choice includes only structure variables, $\chi^2=75.4$. Once we add the agency variables, then $\chi^2=424.8$, with the increment of the chi-square being 349.4. The increment created by personal agency variables supports Beck's notion of individualisation, in which personal agency has more responsibility for the individual's destination.

Table 5.2a Increment of Agency Variables in the Logistic Regression with FOS Choice

Structure	Structure + Agency	Increment
$\chi^2=75.4$	$\chi^2=424.8$	349.4

Table 5.2b Logistic Regression for FOS with Social Structure and Personal Agency

Year		1990							
Independent Variable		Structure and Agency				Structure Only			
		B	S.E.	Sig	Exp	B	S.E.	Sig	Exp
<i>Gender</i>		.076	.050	.130	1.079	.049	.061	.586	1.027
<i>Age</i>		.016	.062	.794	1.016	-.250	.050	.000	.779
<i>Visible minority</i>		.370	.079	.000	1.448	.290	.077	.000	1.337
<i>Mother's education</i>	<i>Lower</i>	-.278	.144	.054	.757	-.129	.140	.355	.879
	<i>Same</i>	-.286	.153	.062	.752	-.190	.148	.199	.827
				.592				.385	
<i>Father's education</i>	<i>Lower</i>	.007	.093	.941	1.007	.004	.091	.968	1.004
	<i>Same</i>	.075	.100	.455	1.078	.094	.098	.335	1.099
				.000				.000	
<i>Region</i>	<i>Atlantic</i>	.030	.093	.752	1.030	.111	.090	.216	1.118
	<i>Ontario</i>	-.336	.066	.000	.715	-.274	.062	.000	.760
	<i>Quebec</i>	-.897	.086	.000	.408	-.061	.069	.372	.941
<i>Ed before this program</i>		-1.140	.067	.000	.320				
<i>Mover/Stayer</i>		-.474	.094	.000	.623				
<i>Having student loan</i>		.237	.051	.000	1.268				
<i>Worked Before</i>		-.180	.068	.008	.836				
<i>Constant</i>		.815	.163	.000		.029	.144	.839	

Notes:

(1) for the logistic regression model (structure only), $-2 \log \text{likelihood}=6175.8$, $\chi^2=75.4$, d.f.=10, $P<.00$, $n=6926$

(2) for the logistic regression model (structure and Agency), $-2 \log \text{likelihood}=5924.8$, $\chi^2=424.8$, d.f.=14, $P<.00$, $n=6895$

Table 5.2b presents the two logistic regressions for FOS, in which the partial model has only social structure variables, and the full model includes both social

structure and personal agency. Overall, the full model is statistically significant, in which $\chi^2=424.8$, $d.f.=14$, and $p<.00$. The analysis appears to support the notion that personal agency is more influential than social-structural factors in determining whether an individual chooses a liberal or vocational university education.

Among six social structural factors, only ethnicity and region of origin are significant; others (e.g., gender, age, and parent's education) are insignificant. The relative insignificance of the most structure features among university graduates who have chosen liberal or vocational education can be seen as a consequence of mass university education in Canada. It reflects that the university has been increasingly accommodating diversities of the population in terms of gender, age, and social class. Nevertheless, ethnicity and region of origin significantly influence the FOS choice. From the linkage between FOS choice and LMO, we observed that vocational education seems more likely to provide security of employment than liberal education (Table 5.1). To overcome racial background disadvantages, students with visible minority status are more likely to select vocational education ($b=.37$, $p<.001$, see also the coding scheme). Region appears to be a factor in FOS choice, as students from Ontario ($b=-.34$, $p<.00$) and Quebec ($b=-.90$, $p<.00$) are more likely to select liberal education than those from other regions. One possible explanation is that the well-known universities with strong liberal orientation are located in these two provinces.

In contrast to social structural variables, all predictors of personal agency are

significant in influencing students' choice of FOS. Specifically, students who have post-secondary education are more likely to select vocational education while those who have no such an experience prefer liberal education. This reflects the university practice in which many professional fields require a post-secondary degree for the entry (e.g., education, law, and medicine). As described earlier, liberal education tends to be abstract whereas vocational education tends to be specific. People who move out their home province are more likely to pursue liberal education whereas those who stay in their home provinces are likely study in vocational education². The FOS choice also reflects life experience, especially the respondents' experience in employment. As a consequence, the students who have work experience before the university program would be more likely to choose vocational education while those students with no such experience would be more likely to select liberal education.

In answer to the three questions raised at the beginning of this section, we observed that: (1) the agency factors have a stronger impact on FOS choice than structure predictors; (2) the structure factors differ between those who choose to enrol in a liberal area as opposed to a vocational FOS; and (3) antecedent coping strategies differ between

² It is understood that vocational graduates may be less mobile since the licensing requires them to remain in the province where they studied rather than to move freely between provinces, because each province has its own rules. However, the mobility variable developed here is antecedent to the entry of university program. Hence, the variable is unlikely to influence the mobility of vocational after their graduation.

those who choose to enrol in a liberal education as opposed to a vocational field.

5.2.2 Social Structural Position and Educational Choice

As a systematic method, logistic regression gives us a clear indication on how social structure and personal agency affect the FOS choice. To elaborate the influence of social structural and personal agency, this section provides a series of multivariate crosstabulations.

Table 5.3 demonstrates how gender, age, parents' education, ethnicity and region influence FOS selection³. Starting with gender, it was found that females (58.1%) are more likely than males (56.4%) to select liberal FOS. However, age does not appear to be very significant as an average age in both liberal and vocational fields is about 26. Turning to parent's education, a graduate whose mother has the same level of education as she/he has is more likely to be registered in a liberal field. However, a graduate whose mother has education higher than a bachelor's degree is more likely to choose a vocational area of study. There is no immediate explanation about this finding, which needs a further investigation in the future study; however, it appears that a well-educated mother is more likely to guide her children in the desired direction of a university education. A graduate whose father has the same education as she/he has is more likely to be registered in a vocational field, but children of fathers whose education is either higher

³ It should be noted that the variables that are not significant in the logistic regression are not necessarily insignificant in the following crosstabulation because of the sheer size of

or lower are likely to choose a liberal FOS. The factors which influence parents' support for liberal or vocational education are not clear, at least from 1990 NGS. Nevertheless,

Table 5.3 Social Structural Position and Educational Choice (count rows)

FOS	Liberal	Vocational	Total n	X²	d.f.	phi	Sig
Variables	%	%					
Gender							
<i>Male</i>	56.4	43.6	37617	23.19	1	.017	p<.00
<i>Female</i>	58.1	41.9	43946				
Age at graduation (1990)							
<i>Mean</i>	26.01	26.16		Between groups F=10.51 p<.01			
<i>Standard deviation</i>	6.91	5.96					
Column Total	46469	34733					
Mothers' Education							
<i>Lower than grads</i>	57.2	42.8	65547	23.01	2	.017	p<.00
<i>Same as grads</i>	59.5	40.5	10080				
<i>Higher than grads</i>	55.7	44.3	2952				
Father's Education							
<i>Lower than grads</i>	57.7	42.3	55513	15.82	2	.014	p<.00
<i>Same as grads</i>	55.9	44.1	14745				
<i>Higher than grads</i>	57.6	42.4	7900				
Ethnicity							
<i>Visible minority</i>	51.5	48.5	8401	140.0	1	.044	p<.00
<i>Non-visible minority</i>	58.3	41.7	64973				
Region of Origin							
<i>Atlantic</i>	52.3	47.7	7498	419.3	3	.072	p<.00
<i>Ontario</i>	61.2	38.8	33862				
<i>Quebec</i>	56.7	43.3	19757				
<i>West</i>	53.5	46.5	20396				

parents with lower education may not have sufficient cultural capital to guide their

the sample.

children; hence, their children's choice may be ill informed, while well-educated parents may exercise their financial and cultural capital to guide their children into a FOS the parents desire. Visible minority status influences choice as these graduates are likely to be in the vocational fields, while those with non-visible minority status are likely to opt for liberal education. As described in the logistic regression, region has a strong influence on selection of FOS, where Ontario graduates are more likely to opt for liberal education, and Maritime graduates prefer vocational education.

5.2.3 Pathways of Schooling and Educational Choice

Table 5.4 elaborates how personal agency plays a role in the process of selecting FOS. First, there is a linear relationship between educational attainment and FOS choice. It was observed that higher educational attainment is potentially associated with a vocational FOS selection. Specifically, the majority (64.6%) of the high school graduates choose liberal FOS while college graduates are less likely (55.1%) to select liberal FOS. In contrast, students with a university education background are more likely than either college or high school graduates to choose vocational FOS (61.9%). As opposed to having negative prestige for the high school graduates, vocational training demonstrates advantages for those who already have university certificates (Gellner, 1983:27). Geographic mobility also influences FOS choice as Table 5.4 suggests people who move out of their home provinces to pursue education are likely to study in liberal education

FOS (63.9%), but those who stayed in their home provinces are more likely to opt for vocational education FOS (56.7%). As well, students who have previous work experience are more likely to go to vocational education (55.8%) while those who have no such experience prefer liberal fields (57.9%). Finally, financial status shows its impact on educational choice. Individuals who borrowed money are more likely to choose

Table 5.4 Pathways of Schooling and Educational Choice (count rows)

FOS	Liberal		Vocational		
Variables	%		%	%	Row Total
What was the highest level of education you had completed before the university program?					
<i>High school</i>	64.6		35.4	100	46678
<i>College</i>	55.1		44.9	100	18179
<i>University</i>	38.1		61.9	100	15816
Column Total	46219		34454	$X^2=3456, df=2, p<.00, \phi=.207$	
Did you move from that province/country specifically to enrol in the program or for some other reason?					
<i>Mover</i>	63.9		36.1	100	6837
<i>Stayer</i>	56.7		43.3	100	74293
Column Total	46483		34647	$X^2=134, df=1, p<.00, \phi=.041$	
12 months before enrolled in this program, what was your major activity?					
<i>Working</i>	55.8		44.2	100	21154
<i>Not working</i>	57.9		42.1	100	60423
Column Total	46759		34818	$X^2=28.6, df=1, p<.00, \phi=.019$	
Did you ever borrow money to finance any of your education through the student loan program?					
<i>Yes</i>	47.9		54.7	100	41419
<i>No</i>	52.1		45.3	100	40098
Column Total	46718		34799	$X^2=361, df=1, p<.00, \phi=.067$	

vocational education (54.7%) while those who did not do so are more likely to go to

liberal fields (52.1%).

These detailed analyses reveal that both structure and agency affect FOS choice, with a stronger impact of agency over structure being recorded. In light of a strong presence of the agency, Beck's thesis of individualisation gains support. We observed a structure difference between those who choose to enrol in a liberal area as opposed to a vocational FOS. For example, people who have visible minority status are more likely to select vocational fields than people with non-visible minority status. Moreover, students in Ontario and Quebec are more likely to pursue liberal education than are students in other regions. Antecedent coping strategies are statistically significant with respect to chosen FOS. People who choose to enrol in a vocational field are more likely to have previous post secondary education and work experience; as well, they tend to stay in their home provinces and have student loans. Conversely, those who registered in a liberal FOS are less likely to have all these features.

5.3 Educational Choice and Strategies of Managing Risks

By exercising their personal agency, students continued to respond to the new economy and changing workplace after choosing their FOS. These contemporaneous and subsequent coping strategies include taking a second major, studying part time, participating co-op programs, working part (full) time, and continuing education after graduation.

5.3.1 Educational Choice and Coping Strategies

Once FOS is chosen, field of study is then treated as an independent variable and contemporaneous and subsequent coping strategies are regarded as dependent variables. The first part of this section tries to answer the research question, “Do students who chose liberal or vocational FOS differ in their risk management strategies after enrolment?” (Question 5). Table 5.5 reveals that the students who have liberal education are more likely to take a second major (18.8%) than those who pursued vocational education (16.7%). As well, students who studied in liberal fields are likely to have a less prosperous career future than those who studied in vocational fields (Future jobs, 1997). Turning to co-op program, we observed that overall, participant rates for university students were low. Nevertheless, people who took vocational FOS were more likely to participate in co-op programs (8.7%) than students who chose liberal fields (3.2%). As a part of the multiple transitions from school to work, part time study was a common practice at Canadian universities. This study observed that people enrolled in liberal FOS (28.1%) were more likely to study part time than those who studied in vocational areas (18.9%). Besides part time study, almost one in ten students had full time work experience before graduation. However, students who studied in vocational fields had a slightly higher probability of working full time than those who studied in liberal FOS (69.3% versus 67.4%). As an extension of their coping strategies, some graduates continued to pursue education, with liberal graduates being more likely to continue their

education (18.8%) than vocational graduates (12.3%). Finally, we found that liberal

Table 5.5 Educational Choice and Strategies of Coping with Risks (count columns)

FOS	Liberal	Vocational	
Variables	%	%	Row Total
Did you have any other major field(s) of study?			
<i>Yes</i>	18.8	16.7	14620
<i>No</i>	81.2	83.3	66975
Column Total	46758	34837	$X^2=57.5, df=1, p<.00, \phi=.067$
Did you take a co-op program?			
<i>Yes</i>	3.2	8.7	4539
<i>No</i>	96.8	91.3	76734
Column Total	46556	34717	$X^2=1137, df=1, p<.00, \phi=.118$
Did you take the program part time?			
<i>Part time</i>	28.1	18.9	19724
<i>Full time</i>	71.9	81.1	61854
Column Total	46758	34820	$X^2=922, df=1, p<.00, \phi=.106$
Before you completed this program, did you ever work full time?			
<i>Yes</i>	67.4	69.3	55665
<i>No</i>	32.6	30.7	25930
Column Total	46758	34837	$X^2=35.5, df=1, P<.00, \phi=.021$
Since you completed this program, have you completed any other university, college or trade-vocational degree, diploma or certificate programs?			
<i>Yes</i>	18.8	12.3	13047
<i>No</i>	81.2	87.7	68469
Column Total	46718	34800	$X^2=61.5, df=1, p<.00, \phi=.087$

graduates did adopt different strategies to cope with risk than vocational graduates.

Students in a liberal field were more likely to take a second major, to study part time, and to continue their education, while those in a vocational field were more likely to take co-op programs and work full time before graduation.

5.3.2 Coping Strategies and Labour Market Outcomes

To reveal how contemporaneous and subsequent coping strategies, mediated by FOS choice, influence labour market outcomes, this section addresses the following questions: (1) What is the relative influence of structure and agency factors on LMO for graduates who chose liberal or vocational FOS? (Question 6); (2) Are relationships between agency factors and LMO mediated by FOS? (Question 7); and (3) Are relationships between structural factors and LMO mediated by FOS? (Question 8).

To reverse the traditional way of discussing how LMO are influenced, we will begin with agency, then move to structure, so as to emphasise the importance of personal agency in the process of managing risk. This strategy is supported by the following regressions (see Table 5.6) that demonstrate the increments in the model's explanatory

Table 5.6 Increment of Agency Variables in FOS Choice and Outcome Regressions

Liberal Education			Vocational Education		
Structure	Structure + Agency	Increment	Structure	Structure + Agency	Increment
<i>Logistic Regression of Employment Status</i>					
$x^2=31.9$	$x^2=57.4$	25.5	$x^2=54.5,$	$x^2=94.4,$	39.9
<i>Logistic Regression of Job Security</i>					
$x^2=62.3$	$x^2=205.5$	143.2	$x^2=46.5,$	$x^2=72.2,$	25.7
<i>Logistic Regression of Job Continuity</i>					
$x^2=37.0$	$x^2=99.4$	62.4	$x^2=111.6,$	$x^2=174.6,$	63.0
<i>Linear Regression of Job Income</i>					
$R^2=.118$	$R^2=.123$.005	$R^2=.091$	$R^2=.118$.027
<i>Linear Regression of Job Satisfaction</i>					
$R^2=.019$	$R^2=.025$.006	$R^2=.022$	$R^2=.025$.003

power when adding agency variables as predictors. The regressions are first separated by FOS, then two models, one with structure and another with both structure and agency, are built under each FOS. The increments will be observed through comparing the two models under each FOS.

Logistic regressions with employment status in Table 5.6⁴ show the model increments for both liberal and vocational groups. The first columns in each FOS choice contain only structure variables, the second columns include both structure and agency variables, and the last columns indicate the increments. For the liberal group, $x^2=31.9$ with structure variables only. After the agency variables are added, $x^2=57.4$, and the increment of the chi-square is 25.5. For the vocational group, the structure variables produce $x^2=54.5$. After the agency variables are added, $x^2=94.4$, and the increment difference of the chi-square is 39.9. The logistic regression with job stability reveals similar increments. When the structure variable is computed alone, $x^2=62.3$ for liberal graduates. Once agency variables are added, $x^2=205.5$, the increment of the chi-square is 143.2. For vocational graduates with structure variables, $x^2=46.5$. After agency variables are present, $x^2=72.2$, and the increment of chi-square is 25.7. The logistic regression for job continuity demonstrates the same pattern. Finally, the linear regressions with job

⁴ Table 5.6 shows the regressions that support reversing the analysing order of structure and agency. The actually analyses of agency begin with the strategy of choosing second major in page 132.

income show smaller increments by adding agency variables to the equations. For liberal graduates, the $R^2 = .118$ with structure variables, and $R^2 = .123$ with both structure and agency variables. The increment of the R square is .005. For vocational graduates, the $R^2 = .091$ with structure variables, and $R^2 = .118$ with both structure and agency variables. The increment of the R square is .027. Among five regressions, three models show significant increments of the model explanatory powers, and two models demonstrate weak increments⁵. All these increments, to a certain extent, indicate the importance of agency. This allows us to focus on how individuals have managed risk through either contemporary or subsequent coping strategies. These strategies include taking a second major, participating in a co-op program, studying part time, or repeating post-secondary education.

- **Second Major**

To offset risk in the labour market, one of the common strategies that university students use is to select a second major. Table 5.6 displays how the strategy of taking a second major, mediated by FOS, influences the employment outcomes. First, people who studied in liberal fields with a second major have unemployment experiences similar to those people who selected a single major (10.8%). However, the second major did

⁵ The weak increments in regressions with income and job satisfaction may be contributed by the feature of linear regressions in which additional variables usually have

slightly improve the employment opportunity for liberally educated graduates: 83.2% of the liberal graduates with a second major were employed in 1992, in contrast to the graduates without the second major (81.9% employed). Graduates from vocational fields display a different pattern. The vocational graduates who have a second major are more likely to experience unemployment (10.6%) than those who have one major (8.7%). This suggests that choosing second major is an initial sign of a less favourable labour market for vocational graduates but a slightly better employment opportunity for liberal graduates.

Job stability provides another measure which illustrates how a second major affects LMO. Responses to the question "Was your job full time or part time? and did your job last for six consecutive months?" indicated graduates from both liberal and vocational FOS share a similar pattern. Graduates who had a second major are more likely to hold either part time or short term contract work than those graduates who held a single major. The problem of job instability is more serious for the graduates from liberal education than for those from vocational fields. Slightly over three in ten (30.6%) of the liberal graduates had part time or short term contract work, in contrast to vocational graduates, with only 23.3% in a similar job situation.

To further enquire about the influence of the second major on LMO, the issue of job continuity was explored by the question is "Is the job permanent or temporary?" A

less power to increase R^2 in contrast to logistic regression (e.g., X^2).

similar pattern across FOS was repeatedly observed: that is, graduates with a second major are more likely to have temporary jobs than those graduates with a single major. Specifically, vocational graduates with the second major are more likely to have temporary jobs (29.7%) than the people who graduated from liberal fields (27.4%). The different result indicates that the vocational graduates with a second major are more vulnerable than liberal graduates in terms of job continuity.

People with a second major in both FOS are more likely to experience long term unemployment than those who have single major, although these took a second major because of their uncertainty about the employment prospect for their first major. Despite the second major not always producing positive outcomes, the difference of long term unemployment within liberal graduates (31.6% vs. 29.6%, difference = 2.0%) is significantly smaller than within vocational graduates (29.8% vs. 23.9%, difference = 5.9%).

Turning to the average annual income, there are no significant differences among liberal graduates with or without second majors (\$28,517 vs. \$28,892, difference = \$375). However, a second major is most often not financially rewarding for vocational graduates as the income difference is significant between those with a second major and those with a single major (\$30703 vs. \$33436, difference = \$2,733). All previous results indicate there are negative LMO related to the graduates with second major. However, the graduates with a second major in both FOS are more satisfied with their jobs than those

with a single major: 44.9% (vs.42.3% with single major) of the liberal graduates with a

Table 5.7 Second Major and Labour Market Outcomes by FOS

Fields	Liberal		Vocational	
Did you have any other major FOS?				
Labour force status	Yes	No	Yes	No
<i>Employed</i>	83.2	81.9	84.3	85.6
<i>Unemployed</i>	10.8	10.8	10.6	8.7
<i>Not in Labour Force</i>	6.0	7.3	5.1	5.7
Column Total	8789	37969	5831	29006
	$X^2=19.8, df=2, p<.00, \phi=.021$		$X^2=23.0, df=2, p<.00, \phi=.026$	
Job full time 6 months?				
<i>Yes</i>	69.4	71.3	76.7	78.8
<i>No</i>	30.6	28.7	23.3	21.2
Column Total	7311	30995	4949	24806
	$X^2=9.5, df=1, p<.01, \phi=.016$		$X^2=10.4, df=1, p<.01, \phi=.019$	
Is the job permanent or temporary?				
<i>Permanent</i>	72.6	75.9	70.3	73.2
<i>Temporary</i>	27.4	24.1	29.7	26.8
Column Total	6992	28866	4805	23834
	$X^2=33.10, df=1, p<.00, \phi=.030$		$X^2=17.85, df=1, p<.00, \phi=.025$	
Unemployed since graduation in 1990?				
<i>Yes</i>	31.6	29.6	29.8	23.9
<i>No</i>	68.4	70.4	70.2	76.1
Column Total	7255	32742	5135	25929
	$X^2=12.07, df=1, p<.00, \phi=.017$		$X^2=78.87, df=1, p<.00, \phi=.050$	
Annual job income				
<i>Mean</i>	\$28517	\$28892	\$30705	\$33436
<i>Standard Deviation</i>	\$12109	\$13078	\$11518	\$12287
Column Total	6473	27732	4653	22767
Between Groups $F=1653.53$ $P<.000$				

Table 5.7 Second Major and Labour Market Outcomes by FOS

Fields	Liberal		Vocational	
Job satisfaction				
<i>Very dissatisfied</i>	3.5	3.6	1.7	1.9
Dissatisfied	9.5	8.4	5.7	4.0
Satisfied	42.1	45.7	31.5	36.6
Very satisfied	44.9	42.3	61.2	57.4
Column Total	7275	31179	4959	24916
	X ² =34.6, df=3, p<.00, φ=.030		X ² =67.9, df=3, p<.00, φ=.048	

second major and 61.2% (vs. 57.4% with a single major) of the vocational graduates reported that they are very satisfied with their jobs.

In brief, taking a second major as a strategy to cope with risk in the labour market is not a strategy that produces positive LMO. Supporting evidence is that five out of six LMO indicators suggest a less favourable labour market awaits those students who select the second major. While an overall negative LMO is recognised, vocational graduates who choose a second major are likely to receive more serious negative LMO than the graduates in liberal fields. The possible reason is if second major is used as an alternative to the first major with less favourable LMO prospects, then the choice of the second major may further weaken the connection between FOS and LMO, which would be likely to produce a precarious LMO.

- **Co-op Program**

Co-op programs try to bridge post secondary education and future employment.

What Table 5.7 reveals is that liberal graduates who take co-op programs experience a different LMO impact than vocational graduates. In terms of the current employment status, liberal graduates who participated in a co-op program experience a higher unemployment rate than those who did not participate (14.3% vs. 10.6%). In contrast, vocational graduates in co-op programs enjoyed a lower unemployment rate (6.2%) than those who did not participate in the programs (9.3%). An opposite outcome of participating co-op programs between liberal and vocational graduates is, at least in part, associated with the nature of co-op programs in different fields. The co-op programs that liberal graduates took are more likely to be sponsored by public sector, whereas the similar co-op programs that vocational graduates took are more likely to be sponsored by private sector. Turning to job stability, the co-op programs seem to have a positive

Table 5.8 Co-op Program and Labour Market Outcomes by FOS

Fields	Liberal		Vocational	
	Co-op Program?			
Labour force status	Yes	No	Yes	No
<i>Employed</i>	82.2	82.2	88.2	85.1
<i>Unemployed</i>	14.3	10.6	6.2	9.3
<i>Not in Labour Force</i>	3.4	7.2	5.6	5.6
Column Total	1508	45047	3013	31686
	X ² =47.1, df=2, p<.00, φ=.032		X ² =32.9, df=2, p<.00, φ=.031	
Job full time 6 month?				
<i>Yes</i>	82.6	70.5	80.9	78.1
<i>No</i>	17.4	29.5	19.1	21.9
Column Total	1227	36917	2650	26999
	X ² =84.1, df=1, p<.00, φ=.047		X ² =11.2, df=1, p<.00, φ=.019	

Table 5.8 Co-op Program and Labour Market Outcomes by FOS

Fields	Liberal		Vocational	
Is the job permanent or temporary?				
<i>Permanent</i>	81.6	75.0	85.3	71.4
<i>Temporary</i>	18.4	25.0	14.7	28.6
Column Total	1204	34492	2562	25976
	X ² =26.8, df=1, p<.00, φ=.027		X ² =226.6, df=1, p<.00, φ=.089	
Unemployed since graduation in 1990?				
<i>Yes</i>	31.7	29.9	26.2	24.8
<i>No</i>	68.3	70.1	73.8	75.2
Column Total	1242	38600	2741	28203
	X ² =1.87, df=1, p>.05, φ=.007		X ² =2.36, df=1, p>.05, φ=.009	
Annual job income				
<i>Mean</i>	\$30,290	\$28,759	\$37,483	\$32,498
<i>Standard Deviation</i>	\$9,570	\$13,016	\$9,800	\$12,337
Column Total	1141	32912	2526	24793
	Between Groups F=1641.03 P<.000			
Job satisfaction				
Very dissatisfied	.2	3.7	0	2.0
Dissatisfied	10.4	8.6	6.5	4.1
Satisfied	49.0	44.9	41.2	35.2
Very satisfied	40.4	42.8	52.4	58.6
Column Total	1251	37043	2673	27095
	X ² =50.9, df=3, p<.00, φ=.036		X ² =125.4, df=3, p<.00, φ=.065	

impact on job stability for both liberal and vocational graduates, with 82.6% of the liberal graduates who participated having secured permanent jobs, while 70.5% of those who did not participate secured permanent employment. Similarly, 80.9% of the vocational graduates who participated in co-op programs reported having stable jobs, while 78.1% of those who did not participate had similar stable employment.

Besides job stability, co-op programs have had a positive impact on job continuity

across FOS. For instance, 81.6% of the liberal graduates who participated in the co-op program held permanent positions in contrast to non-co-op program graduates, where only 75.0% of them held permanent positions. Similarly, 85.3% of the vocational graduates who participated in the co-op program worked in permanent positions while 71.4% of the non-participants held similar positions. If a longer period is considered (two years after graduation), graduates who participated the co-op programs in both FOS are more likely to have higher unemployment rate than those non-participants (31.7% vs. 29.9% in liberal FOS, and 26.2% vs. 24.8% in vocational fields). The result of long-term higher unemployment for those co-op program participants seems to contradict the previous finding of short-term job stability. However, the reality is that those who participated in co-op may have moved from job to job to maximise their opportunities. The income information reinforces this hypothesis. The evidence is that both liberal and vocational graduates who participated in co-op program make more money than those who did not participate. However, the job income gap is much wider in vocational fields (\$37,483 vs. \$32,498) than in liberal fields (\$30,290 vs. \$28,759). Despite many positive LMO in relation to the co-op participants, their job satisfaction did not follow previously established trends. Job stability, job continuity, and higher income did not produce higher job satisfaction: 40.4% of the liberal co-op program participants reported that they are very satisfied with their jobs, while 42.8% of the non-participants reported so. Furthermore, 52.4% of the vocational co-op program participants reported that they are

very satisfied with their jobs while 58.6% of the non-participants reported in the same category.

In brief, both liberal and vocational graduates, to a large extent, benefit from participating in co-op programs. However, the proportion of co-op program participants at the university level is considerably smaller (5.4%), and the gap of LMO is much wider among vocational rather than liberal graduates. Thus, vocational education is a more suitable FOS than liberal education to integrate co-op programs. Despite positive LMO, co-op graduates are less satisfied with their jobs than those non-co-op graduates.

- **Part Time Study**

To manage risk, a significant minority of university students (24.3%) study part time. The majority of individuals registered as part time students identified employment as the primary reason for their part time attendance (1997, Little et. al.). Table 5.9 reveals that graduates who studied part time are less likely to experience unemployment than those who studied full time. For example, only 9% of the liberal graduates who studied part time were unemployed whereas 11.5% of those who studied full time were unemployed. The vocational graduates repeat the same pattern, in which 7.1% of the part time students were unemployed whereas 9.5% of full time students had a similar experience. Part time students not only have experienced lower unemployment, but also higher job stability. For instance, 75.4% of the part time liberal graduates had stable jobs,

Table 5.9 Part Time Study and Labour Market Outcomes by FOS

Fields	Liberal		Vocational	
Outcomes	Did you take the program part time?			
Labour force status	Part time	Full time	Part time	Full time
<i>Employed</i>	83.2	81.7	89.9	84.3
<i>Unemployed</i>	9.0	11.5	7.1	9.5
<i>Not in Labour Force</i>	7.7	6.8	3.1	6.2
Column Total	13141	33616	6583	25238
	X ² =67.4, df=2, p<.00, φ=.038		X ² =147.6, df=2, p<.01, φ=.068	
Job full time 6 month?				
<i>Yes</i>	75.4	69.1	81.1	77.7
<i>No</i>	24.6	30.9	18.9	22.3
Column Total	10913	27393	5864	23873
	X ² =146.3, df=1, p<.00, φ=.062		X ² =31.7, df=1, p<.00, φ=.033	
Is the job permanent or temporary?				
<i>Permanent</i>	80.9	73.1	77.1	71.6
<i>Temporary</i>	19.1	26.9	22.9	28.4
Column Total	10115	25743	5753	22868
	X ² =234.8, df=1, p<.00, φ=.081		X ² =70.5, df=1, p<.00, φ=.050	
Unemployed since graduation in 1990?				
<i>Yes</i>	25.5	31.7	20.2	26.0
<i>No</i>	74.5	68.3	79.8	74.0
Column Total	11675	28322	6041	25006
	X ² =153.2, df=1, p<.00, φ=.062		X ² =88.0, df=1, p<.00, φ=.053	
Annual job income				
<i>Mean</i>	\$31,022	\$27,939	\$36,561	\$32,066
<i>Standard Deviation</i>	\$14,266	\$12,201	\$14,254	\$11,458
Column Total	9783	24421	5516	21885
	Between Groups F=1651.32 P<.000			
Job satisfaction				
<i>Very dissatisfied</i>	4.4	3.3	2.4	1.8
<i>Dissatisfied</i>	9.3	8.3	3.9	4.4
<i>Satisfied</i>	45.5	44.8	37.4	35.3
<i>Very satisfied</i>	40.7	43.6	56.4	58.5
Column Total	10946	27510	5918	23938
	X ² =56.5, df=3, p<.00, φ=.038		X ² =22.6, df=3, p<.00, φ=.028	

compared to full time students in the same category, with only 69.1% of them enjoying similar job status. Vocational graduates repeat the same pattern, in which 81.1% of the part time students had the stable jobs whereas only 77.7% of the full time students had similar job stability.

Turning to job continuity, it was observed that part time students in both FOS were more likely to hold the permanent positions than those full time students: 80.9% of liberal graduates who studied part time had permanent positions, whereas only 73.1% of those who studied full time had similar positions. Furthermore, part time students also have a greater opportunity to resist unemployment than those who studied full time. Slightly over one in four (25.5%) liberal part time students experienced unemployment during a two-year period after graduation, but over three in ten (31.7%) of the full time students had similar experiences. One in five part time vocational graduates (20.2%) experienced unemployment, in contrast to over one in four full timers (26.0%).

Income is one of the most important measures of job status (Allen, 1997), and here, a significant gap was observed. The liberal graduates who studied part time in the university made \$3,083 (1992 constant dollar) more than the graduates who studied full time only, whereas the vocational graduates who studied part time during their university study made \$4,495 more than the graduates who studied full time only. Interestingly, job satisfaction seems inconsistent with the gains made by the graduates with part time study

experience, as they tend to be less satisfied with their jobs than were those full timers. Only 40.7% of the liberal graduates with part time study experience reported that they were very satisfied with their jobs, whereas 43.6% of those who had only full time study experience reported similar levels of satisfaction. Of the vocational graduates with part time study experience, 56.4% reported they were very satisfied with their jobs, whereas 58.5% of those who had only full time study experience reported so.

This study shows that almost all the LMO indicators are in favour of the graduates with part time study experience. If the major reason for part time study, described earlier, is working, then the part time study implies an antecedent link between schooling and employment. Therefore, it is safe to conclude that part time study is one of the feasible strategies that university students adopted in responding to the changing workplace and in managing the risks they encountered in the labour market.

- **Education Upgrading and Recycling**

Two situations exist where current education is related to the previous educational experience. One is defined as upgrading; that is, a person moves from a lower educational level to a higher educational level. Another is defined as recycling; that is, a person repeats the same level of education (e.g., twice university, or college experience). Both educational upgrading and recycling underpin the thesis of life long learning (OECD, 1996b). In this study, we have the opportunity to look at educational upgrading and

recycling in two stages, university entry and two years after graduation. To address the situation at the stage of university entry, Table 5.10 reveals that education upgrading and recycling do make a difference in relation to the LMO of the 1990 graduates. The analysis displays that first, university education recycling results in a positive impact on the LMO for vocational graduates (only 7.0% unemployed), but less so for liberal graduates (10.5% unemployed). Second, the data regarding LMO in relation to graduates from college are mixed: liberal graduates display a majority of negative LMO except job continuity and income, while vocational graduates have a few LMO, such as job stability, job income, which surpass graduates from high school. Third, liberal graduates without post secondary educational background have LMO almost as positive as university graduates, and in most cases, better than college graduates. However, in the vocational fields, the performance of the graduates from high school, in some cases, surpasses that of graduates from college, but is worse than graduates of university.

Antecedent educational background has no significant impact on job stability for liberal graduates although a strong influence is present for vocational graduates. For vocational graduates with double university certificates, 85.1% had stable jobs, whereas only 77.3% of the college graduates, and 74.6% of the high school graduates had the same job stability. A similar pattern is repeated in the area of job continuity, in which vocational graduates with college background had the lowest rate of permanent positions (65.5%), followed by the graduates with high school background (72.1%), and the

graduates recycled through university (79.2%).

Long-term unemployment as a relatively reliable measurement of LMO shows that the university graduates have the strongest power to resist unemployment (24.5% for

Table 5.10 Employment Outcomes by Educational Attainment by FOS

Fields	Liberal			Vocational		
Before enrolled in this program, the highest education						
Labour force status	No PSE	College	University	No PSE	College	University
<i>Employed</i>	82.6	79.6	83.8	82.9	83.9	90.5
<i>Unemployed</i>	10.1	13.2	10.5	9.5	10.5	7.0
<i>Not in Labour Force</i>	7.3	7.2	5.7	7.6	5.6	2.5
Column Total	30176	10021	6022	16501	8158	9796
	X ² =98.2, df=4, p<.00, φ=.046			X ² =392.1, df=4, p<.00, φ=.107		
Job full time 6 month?						
<i>Yes</i>	70.8	70.7	72.0	74.6	77.3	85.1
<i>No</i>	29.2	29.3	28.0	25.4	22.7	14.9
Column Total	24863	7940	5034	13645	6860	8902
	X ² =3.3, df=2, p>.05, φ=.009			X ² =355.0, df=2, p<.00, φ=.110		
Is the job permanent or temporary?						
<i>Permanent</i>	74.5	75.5	79.2	72.1	65.5	79.2
<i>Temporary</i>	25.5	24.5	20.8	27.9	34.5	20.8
Column Total	23609	7474	4309	13120	6673	8518
	X ² =43.1, df=2, p<.00, φ=.035			X ² =361.0, df=2, p<.00, φ=.113		
Unemployed since graduation in 1990						
<i>Yes</i>	30.0	33.7	24.5	26.6	25.9	21.6
<i>No</i>	70.0	66.3	75.5	73.4	74.1	78.4
Column Total	26059	8296	5207	14497	7243	9002
	X ² =128.8, df=2, p<.00, φ=.057			X ² =79.1, df=2, p<.00, φ=.051		
Annual job income						
<i>Mean</i>	\$27698	\$27844	\$34921	\$30918	\$32746	\$36214
<i>Standard deviation</i>	\$12189	\$12247	\$14635	\$11788	\$11395	\$12802
Column Total	21976	7159	4627	12531	6442	8126
	Between Groups F=1701.5, p<.000					

Table 5.10 Employment Outcomes by Educational Attainment by FOS

Fields	Liberal			Vocational		
Job satisfaction						
<i>Very dissatisfied</i>	4.4	2.6	1.0	2.6	1.2	1.4
Dissatisfied	9.8	7.1	5.9	5.7	3.8	2.7
Satisfied	43.4	51.6	40.9	38.2	44.9	25.0
Very satisfied	42.4	38.7	52.2	53.5	50.1	70.9
Column Total	24963	7983	5033	13670	6872	8985
	$X^2=516.7, df=6, p<.00, \phi=.117$			$X^2=1032.5, df=6, p<.00, \phi=.187$		

liberal and 21.6% for vocational), while liberal graduates with college backgrounds were more predisposed to bouts of unemployment (33.7%). In terms of annual job income, there is a linear relationship between income and educational background: higher educational background and higher income exist simultaneously. Furthermore, as regards job satisfaction, it was found that graduates from university are much happier in their employment situations than graduates from either college or high school.

In sum, education recycling and/or upgrading, based on university background, has a positive impact on all the LMO across FOS. However, the impact of education upgrading based on college background is mixed, as liberal graduates have had a majority of negative LMO, except job stability and annual job income, whereas the vocational graduates have had half the number of negative LMO. As a normal pathway, the education upgrading based on high school background has had mixed relative outcomes. In most cases, they are better than the graduates with college background, but do not match the graduates with university background. The conclusion is that education

recycling based on university background is the strategy that can produce the best LMO. However, if the education upgrading is based on college background, it more likely to produce negative LMO.

Two years after graduation, the graduates were asked to report their further

Table 5.11 Further Education and Labour Market Outcomes by FOS

Fields	Liberal		Vocational	
	Further education?			
Labour force status	Yes	No	Yes	No
<i>Employed</i>	77.2	83.3	76.0	86.7
<i>Unemployed</i>	17.4	9.3	18.6	7.7
<i>Not in Labour Force</i>	5.4	7.4	5.4	5.7
<i>Column Total</i>	8763	37955	4285	30514
	X ² =512.0, df=2, p<.00, φ=.105		X ² =550.5, df=2, p<.00, φ=.126	
Job full time 6 month?				
<i>Yes</i>	52.2	74.9	64.0	80.2
<i>No</i>	47.8	25.1	36.0	19.8
<i>Column Total</i>	6735	31555	3225	26501
	X ² =1378.4, df=1, p<.00, φ=.190		X ² =445.3, df=1, p<.00, φ=.122	
Is the job permanent or temporary?				
<i>Permanent</i>	64.6	77.6	58.0	74.5
<i>Temporary</i>	35.4	22.4	42.0	25.5
<i>Column Total</i>	6322	29520	3137	25473
	X ² =470.3, df=1, p<.00, φ=.115		X ² =381.6, df=1, p<.00, φ=.115	
Unemployed since graduation in 1990?				
<i>Yes</i>	28.4	30.2	25.1	24.8
<i>No</i>	71.6	69.8	74.9	75.2
<i>Column Total</i>	6748	33249	3536	27498
	X ² =9.3, df=1, p<.01, φ=.015		X ² =.2, df=1, p>.05, φ=.003	

Table 5.11 Further Education and Labour Market Outcomes by FOS

Fields	Liberal		Vocational	
Annual job income				
<i>Mean</i>	\$27304	\$29133	\$30992	\$33205
<i>Standard Deviation</i>	\$13008	\$12861	\$12992	\$12075
Column Total	5822	28367	2942	24448
Between Groups F=1647.4, p<.000				
Job satisfaction				
<i>Very dissatisfied</i>	3.3	3.8	2.0	1.7
<i>Dissatisfied</i>	9.0	8.3	3.9	4.8
<i>Satisfied</i>	45.5	44.6	36.7	34.5
<i>Very satisfied</i>	42.2	43.3	57.3	59.0
Column Total	18357	20081	16331	13515
	$X^2=15.1, df=3, p<.01, \phi=.020$		$X^2=32.8, df=3, p<.00, \phi=.033$	

education. Table 5.11 is the result of the analysis that describes how education recycling at this stage affects LMO. In contrast to the previous analysis, our main concern here is if further education has occurred and whether this influences the LMO. Hence, the meaning of education recycling simply refers to any type of further education after graduation. The findings in Table 5.11 suggest that the graduates who pursued further education are more likely to be unemployed. Specifically, 17.4% of the liberal graduates with further education are unemployed. On the other hand, only 9.3% of those who did not pursue further education are in the same situation. Similar to the liberal graduates, 18.6% of vocational graduates who pursued further education are unemployed; by comparison, only 7.7% of those who did not complete further education are in similar circumstances. It was also found that 47.8% of the liberal graduates with further education do not have

stable employment, whereas only 25.1% of those without further education are in the same situation. In comparison to liberal graduates, 36.0% of the vocational graduates with further education do not have stable jobs, whereas only 19.8% of those without further education are in the same situation. The job continuity indicator repeats a similar pattern, in which 35.4% of the liberal graduates with further education held temporary positions as opposed to only 22.4% of those without further education. A higher percentage (42.0%) of vocational graduates with further education held temporary positions whereas only 25.5% of those without further education were in similar employment circumstances. If long-term unemployment is considered, however, the liberal graduates with further education are less likely to be unemployed (28.4%) than those without further education. There is no significantly different long-term unemployment rate among the vocational graduates who have or do not have further education. Interestingly, vocational graduates who have pursued further education tend to have a lower income than those who have not continued further education. Finally, the graduates who have further education were less satisfied with their jobs than those who did not pursue further education.

Overall, education recycling at this stage tends to produce negative LMO. High percentages of unemployment across FOS indicate that the education recycling at this stage plays a role of warehouse. Yet, positive LMO of education recycling were observed at the end of the process, in which the most positive LMOs were found in relation to a

repeated university education as we described earlier in Table 5.10.

5.3.3 Structure and Labour Market Outcomes

Previous analyses indicate that agency plays an important role in graduates' LMO. This claim, however, doesn't mean social structure can be ignored. For this reason, social structure factors, defined as gender, age, ethnicity, parents' education, and region are brought into the discussion in relation to the LMO.

- **Gender**

Gender is a long-standing social structural factor, which is closely tied with FOS choice and the LMO among university students (Wannell & Caron, 1995). Table 5.12 reveals how gender, mediated by FOS choice, influences the LMO. First, there is no significant difference in terms of the unemployment rate between sexes in either FOS

Table 5.12 Labour Market Outcomes by Sex by FOS

FOS	Liberal		Vocational	
Variable	Sex			
Labour force status	Male	Female	Male	Female
<i>Employed</i>	83.7	80.9	84.4	86.2
<i>Unemployed</i>	10.7	10.9	9.2	8.9
<i>Not in the Labour Force</i>	5.6	8.2	6.5	4.9
Total	21212	25515	16406	18431
	X ² =124.2, df=2, p<.00, φ=.052		X ² =42.6, df=2, p<.00, φ=.035	

Table 5.12 Labour Market Outcomes by Sex by FOS

FOS	Liberal		Vocational	
Job full time lasts 6 month?				
<i>Yes</i>	73.2	68.8	79.2	77.8
<i>No</i>	26.8	31.2	20.8	22.2
Column Total	17722	20552	13803	15951
	X ² =89.4, df=1, p<.00, φ=.048		X ² =8.20, df=1, p<.01, φ=.017	
Is the job temporary/permanent?				
<i>Permanent</i>	77.4	73.5	74.9	70.9
<i>Temporary</i>	22.6	26.5	25.1	29.1
Column Total	16202	19624	13090	15548
	X ² =70.8, df=1, p<.00, φ=.044		X ² =57.0, df=1, p<.00, φ=.045	
Unemployed since graduation?				
<i>Yes</i>	30.7	29.2	26.8	23.2
<i>No</i>	69.3	70.8	73.2	76.8
Column Total	18611	21385	14563	14563
	X ² =10.4, df=1, p<.01, φ=.016		X ² =55.9, df=1, p<.00, φ=.044	
Annual job income				
<i>Mean</i>	\$30401	\$27411	\$34210	\$31876
<i>Standard Deviation</i>	\$13230	\$12432	\$11905	\$12358
Column Total	16133	18071	12882	14537
	Between Groups F=1653.53 p<.000			
Job satisfaction				
<i>Very dissatisfied</i>	3.1	4.0	1.5	2.2
<i>Dissatisfied</i>	8.1	9.1	4.8	4.0
<i>Satisfied</i>	42.8	46.9	37.7	34.1
<i>Very satisfied</i>	46.0	39.9	56.1	59.8
Column Total	17785	20638	13845	16029
	X ² =152.5, df=3, p<.00, φ=.063		X ² =74.1, df=3, p<.00, φ=.050	

choices. Nevertheless, female liberal graduates are more likely to be out of the labour force (8.2%) than male graduates (5.6%). Unlike women in liberal fields, vocational female graduates have a slightly higher percentage of employment (86.2%) than males in

the same category (84.4%)⁶. Turning to job stability, 73.2% of the male liberal graduates have stable jobs, whereas only 68.8% of female liberal graduates have similar job stability. Despite a narrow gap, male vocational graduates still have a higher stable job rate (79.2%) than the female graduates (77.8%). As a valid extension of job stability, job continuity repeats a similar story: 77.4% of the male liberal graduates have permanent positions, whereas only 73.5% of the female liberal graduates have similar positions. Of male vocational graduates, 74.9% have permanent positions while only 70.9% of female vocational graduates have the same job continuity. In terms of long-term unemployment, men are more likely to experience unemployment than women. Specifically, over three in ten (30.7%) of male liberal graduates have had unemployment experience, whereas less than three in ten (29.2%) of female liberal graduates have had the same experience. The gap is slightly wider than with liberal graduates, where 26.8% of the male vocational graduates have unemployment experience while only 23.2% of the female vocational graduates have been unemployed. The income gap between the sexes among post-secondary graduates is still significant in Canada (Wannell & Coron, 1995). This study suggests that women with similar qualifications make less money than men across the FOS choices. Female liberal graduates, for instance, have an annual average job income of \$27,411; in contrast, male liberal graduates made \$30,401. In vocational fields, female

⁶ This study is incapable to answer the question “Do males and females encounter a different risk environment upon entering labour force?” To address the question,

graduates made an annual average job income \$31,876, whereas male graduates made \$34,210. In terms of job satisfaction, the female liberal graduates are less satisfied (39.9% very satisfied) than the male graduates in the same group (46.0% very satisfied). On the other hand, female vocational graduates are more satisfied (59.8% very satisfied) with their jobs than their male counterparts (56.1% very satisfied). Gender inequality as reflected in LMO still exists across FOS choice, and women are generally in less favourable positions in terms of job stability, job continuity, and job income. However, if a woman enters a vocational field, she is in a better position than a woman who selected a liberal field in terms of unemployment experience, income, and job satisfaction.

- **Age**

The age variable as a structural position is treated by recoding it as normal age group (24 or under) and mature student group (25 and over). The last decade has witnessed a surge in the numbers of mature students in Canadian post secondary education: "By October 1990, about 705,000 Canadians aged 25-64, 5 percent of people that age, were attending a recognised educational institution either full or part time. This was up from an estimated 378,000 (3 percent of people aged 25-64) in October 1980 (Haggar-Guenette, 1994:292). Table 5.13 reveals how age, mediated by FOS, affects the LMO. By using the first indicator of LMO, it was found that the liberal mature graduates

additional information, especially qualitative interview, is needed .

Table 5.13 Labour Market Outcomes by Age by FOS

Variable	Liberal		Vocational	
	Age at graduation in 1990			
Labour force status	24 or under	25 and over	24 or under	25 and over
<i>Employed</i>	83.1	80.7	83.4	88.0
<i>Unemployed</i>	10.5	11.1	9.5	8.3
<i>Not in the Labour Force</i>	6.4	8.1	7.1	3.7
Total	29721	16747	20125	14608
	X ² =58.1, df=2, p<.00, φ=.035		X ² =205.5, df=2, p<.00, φ=.077	
Is the job full time which lasts 6 month?				
<i>Yes</i>	70.5	72.0	75.8	81.9
<i>No</i>	29.5	28.0	24.2	18.1
Column Total	24645	13458	16790	12878
	X ² =9.8, df=1, p<.01 φ=.016		X ² =162.2, df=1, p<.01 φ=.074	
Is the job temporary/permanent?				
<i>Permanent</i>	74.3	77.6	70.1	76.3
<i>Temporary</i>	25.7	22.4	29.9	23.7
Column Total	23545	12120	16277	12274
	X ² =48.8, df=1, p<.00, φ=.037		X ² =136.9, df=1, p<.00, φ=.069	
Unemployed since graduation?				
<i>Yes</i>	32.9	25.0	26.5	22.7
<i>No</i>	67.1	75.0	73.5	77.3
Column Total	25413	14338	17749	13221
	X ² =269.6, df=1, p<.00, φ=.082		X ² =58.3, df=1, p<.00, φ=.043	
Annual job income				
<i>Mean</i>	\$26496	\$33076	\$30916	\$35666
<i>Standard Deviation</i>	\$11181	\$14629	\$11229	\$12827
Column Total	21992	12067	15450	11891
	Between Groups F=1652.8 p<.000			
Job satisfaction				
<i>Very dissatisfied</i>	3.8	3.2	1.9	1.9
<i>Dissatisfied</i>	8.8	8.1	4.8	3.8
<i>Satisfied</i>	47.6	40.5	36.9	34.0
<i>Very satisfied</i>	39.7	48.2	56.4	60.3
Column Total	24792	13460	16819	12968
	X ² =258.4, df=3, p<.00, φ=.082		X ² =53.4, df=3, p<.00, φ=.042	

have a higher unemployment rate (11.1%) than the normal age (24 years of age or under) graduates (10.5%); however, the opposite is true in vocational fields. The mature vocational graduates have a lower unemployment rate (8.3%) than the normal age graduates (9.5%). In terms of job stability, 70.5% of the normal age graduates in liberal fields have stable jobs, whereas 72.0% of the mature graduates have the same job stability. The gap is slightly wider than liberal graduates, and 81.9% of the mature graduates in vocational fields have stable jobs while only 75.8% of the normal age graduates share similar positions. By using the indicator of job continuity, it is observed that 77.6% of the mature graduates in liberal fields have permanent positions, whereas only 74.3% of the normal age graduates have similar positions. By using long-term unemployment as an indicator, we found that the mature graduates are in a much better position than the normal age graduates, with only 25.0% having had extended periods of unemployment. Conversely, 32.9% of the normal age graduates in liberal fields have had long-term unemployment. The gap is smaller in the vocational fields, where 26.5% of the normal age graduates have unemployment experience while 22.7% of mature graduates have similar experience.

When annual job income is used as an indicator of LMO, it was found that the income gap between the two groups is significant. The normal age graduates in liberal fields, for example, make \$26,496, while the mature graduates earn \$33,076. Repeating the previous pattern, the normal age graduates in vocational fields make \$30,916,

whereas the mature graduates earn \$35,666. As well, the mature graduates of liberal education are more satisfied with their jobs (48.2% very satisfied) than the normal age graduates (39.7% very satisfied). Similar to the graduates in liberal fields, 60.3% of the mature graduates in vocational fields are very satisfied with their jobs, whereas only 56.4% of the normal age graduates reported the same level of satisfaction. Overall, the mature graduates reported increased earnings and job satisfaction over their younger counterparts. Age as a core component of the life course demonstrates its power across FOC choices to enhance the majority of the LMO, which, at least in part, reflects the values of life experience.

- **Ethnicity**

The concept of ethnicity is narrowly used in Table 5.14 as a dichotomous variable: visible minority vs. non-visible minority. According to labour market status, the visible minority graduates in vocational fields have a much higher unemployment rate (13.3%) than the non-visible minority graduates (8.2%). However, there is no significant difference in terms of unemployment rate among the liberal graduates. We found that ethnic background has no significant impact on job stability across FOS choices. Although there are no significant differences among liberal graduates, vocational graduates of visible minority are more likely to have permanent positions (76.1%) than

non-visible minority graduates (71.7%). In terms of long-term unemployment rate, the liberal graduates of visible minorities have fewer unemployment experiences (26.0%) than other graduates (30.1%). Opposite to the situation of graduates from liberal fields, vocational graduates of visible minorities are more likely to experience unemployment (28.4%) than non-visible minority graduates (24.5%).

Continuing the negative trend displayed in unemployment rates for visible minorities, the average annual job income for liberal graduates from visible minorities was found to be less (\$27,712) than other graduates (\$28,932). Nevertheless, the situation

Table 5.14 Labour Market Outcomes by Ethnicity by FOS

FOS	Liberal		Vocational	
Variable	Ethnicity			
Labour force status	Visible Minority	Non-visible Minority	Visible Minority	Non-visible Minority
<i>Employed</i>	80.9	82.4	76.6	87.1
<i>Unemployed</i>	11.5	10.7	13.3	8.2
<i>Not in the Labour Force</i>	7.6	6.9	10.1	4.7
Total	4325	37854	4076	27119
	X ² =5.8, df=2, p>0.5, φ=.012		X ² =338.3, df=2, p<.00, φ=.104	
Job full time lasts 6 month?				
<i>Yes</i>	71.4	71.2	77.0	78.4
<i>No</i>	28.6	28.8	23.0	21.6
Column Total	3484	31121	3142	23591
	X ² =.04, df=1, p>0.5, φ=.001		X ² =3.2, df=1, p>0.5, φ=.011	
Is the job temporary/permanent?				
<i>Permanent</i>	76.9	75.5	76.1	71.7
<i>Temporary</i>	23.1	24.5	23.9	28.3
Column Total	3281	29087	2998	22753
	X ² =3.1, df=1, p>0.5, φ=.010		X ² =25.6, df=1, p<.00, φ=.032	

Table 5.14 Labour Market Outcomes by Ethnicity by FOS

FOS	Liberal		Vocational	
Unemployed since graduation?				
<i>Yes</i>	26.0	30.1	28.4	24.5
<i>No</i>	74.0	69.9	71.6	75.5
Column Total	3486	32641	3501	24229
	X ² =25.1, df=1, p<.00, φ=.026		X ² =26.0, df=1, p<.00, φ=.031	
Annual job income				
<i>Mean</i>	\$27712	\$28932	\$34224	\$32837
<i>Standard Deviation</i>	\$12833	\$12824	\$12787	\$12119
Column Total	2987	30998	2909	21717
	Between Groups F=1525.3 p<.000			
Job satisfaction				
<i>Very dissatisfied</i>	4.3	3.6	2.5	1.6
Dissatisfied	8.3	8.8	6.8	4.0
Satisfied	56.2	43.8	46.7	34.2
Very satisfied	31.2	43.8	43.9	60.2
Column Total	3503	31245	3138	23708
	X ² =230.3, df=3, p<.00, φ=.081		X ² =309.4, df=3, p<.00, φ=.107	

in vocational fields is different: vocational graduates with a visible minority background make more money (\$34,224) than graduates from non-visible minority backgrounds (\$32,837). In terms of job satisfaction, the graduates with visible minority backgrounds are generally less satisfied with their job than other graduates. Overall, the ethnic background, mediated by FOS, has a mixed but more negative impact on the LMO. Despite a less favourable impact, the liberal graduates with visible minority status better survive long-term unemployment, and vocational graduates of visible minority have more chance to hold permanent and better paying positions.

- **Mother's Education**

Table 5.15 shows that a mother's education does not have the traditional influence on children's LMO. For example, liberal graduates with mothers who have education above university level are more likely to be unemployed (13.6%) than those graduates whose mothers have the same amount (8.8%) or less education (10.9%). For vocational

Table 5.15 Labour Market Outcomes by Mothers' Education by FOS

Fields	Liberal			Vocational		
	Mother's Education					
Labour force status	Lower	Same	Higher	Lower	Same	Higher
<i>Employed</i>	82.4	83.8	77.1	86.1	82.3	83.9
<i>Unemployed</i>	10.9	8.8	13.6	8.5	10.4	10.5
<i>Not in Labour Force</i>	6.7	7.3	9.3	5.5	7.3	5.7
Column Total	37465	5996	1645	28082	4084	1307
	X ² =57.8, df=4, p<.00, φ=.036			X ² =47.0, df=4, p<.00, φ=.037		
Job full time 6 month?						
<i>Yes</i>	72.0	63.7	69.2	79.6	72.5	70.0
<i>No</i>	28.0	36.3	30.8	20.4	27.5	30.0
Column Total	30741	5042	1268	24110	3414	1085
	X ² =145.2, df=2, p<.00, φ=.063			X ² =137.2, df=2, p<.00, φ=.069		
Is the job temporary/permanent?						
<i>Permanent</i>	76.5	69.2	73.8	74.6	66.3	59.1
<i>Temporary</i>	23.5	30.8	26.2	25.4	33.7	40.9
Column Total	28840	4674	1186	23287	3209	1036
	X ² =118.0, df=2, p<.00, φ=.058			X ² =205.9, df=2, p<.00, φ=.086		
Unemployed since graduation?						
<i>Yes</i>	29.7	30.4	28.8	25.0	25.5	25.4
<i>No</i>	70.3	69.6	71.2	75.0	74.5	74.6
Column Total	32112	5188	1346	25123	3605	1140
	X ² =1.7, df=2, p>.05, φ=.007			X ² =.6, df=2, p>.05, φ=.001		

Table 5.15 Labour Market Outcomes by Mothers' Education by FOS

Fields	Liberal			Vocational		
Annual job income						
<i>Mean</i>	\$28744	\$29145	\$29473	\$33176	\$31700	\$31992
<i>Standard Deviation</i>	\$12833	\$13815	\$11744	\$12231	\$13029	\$10461
Column Total (cases)	27588	4508	1178	22482	3110	910
Between Groups F=1579.0, p<.000						
Job satisfaction						
<i>Very dissatisfied</i>	3.6	3.4	.9	1.8	1.0	3.8
Dissatisfied	8.8	8.1	8.1	4.3	5.9	3.1
Satisfied	44.2	49.2	49.6	35.3	38.1	34.9
Very satisfied	43.4	39.3	41.4	58.6	55.0	58.3
Column Total	30880	5053	1267	24237	3399	1093
	$X^2=76.7, df=6, p<.00, \phi=.045$			$X^2=71.2, df=6, p<.00, \phi=.050$		

graduates, the mother's educational attainment (lower, same, and higher) forms a positive relationship with the children's unemployment rate (8.5%, 10.4%, and 10.5%, respectively), which appears to contradict the anticipated influence of family cultural capital. When using job stability and job continuity as measurements, it was observed that there is an reversed relationship between mothers' education and children's LMO, that is, children of mothers with higher educational attainment tend to have lower job stability and continuity. Turning to the long-term unemployment status, no significant influence was uncovered in relation to mothers' education; nevertheless, mothers' education levels had positive impacts on liberal graduates' annual job income. Graduates whose mothers have higher education earn \$29,473, while the graduates with mothers who have lower education make \$28,744. Opposite to the pattern seen in liberal

FOS, vocational graduates whose mothers have higher education tend to earn less (\$31,992) than those graduates of mothers with lower education (\$33,176). With regard to job satisfaction, it was observed that the mothers' education seems to have no clear effect on children's job satisfaction level.

Overall, a mother's education level has a limited impact on a graduate's LMO. However, if we want to address the influence, then effects are mixed, with some running counter to our expectations, especially among graduates in vocational education fields.

- **Father's Education**

Literature has traditionally focused on the father's rather than the mother's educational influence (Blau & Duncan, 1967). From a historical perspective, a father's education would show the more powerful influence on a child's LMO, simply because in the past, men have had more education than women. Table 5.16 suggests that a father's educational attainment has a strong impact on children's LMO, although not in the manner one would expect. For example, when using the employment status as an indicator, it was found that 83.4% of the liberal graduates with fathers who have lower education levels were employed, but only 78.8% of those whose fathers have higher education levels were employed. Similar to the liberal graduates, 86.5% of vocational graduates whose fathers have lower education levels were employed, but only 79.8% of those of fathers with higher education were employed. As regards job stability, a linear

relationship between father's education and child's job stability was observed: 72.8% of liberal graduates whose fathers have lower education levels were working at stable jobs. On the other hand, only 64.0% of those graduates of fathers with higher education have comparatively stable jobs. The gap is slightly narrower than the liberal fields, as 79.7% of vocational graduates whose fathers have lower education work at stable jobs, whereas 73.2% of graduates whose fathers have higher education levels have similar positions.

The pattern described in job stability is repeated in job continuity. The effect of long-term unemployment in light of the father's education is mixed. Liberal graduates of more educated fathers have the lowest rate (28.3%) while graduates with the same education as their fathers have highest rate (32.6%). Graduates with fathers who have lower education stand in the middle (29.4%). Opposite to the liberal graduates,

Table 5.16 Labour Market Outcomes by Father's Education by FOS

Fields	Liberal			Vocational		
	Father's Education					
Labour force status	Lower	Same	Higher	Lower	Same	Higher
<i>Employed</i>	83.4	80.4	78.8	86.5	85.7	79.8
<i>Unemployed</i>	9.5	13.2	13.1	8.2	9.9	10.7
<i>Not in Labour Force</i>	7.1	6.4	8.1	5.3	4.4	9.5
Column Total	30499	10082	6030	21258	8834	4660
	X ² =159.3, df=4, p<.00, φ=.058			X ² =206.4, df=4, p<.00, φ=.077		
Job full time 6 month?						
<i>Yes</i>	72.8	66.3	64.0	79.7	73.9	73.2
<i>No</i>	27.2	33.7	36.0	20.3	26.1	26.8
Column Total	26319	6890	3551	20178	5477	2843
	X ² =197.2, df=2, p<.00, φ=.073			X ² =127.0, df=2, p<.00, φ=.067		

Table 5.16 Labour Market Outcomes by Father's Education by FOS

Fields	Liberal			Vocational		
Is the job temporary/permanent?						
<i>Permanent</i>	76.9	73.4	67.6	74.9	68.3	66.1
<i>Temporary</i>	23.1	26.6	32.4	25.1	31.7	33.9
Column Total	24764	6321	3341	19506	5187	2708
	X ² =153.3, df=2, p<.00, φ=.067			X ² =155.7, df=2, p<.00, φ=.075		
Unemployed since graduation?						
<i>Yes</i>	29.4	32.6	28.3	25.5	22.9	26.5
<i>No</i>	70.6	67.4	71.7	74.5	77.1	73.5
Column Total	27386	7147	3787	21084	5715	2970
	X ² =32.8, df=2, p<.00, φ=.029			X ² =19.8, df=2, p<.00, φ=.026		
Annual job income						
<i>Mean</i>	\$28857	\$29267	\$27213	\$33068	\$32850	\$32479
<i>Standard Deviation</i>	\$12839	\$13501	\$12039	\$12322	\$12397	\$11686
Column Total (cases)	23721	6007	5023	18869	5023	2514
	Between Groups F=1622.18 p<.000					
Job satisfaction						
<i>Very dissatisfied</i>	3.4	4.0	3.1	1.7	2.1	2.1
<i>Dissatisfied</i>	8.4	8.9	9.6	4.2	5.6	3.1
<i>Satisfied</i>	44.4	44.6	48.7	36.1	35.7	36.1
<i>Very satisfied</i>	43.8	42.5	38.6	58.0	56.6	58.7
Column Total	26444	6900	3564	20266	5510	2830
	X ² =46.1, df=6, p<.00, φ=.035			X ² =39.7, df=6, p<.00, φ=.037		

vocational graduates whose fathers have higher education levels experience the highest unemployment rate (26.5%), whereas the graduates with the same education as their fathers have the lowest rate (22.9%), and graduates of fathers with less education are in the middle (25.5%). Using annual average job income as an indicator, liberal graduates with the same education as their fathers tend to make the most (\$29,267), whereas graduates whose fathers have higher education earn the least (\$27,213), and graduates

whose fathers have lower education are in the middle (\$28,857).

Similar to the liberal fields, there exists an inverse linear relationship between a father's education and a graduate's LMO, in which the higher the father's education is, the less the money the graduates earn. Finally, liberal graduates whose fathers have lower education levels tend to be most satisfied (43.8% very satisfied), and graduates whose fathers have higher education levels are least satisfied (38.6%). The effect of the father's education on the LMO of vocational graduates is mixed, in which the graduates with fathers who have higher education tend to be most satisfied (58.7% very satisfied), and graduates with the same education as their fathers are least satisfied (56.6% very satisfied). In sum, the father's education in a more consistent way demonstrates that the family of origin shows weaker impact on a graduate's *initial* LMO. This is true especially in comparison to the situation decades ago (Blau & Duncan, 1967), or at the stage of life course when people make a transition from high school to post secondary education (Anisef, et al., 1982). However, additional care must be taken in light of these initial LMO, although it does appear that those graduates with social capital (e.g., higher father's education) are more likely to continue their education⁷.

⁷ It was found that 19.3% of the graduates with higher father's education, 16.9% with the same, and 15.8% with lower father's education have continued their education beyond bachelor degree two year after graduation (NGS, 1992).

- **Region of Origin**

Region of origin, identified as an immediate structural factor, continues to play an important role in shaping the general life course of youth and their specific LMO. Table 5.17 demonstrates how the region of origin plays a role in affecting the LMO of the 1990 graduates. By using the current unemployment rate as an indicator of the LMO, it was found that liberal graduates in Western provinces have the lowest rate (7.9%), whereas the graduates in Atlantic provinces have the highest rate (15.4%). The graduates in Quebec and Ontario have moderate unemployment rates (12.4% and 10.5% respectively). With regard to vocational graduates, it was observed that graduates in the Western provinces have the lowest unemployment rate (7.6%), whereas vocational graduates in Quebec have the highest unemployment rate (11.0%). In terms of job stability, Ontario graduates have the highest rate of job stability (74.9% in liberal and 80.9% in vocational fields). Liberal graduates in Western provinces have the lowest rate of job stability (65.3%), and the vocational graduates in Atlantic provinces have the lowest rate of job stability (70.9%). Measured by job continuity, the graduates in Ontario led the country in both FOS, in which 78.2% of the liberal and 78.3% of the vocational graduates hold permanent positions. Liberal graduates in Atlantic provinces have the lowest rate of permanent positions, while the vocational graduates in Quebec have the lowest rate of permanent positions. Turning to long-term unemployment, graduates in Ontario have the lowest unemployment rate in both FOS, where 26.1% of the liberal and 24.7% of the

vocational graduates have unemployment experience. In contrast, graduates in the Atlantic provinces have the highest unemployment rate for both liberal (35.4%) and

Table 5.17 Labour Market Outcomes by Region by FOS

Fields	Liberal				Vocational			
FOS	Region of Origin							
E Status	Atlantic	Ontario	Quebec	West	Atlantic	Ontario	Quebec	West
<i>Employed</i>	78.3	82.7	80.2	84.5	86.2	85.4	83.5	86.6
<i>Unemployed</i>	15.4	10.5	12.4	7.9	8.2	9.0	11.0	7.6
<i>Not in Labour Force</i>	6.4	6.7	7.4	7.6	5.6	5.6	5.4	5.8
Column Total	3918	20736	11196	10901	3580	13126	8562	9493
	$X^2=223.1, df=6, p<.00, \phi=.069$				$X^2=68.4, df=6, p<.00, \phi=.044$			
Job full time 6 months?								
<i>Yes</i>	65.7	74.9	70.8	65.3	70.9	80.9	77.3	78.9
<i>No</i>	34.3	25.1	29.2	34.7	29.1	19.1	22.7	21.1
Column Total	3052	17116	8914	9217	3046	11263	7163	8217
	$X^2=310.6, df=3, p<.00, \phi=.090$				$X^2=148.9, df=3, p<.00, \phi=.071$			
Is the job temporary/permanent?								
<i>Permanent</i>	70.9	78.2	73.7	72.8	64.9	78.3	63.1	76.4
<i>Temporary</i>	29.1	21.8	26.3	27.2	35.1	21.7	36.9	23.6
Column Total	2955	16188	8304	8405	3037	10663	6913	7960
	$X^2=146.3, df=3, p<.00, \phi=.064$				$X^2=637.6, df=3, p<.00, \phi=.149$			
Unemployed since graduation?								
<i>Yes</i>	35.4	26.1	33.8	31.4	27.5	24.7	25.5	23.6
<i>No</i>	64.6	73.9	66.2	68.6	72.5	75.3	74.5	76.4
Column Total	3343	17892	9238	9517	3037	11952	7545	8455
	$X^2=244.7, df=3, p<.00, \phi=.078$				$X^2=20.2, df=3, p<.00, \phi=.026$			
Annual Job Income								
<i>Mean</i>	\$26365	\$29945	\$28908	\$27529	\$29669	\$34651	\$32684	\$32210
<i>Standard Deviation</i>	\$12770	\$12980	\$12868	\$12605	\$12448	\$12465	\$11341	\$12200
Column Total	2794	14985	8146	8273	2788	10132	6751	7690
	$\text{Between Groups } F=1649.25 \text{ } p<.000$							

Table 5.17 Labour Market Outcomes by Region by FOS

Fields	Liberal				Vocational			
Job satisfaction								
<i>Very dissatisfied</i>	3.9	3.9	2.1	4.5	2.6	2.7	1.1	1.2
Dissatisfied	7.7	9.4	6.7	9.3	4.6	4.3	3.2	5.3
Satisfied	40.7	42.8	50.7	44.8	34.8	29.6	44.7	36.4
Very satisfied	47.6	43.9	40.5	41.5	58.0	63.4	51.0	57.0
Column Total	3058	17161	9013	9215	3071	11306	7176	8255
	$X^2=272.4, df=9, p<.00, \phi=.084$				$X^2=529.4, df=9, p<.00, \phi=.133$			

vocational (27.5%) graduates. Again, Ontario graduates led the country in terms of annual average job income for both liberal (\$29,945) and vocational (\$34,651) graduates. Graduates in Atlantic provinces were the poorest paid for both liberal (\$26,365) and vocational (\$29,669) FOS. Despite many negative LMO, liberal graduates in the Atlantic provinces, for instance, were the happiest (47.6% very satisfied), while those in Quebec were the least happy (40.5% very satisfied). Vocational graduates in Ontario were most satisfied with their jobs (63.4% very satisfied) whereas those in Quebec are least satisfied (51.0% very satisfied).

In brief, the region of origin plays a significant role in affecting LMO. Graduates in Ontario are likely to lead the country on most LMO indicators, whereas the graduates in Atlantic provinces and Quebec show a few indicators of LMO below their counterparts.

- **Summary**

Briefly, the main emphasis of this section has been on the determinants (e.g., social structure and personal agency), mediated by FOS choice, of LMO. It was found that both social structure and personal agency have shown an influence on the LMO. However, the increments of the regressions suggest that adding agency variables to the models, in most cases, greatly increases their explanatory power. With the model increments, therefore, it can be concluded that agency variables have played a more important role than structural factors in determining the LMO. The relative influence of structure and agency factors on LMO for graduates who chose liberal or vocational FOS is different. The pattern is that social structure tends to have stronger impact on liberal rather than vocational graduates (Q6). Furthermore, it was observed that relationships between agency factors and LMO are mediated by FOS (Q7). Liberal graduates are more likely to take a second major, study part time, and continue education, while vocational graduates are more likely to participate in co-op programs. Despite general negative LMO, vocational graduates would have been in a more disadvantaged position than liberal graduates if they had selected a second major and continued their education. However, liberal graduates would have been in a less favourable situation than vocational graduates if they had entered a co-op program. With regard to structural factors (Q8), it was observed that their influence is, in general, weaker than agentic factors. However, region of origin and ethnic background still exert influence in the LMO of the 1990

university graduates. Universities in Ontario play a leading role to promote liberal education with positive LMO, while visible minority background shows some advantage in vocational rather than liberal education.

5.4 Relevance of Education and Work

Besides the structure and agency forces, the relevance of education and work also strongly influences the LMO (Anisef et. al. 1997). Like previous sections, FOS will be used to mediate the relationships. In this regard, underemployment, education and job linkage, educational outcomes, and employment skills will be discussed.

5.4.1 Underemployment

Underemployment is operationally defined here as an employment status if one of the following factors is present: (1) if a person's job is not related to what she/he has studied; (2) if the job does not use the skills acquired from the university program; and (3) if a person is over-qualified for the job according to her/his educational attainment. As one of the consequences of mass higher education, underemployment is likely to increase with an improved educational level in Canadian population. Table 5.18 contains the three measures of underemployment: the linkage between employment and study, skill utilisation, and job qualifications. First of all, liberal graduates are more likely to end up with the jobs that are not related to their programs of study. Specifically, almost one in

four of the liberal graduates (23.4%) reported that their jobs were not related to their studies in the university. In contrast, less than one in ten of the vocational graduates (9.0%) reported that they were in a similar situation. Furthermore, it was found that only less than half of the liberal graduates have jobs directly related to their studies (44.1%), whereas over seven in ten (71.3%) of vocational graduates reported that they have a similarly direct relationship. The discrepancy of job-education linkage reflects that liberal education aims to produce generalists, while vocational education trains specialists.

Turning to the question, “To what extent did you use any of the skills and knowledge acquired from the program?” close to three in ten (28.1%) of the liberal graduates reported that they did not use any of the skills and knowledge acquired from

Table 5.18 Relevance between FOS and Work (count columns)

FOS	Liberal	Vocational	
<i>Variables</i>	<i>%</i>	<i>%</i>	Row Total
Was last week's job related to your study?			
<i>Not related</i>	23.4	9.0	11647
<i>Partly related</i>	32.6	19.6	18329
<i>Directly related</i>	44.1	71.3	38149
Column Total	38298	29827	$X^2=5294, df=2, p<.00, \phi=.279$
<i>In this job, to what extent did you use any of the skills and knowledge acquired from the program?</i>			
Not at all	12.4	6.0	6572
Very little	15.7	10.3	9117
To some extent	37.2	34.1	24504
To a great extent	34.7	49.6	28187
Column Total	38487	29893	$X^2=2067, df=3, p<.00, \phi=.174$

Table 5.18 Relevance between FOS and Work (count columns)

<i>Education and Job qualification</i>			
Overqualified	36.4	18.0	15838
Qualified	57.4	77.0	38040
Under-qualified	6.2	5.0	57089
Column Total	30189	26900	$X^2=2593, df=2, p<.00, \phi=.213$
<i>Given your experiences since completing the program in 1990, would you have selected the same FOS or specialisation?</i>			
Yes	70.3	81.7	58461
No	29.7	18.3	19299
Column Total	44449	33311	$X^2=1310, df=1, p<.00, \phi=.130$

their university programs at all, or very little. In comparison, fewer than two in ten (16.3%) of vocational graduates described themselves in this way.

Using job qualifications as an indicator of underemployment, it was observed that 36.4% of the liberal graduates thought that they were overqualified for their jobs. Only 18.0% of vocational graduates reported that they were overqualified.

The three measures of underemployment indicate that the graduates from liberal education are more likely to be underemployed than those graduates from vocational fields. To understand how the graduates evaluate their university FOS, a hypothetical question was raised: "Given your experiences since completing the program in 1990, would you have selected the same FOS or specialisation?" The answer to the question reflects their overall feeling about their FOS choice. First of all, the majority of the graduates loved the areas of study they selected whether in liberal or vocational fields. Specifically, 70.3% of the liberal graduates would repeat what they have studied, and

81.7% of the vocational graduates reported that they would choose the same FOS again. However, it was also found that almost three in ten of the liberal graduates (29.7%), and fewer than two in ten (18.3%) of vocational graduates would not select the same FOS. Briefly, if FOS choices are evaluated purely from a perspective of initial job-education linkage, we conclude that vocational graduates are much better prepared than liberal graduates: “Whether we like it or not, education has been and will continue to be influenced by occupational requirements and career concerns” (Heinz, 1999: 9).

5.4.2 Job-Education Linkage and Labour Market Outcomes

To continue the previous inquiry, this section tries to identify to what extent the job–education linkages affect the LMO⁸. In other words, it attempts to explore how job stability, job continuity, long-term unemployment, income, and job satisfaction are influenced by the degree of job–education connection. Table 5.19 reveals there exists a linear relationship between job-education linkage and job stability across FOS. Of the liberal graduates whose jobs were directly related to their studies, 77.7% reported that their jobs were stable. In contrast, only 58.2% of those whose jobs were not related to their studies made a same claim. Similarly, 83.3% of the vocational graduates whose jobs were directly related to their studies reported that they had stable jobs. Only 47.8% of

⁸ Table 5.19, 4.20 and 4.21 only involve the respondents who had the job during this survey conducted. Therefore, it is not appropriate to show the employment status in the

those whose jobs were not related to what they studied made the same statement. Turning to job continuity, it was observed there is no significant difference among liberal graduates if their jobs were directly or partly related to their majors. However, if the jobs were not related to their majors, they were more likely to end up with temporary work (38.2%). For vocational graduates, FOS and job continuity were linked. Specifically, over three in four (75.1%) vocational graduates whose jobs were directly related to their studies had permanent jobs, whereas only 54.2% of graduates whose jobs were not related to their studies had permanent employment status. When looking at long-term unemployment rate, it was observed that 23.5% of the liberal graduates whose jobs were directly related to their majors had unemployment experience, whereas 30.3% of those whose jobs were not related to their studies had the same experience. The unemployment gap is wider among vocational graduates, ranging from less than two in ten (19.0%) for vocational graduates whose jobs were directly related to their studies to 35.0% for those

Table 5.19 Educational Relevance and Labour Market Outcomes by FOS

Fields	Liberal			Vocational		
	Job related to your study?					
	Directly related	Partly related	Not related	Directly related	Partly related	Not related
Job full time 6 month?						
Yes	77.7	70.9	58.2	83.3	74.8	47.8
No	22.3	29.1	41.8	16.7	25.2	52.2
Column Total	16733	12375	8954	21159	5813	2673
	X ² =1071.0, df=2, p<.00, φ=.168			X ² =1824.3, df=2, p<.00, φ=.248		

tables.

Table 5.19 Educational Relevance and Labour Market Outcomes by FOS

Fields	Liberal			Vocational		
Is the job permanent or temporary?						
Permanent	79.3	79.8	61.8	75.1	71.9	54.2
Temporary	20.7	20.2	38.2	24.9	28.1	45.8
Column Total	16870	10417	8364	21277	4775	2515
	X ² =1072.7, df=2, p<.00, φ=.173			X ² =493.2, df=2, p<.00, φ=.131		
Unemployed since graduation in 1990						
Yes	23.5	24.2	30.3	19.0	21.7	35.0
No	76.5	75.8	69.7	81.0	78.3	65.0
Column Total	14876	10885	7971	19476	5317	2397
	X ² =136.7, df=2, p<.00, φ=.064			X ² =333.1, df=2, p<.00, φ=.111		
Annual job income						
Mean	\$31301	\$30205	\$22091	\$33948	\$33924	\$21792
Standard deviation	\$11470	\$13182	\$12928	\$10404	\$15554	\$12427
Column Total	15404	10759	7880	19838	5290	2224
	Between Groups F=1629.3 p<.00					
Job satisfaction						
Very dissatisfied	.4	2.0	11.9	.3	2.1	13.6
Dissatisfied	3.1	7.9	20.2	2.3	6.4	16.3
Satisfied	44.4	43.7	47.5	33.7	40.3	41.9
Very satisfied	52.0	46.4	20.5	63.7	51.2	28.2
Column Total	16865	12471	8923	21268	5853	2683
	X ² =5673.8, df=6, p<.00, φ=.385			X ² =4041.1, df=6, p<.00, φ=.368		

whose jobs were not related to their studies. Annual job income continues to show a linear relationship with job-education linkage. Thus, the more graduates who had jobs related to their education, the higher the income level they were likely to enjoy. Turning to job satisfaction, it was observed that the graduates whose jobs were not related to their education were least happy: 20.5% of the liberal and 28.2% of the vocational graduates whose jobs were not related to what they studied reported that they were very satisfied

with their jobs. Conversely, 52.0% of liberal and 63.7% of vocational graduates whose jobs were directly related to their studies reported that they were very satisfied with their work. In brief, graduates whose jobs were related to their FOS are more likely to produce positive LMO than those graduates whose jobs were not related to their studies. If the job-education linkage is broken, negative LMO are more severe for vocational than for liberal graduates.

Does skills utilisation matter? Table 5.20 demonstrates that knowledge and skills utilisation on the job relates to positive LMO. It was observed that 76.2% of liberal graduates who extensively used their skills and knowledge on the job had stable employment. In comparison, 54.6% of those graduates who did not use their skills and knowledge in their jobs had stable employment. More pronounced is this relationship for vocational graduates, with 82.6% who use their skills and knowledge holding stable jobs, and only 46.2% of those who did not use the skills with the same job stability. A linear relationship exists among liberal graduates with regard to the skills being used in their jobs and their actual job continuity. For instance, 81.6% of the liberal graduates who extensively used skills and knowledge in their jobs were in permanent positions, as opposed to 56.6% of those graduates who did not use their skills and knowledge working in permanent jobs. Slightly different from the graduates in liberal fields, vocational graduates with moderate use of their skills and knowledge in their work had the highest rate of job continuity (76.9%). In contrast, only 50.9% of those who did not at all use the

Table 5.20 Job Utilising Skills and Labour Market Outcomes by FOS

Fields	Liberal				Vocational			
	Use skills and knowledge acquired from the program?							
	To a great extent	To some extent	Very little	Not at all	To a great extent	To some extent	Very little	Not at all
Job full time 6 month?								
Yes	76.2	75.0	62.6	54.6	82.6	81.2	68.5	46.2
No	23.8	25.0	37.4	45.4	17.4	18.8	31.5	53.8
Column Total	13188	14233	6039	4791	14728	10171	3030	1782
	X ² =1117.0, df=3, p<.00, φ=.171				X ² =1464.6, df=3, p<.00, φ=.222			
Is the job temporary/permanent?								
Permanent	81.6	78.5	69.1	56.6	73.2	76.9	69.1	50.9
Temporary	18.4	21.5	30.9	43.4	26.8	23.1	30.9	49.1
Column Total	12137	13466	5774	4465	14066	9887	2986	1697
	X ² =1293.4, df=3, p<.00, φ=.190				X ² =518.2, df=3, p<.00, φ=.135			
Unemployed since graduation?								
Yes	23.5	23.7	29.9	30.1	19.1	19.8	25.7	34.6
No	76.5	76.3	70.1	69.9	80.9	80.2	74.3	65.4
Column Total	11940	12551	5112	4297	13719	9135	2788	1609
	X ² =149.8, df=3, p<.00, φ=.066				X ² =253.6, df=3, p<.00, φ=.096			
Annual job income								
Mean	\$31,839	\$30,023	\$25,916	\$20,376	\$34,546	\$33,332	\$30,538	\$19,564
Standard Deviation	\$12150	\$12456	\$13208	\$11489	\$12111	\$10864	\$12667	\$11839
Column Total	11790	12842	5366	4196	13913	9289	2854	1363
	Between Groups F=1653.3 p<.000							
Job satisfaction								
Very dissatisfied	.9	1.2	3.3	18.5	.4	.4	2.5	21.3
Dissatisfied	2.3	7.0	14.3	24.0	1.4	4.2	12.6	15.4
Satisfied	39.0	49.2	53.5	38.2	28.6	42.6	45.7	38.8
Very satisfied	57.8	42.6	28.8	19.2	69.6	52.8	39.2	24.5
Column Total	13347	14306	6036	4763	14841	10183	3071	1775
	X ² =7563.0, df=9, p<.00, φ=.443				X ² =6491.1, df=9, p<.00, φ=.466			

skills and knowledge in their work had permanent job. The long-term unemployment rate indicated that if a graduate extensively used the skills and knowledge in her/his work, it greatly reduced the risk of long-term unemployment. For example, 23.5% of the liberal graduates who extensively used FOS acquired skills in their work have unemployment experience, but 30.1% of those who did not use their skills experienced unemployment. The unemployment rate gap among vocational graduates is wider, and it was observed that 19.1% of the vocational graduates who extensively used their skills at work had unemployment experience, whereas 34.6% of those who did not use the skills in their work had the same experience.

Annual job income also indicates the relationship between an individual's skills utilisation and perceived job competency (as measured in income). It was found that liberal graduates who extensively used their skills made \$31,839, while those who did not use their skills at all only earned \$20,376. It was also observed that the income gap between skill users and non-users in vocational FOS is much wider than that of graduates in liberal fields. Vocational graduates who extensively used their skills at work made an income average of \$34,546, while those non-skills users earned \$19,564 (43.0% less than skills users). In addition, it was found that 57.8% of the liberal skill users were very satisfied with their jobs, but only 19.2% of the non-users reported that they were very satisfied with their jobs. Similarly, 69.6% of vocational skill users were very satisfied with their jobs, whereas 24.5% of non- users had the same job satisfaction level. In brief,

if university graduates can use the skills and knowledge acquired from their educational programs, they will be more likely to receive positive LMO. To compare liberal and vocational graduates, it should be noted that if their skills and knowledge are not used at work, the negative consequences are more severe for vocational than liberal graduates.

Job qualifications comprise a type of self-assessment of the job situation. Table 5.21 shows that the graduates who well qualified for their jobs are more likely to gain job stability than those who were either over-qualified or under-qualified. For example, 79.6% of the liberal graduates who were qualified gained job stability, while only 66.4% over-qualified and 61.6% of under-qualified graduates had the same job stability. Similarly, 83.7% of qualified vocational graduates had stable jobs, whereas a mere 68.1% over-qualified and 70.3% under-qualified graduates had similar job stability. It was observed that, overall, graduates whose qualifications matched the job occupy the best niches in the labour market. However, liberal graduates will be better off if they are overqualified, and vocational graduates will be in more positive positions if they are under-qualified, instead of over-qualified. With respect to job continuity, it was found that qualified liberal graduates have the highest rate of job continuity (81.1%), while there is no significant difference among over (71.8%) and under (71.0%) qualified. For vocational graduates, those who are over-qualified have the lowest rate of job continuity (67.7%), and the qualified have the highest rate (74.8%). From a long-term unemployment perspective, over-qualified graduates were not only underemployed but

Table 5.21 Job Qualification and Labour Market Outcomes by FOS

Fields	Liberal			Vocational		
Qualified for the job?						
	Over qualified	Qualified	Under qualified	Over qualified	Qualified	Under qualified
Job full time 6 month?						
Yes	66.4	79.6	61.6	68.1	83.7	70.3
No	33.6	20.4	38.4	31.9	16.3	29.7
Column Total	10972	17191	1855	4815	20613	1307
	$X^2=753.1, df=2, p<.00, \phi=.158$			$X^2=685.4, df=2, p<.00, \phi=.160$		
Is the job permanent or temporary?						
Permanent	71.8	81.1	71.0	67.7	74.8	74.3
Temporary	28.2	18.9	29.0	32.3	25.2	25.7
Column Total	10990	17324	1874	4848	20715	1337
	$X^2=370.7, df=2, p<.00, \phi=.111$			$X^2=103.1, df=2, p<.00, \phi=.062$		
Unemployed since graduation in 1990						
Yes	27.8	23.0	17.7	26.9	19.6	19.4
No	72.2	77.0	82.3	73.1	80.4	80.6
Column Total	9824	15322	1460	4487	18855	1250
	$X^2=110.9, df=2, p<.00, \phi=.065$			$X^2=118.8, df=2, p<.00, \phi=.070$		
Annual job income						
Mean	\$25299	\$31662	\$30785	\$28879	\$33898	\$33907
Standard deviation	\$12918	\$10554	\$14089	\$13603	\$10163	\$11699
Column Total	9970	15892	1669	4370	19399	1234
	$\text{Between Groups } F=1341.0, p<.000$					
Job satisfaction						
Very dissatisfied	6.8	.7	0	4.4	.6	2.2
Dissatisfied	13.3	4.3	4.5	9.6	2.6	3.5
Satisfied	48.4	44.4	39.5	43.3	34.3	25.7
Very satisfied	31.5	50.6	56.0	42.7	62.5	68.5
Column Total	10985	17319	1874	4841	20699	1337
	$X^2=2337.7, df=6, p<.00, \phi=.278$			$X^2=1320.6, df=6, p<.00, \phi=.222$		

also unemployed. For liberal graduates, 27.8% of those who were over-qualified had

unemployment experience, in contrast with 17.7% of those who were under-qualified. Similarly, 26.9% of the vocational graduates who were over-qualified had unemployment experience, but only 19.4% of those who were under-qualified had the same unemployment experience. Annual job income, for liberal graduates identified as qualified, was the highest (\$31,662) among the three groups. Those identified as over-qualified earned the lowest income (\$25,299), and the under-qualified sat in the middle (\$30,785). In contrast to liberal graduates, under-qualified vocational graduates earned the highest (\$33,907); qualified graduates stand in the middle (\$33,898), and over-qualified graduates made the least (\$28,879). A measure of job satisfaction demonstrates a linear relationship across FOS, in which under-qualified were most satisfied, and over-qualified were least satisfied with their jobs. In brief, over qualification is associated with negative LMO for both liberal and vocational graduates. Nevertheless, over-qualification is most disadvantageous for vocational graduates, while under-qualification confers LMO advantages to vocational rather than liberal graduates.

The question “Given your experiences since completing the program in 1990, would you have selected the same FOS or specialisation?” asks graduates to evaluate their FOS selection. Focusing on how their answer is related to their LMO, Table 5.22 reveals that overall, university graduates like what they have studied in the university. The evidence is that 70.3% of the liberal and 81.7% of the vocational graduates would

Table 5.22 Selecting Same FOS and Labour Market Outcomes by FOS

Fields	Liberal		Vocational	
Selecting the same FOS?				
Labour force status	Yes	No	Yes	No
Employed	82.3	81.1	86.7	81.5
Unemployed	10.5	12.1	7.8	11.9
Not in Labour Force	7.2	6.7	5.5	6.6
Column Total	31260	13189	27201	6110
	$X^2=28.4, df=2, p<.00, \phi=.025$		$X^2=128.6, df=2, p<.00, \phi=.062$	
Job full time 6 month?				
Yes	72.1	69.3	81.3	66.1
No	27.9	30.7	18.7	33.9
Column Total	25731	10611	23643	4936
	$X^2=29.1, df=1, p<.00, \phi=.028$		$X^2=559.0, df=1, p<.00, \phi=.140$	
Is the job permanent or temporary?				
Permanent	77.0	72.6	75.1	63.1
Temporary	23.0	27.4	24.9	36.9
Column Total	24014	10079	22695	4803
	$X^2=74.8, df=1, p<.00, \phi=.047$		$X^2=288.0, df=1, p<.00, \phi=.102$	
Unemployed since graduation in 1990?				
Yes	27.3	35.2	22.9	31.4
No	72.7	64.8	77.1	68.6
Column Total	26897	11167	24433	5273
	$X^2=269.0, df=1, p<.00, \phi=.084$		$X^2=170.2, df=1, p<.00, \phi=.076$	
Annual job income				
Mean	\$29867	\$26800	\$34093	\$27849
Standard Deviation	\$13126	\$12088	\$11964	\$12022
Column Total	23002	9505	21760	4572
	$\text{Between Group } F=1495.5, p<.00$			

Table 5.22 Selecting Same FOS and Labour Market Outcomes by FOS

Fields	Liberal		Vocational	
Job satisfaction				
Very dissatisfied	3.0	5.2	1.0	6.0
Dissatisfied	5.9	15.0	3.0	9.9
Satisfied	42.5	50.4	31.5	51.1
Very satisfied	48.6	29.4	64.5	33.0
Column Total	25790	10684	23724	4975
	X ² =1580.6, df=3, p<.00, φ=.208		X ² =2158.4, df=3, p<.00, φ=.274	

repeat their FOS or specialisation if they were given another chance to decide. However, almost three in ten liberal graduates (29.7%) did not want to repeat their FOS; in contrast, fewer than two in ten (18.3%) of the vocational graduates did not want to do so. This was observed whether the graduates desire to repeat their FOS is related to their LMO. In terms of unemployment, 10.5% of the liberal repeaters were unemployed, whereas 12.1% of the non-repeaters had similar unemployment experience. As well, 7.5% of the vocational repeaters were unemployed while 11.9% of the non-repeaters experienced unemployment. By looking at job stability, it was found that repeaters would be more likely to have stable jobs than non-repeaters. Specifically, 72.1% of the liberal repeaters had full time and stable jobs, while 69.3% of those non-repeaters had similar jobs. Of vocational repeaters, 83.1% had full time and stable jobs, while 66.1% of non-repeaters had similar jobs. Job continuity results indicate 77.0% of the liberal repeaters had permanent jobs, whereas 72.6% of non-repeaters had similar job stability. The gap is wider for vocational graduates: 75.1% of the vocational repeaters gained job continuity,

while only 63.1% of those non-repeaters had a similar rate of job continuity. With regard to long-term unemployment rates, 35.2% of the liberal non-repeaters had unemployment experience, whereas 27.3% of the repeaters had the same experience. For vocational non-repeaters, 31.4% had unemployment experience, while only 22.9% of the repeaters had the same experience. Annual average job income and job satisfaction seem to repeat the stories previously described. Despite the variety of reasons graduates change or repeat their FOS, we found that almost all indicators demonstrate that those who wanted to change their FOS or specialisation were also more likely to record a negative LMO.

5.4.3 Educational Choice and Educational Outcomes

The boundary of educational returns is definitely broader than LMO. To explore additional educational returns, discussion is extended beyond the marketplace to educational outcomes. Table 5.23 and Table 5.24 identify two types of educational returns: “job specific skills” and “general employment skills.” Job specific skills refer to skills that are directly related to certain jobs, including skills needed for a particular job, in-depth knowledge of a FOS, skills that improve chances of a good income, and knowledge about career opportunities in their FOS. Specifically, 24.3% of the liberal graduates reported that, to a great extent, the programs provided them with the skills required for a particular job while 34.3% of the vocational graduates reported the same results (10.0% difference). It was found there is no significant difference in terms of in-

depth knowledge provided by both liberal and vocational programs. However, 51.5% of the vocational graduates responded that, to a great extent, their program provided them with improved chances of good income, differing from the responses from 35.6% of the liberal graduates. Turning to career opportunities, only 19.0% of the liberal graduates reported that, to a great extent, their program did so, while 29.9% of the vocational graduates reported the similar story. By using job specific skills as an indicator of educational returns, it can be concluded that vocational graduates tend to have more

Table 5.23 Educational Evaluation and FOS (count columns)

FOS	Liberal	Vocational	
Variables	%	%	Row Total
To what extent do you feel your program provided you with the skills needed for a particular job?			
To a great extent	24.3	34.3	23247
To some extent	51.5	52.0	42110
Not very much	18.6	11.1	12519
Not at all	5.6	2.8	3591
Column Total	46707	34760	$X^2=1797.5, p<.00, \phi=.149$
To what extent do you feel your program provided you with an in-depth knowledge of a field of study?			
To a great extent	35.2	38.0	29677
To some extent	54.5	53.1	43910
Not very much	9.1	8.0	7043
Not at all	1.2	.9	863
Column Total	46713	34780	$X^2=93.0, p<.00, \phi=.034$
To what extent do you feel your program provided you with an opportunity to improve yourself generally?			
To a great extent	54.0	47.0	41532
To some extent	40.9	46.3	35192
Not very much	4.0	5.7	3854
Not at all	1.1	1.0	861
Column Total	46663	34776	$X^2=2593.0, p<.00, \phi=.178$

Table 5.23 Educational Evaluation and FOS (count columns)

To what extent do you feel your program provided you with improved chances of a good income?			
To a great extent	35.6	51.5	34521
To some extent	44.8	36.1	33428
Not very much	13.8	8.8	9502
Not at all	5.8	3.6	3957
Column Total	46688	34720	$X^2=2177.0, p<.00, \phi=.164$
To what extent do you feel your program provided you with knowledge about career opportunities in your field of study?			
To a great extent	19.0	29.9	19275
To some extent	38.0	42.2	32387
Not very much	29.7	20.5	20988
Not at all	13.3	7.4	8795
Column Total	46686	34759	$X^2=2388.6, p<.00, \phi=.171$

positive LMO than liberal graduates. However, when the question refers to general in-depth knowledge, the gap between graduates from the two FOS narrows.

5.4.4 Employment Skills

In contrast to job specific skills, employment skills or general skills often relate to literacy, which is one of the core components of liberal education. In this section, literacy education in universities, including writing, speaking, thinking, and decision-making, will be discussed. Table 5.24 reveals 54.0% of the liberal graduates and only 47.0% of vocational graduates reported that the program, to a great extent, provided opportunities to improve themselves generally. When asked, “To what extent did your program develop your skills in writing well?” 39.0% of graduates in liberal FOS reported that their program, to a great extent, helped develop their skills in writing well, a figure almost

20% higher than for vocational graduates in the same category (19.9%). In terms of learning skills in effective speaking, 33.7% of the liberal graduates answered that the program, to a great extent, developed their skills in speaking, this being almost 10% higher than the vocational graduates in the same category (23.8%). Liberal graduates (53.9%) were also more likely than vocational graduates (46.8%) to report that the university program, to a great extent, developed their independent thinking skills. Vocational (40.8%) and liberal (40.6%) graduates shared similar views of their decision-making skills.

Table 5.24 Educational Evaluation and FOS (count columns)

FOS	Liberal	Vocational	
Variables	%	%	Row Total
To what extent did your program develop your skills in writing well?			
To a great extent	39.0	19.9	25106
To some extent	38.8	39.3	31778
Not very much	15.1	26.1	16150
Not at all	7.1	14.7	8402
Column Total	46678	34758	$X^2=4685, df=3, p<.00, \phi=.240$
To what extent did your program develop your skills in speaking well?			
To a great extent	33.7	23.8	24008
To some extent	42.8	42.5	34753
Not very much	16.0	21.8	15031
Not at all	7.6	11.9	7674
Column Total	46696	34770	$X^2=1416, df=3, p<.00, \phi=.132$
To what extent did your program develop your skills in thinking independently?			
To a great extent	53.9	46.8	41449
To some extent	37.5	40.3	31511
Not very much	5.7	8.3	5524
Not at all	3.0	4.6	2998
Column Total	46712	34770	$X^2=587.7, df=3, p<.00, \phi=.085$

Table 5.24 Educational Evaluation and FOS (count columns)

To what extent did your program develop your skills in making decision?			
To a great extent	40.6	40.8	33156
To some extent	46.5	43.8	36961
Not very much	8.7	11.0	7858
Not at all	4.2	4.4	3508
Column Total	46713	34700	$\chi^2=143.3, df=3, p<.00, \phi=.042$

When comparing Table 5.23 to Table 5.24, it can be surmised that vocational graduates are better equipped with job specific skills and that liberal graduates are well educated in terms of employment skills (general skills). Such differences suggest that life skills and skills for the world of work are somewhat separated in Canadian university education.

5.5 Summary

In summary, it was first found that there exists a strong link between FOS choice and LMO. By using six indicators of LMO (e.g., unemployment rate, job stability, job continuity, long term unemployment, income, and job satisfaction), it was observed that five out six indicators are in favour of vocational graduates. Only one indicator revealed that liberal graduates had a slightly better chance to secure permanent work. The skewed link between FOS choice and LMO suggests that the initial labour market favours

vocational graduates.

Given a strong link between FOS choice and LMO, data analysis suggests that the agency factors have a stronger impact on FOS choice than structure predictors. This observation is different from findings either based in early life course stages or for previous generations, for which social structure often played a significant role (Anisef et al., 1980). Based on these findings, Beck's theory of individualisation is given strong support in the areas of chosen FOS. In this connection, an individual does take more responsibility when choosing her/his career pathways to employment destinations. However, pointing out that structural influences are in the process of weakening should not be seen as a rejection of their presence as their impact often is quite powerful. By combining agency and structure, it can be concluded that structured individualisation is a major force in shaping life course destinations. It was found that structure factors differ between those who choose to enrol in liberal, as opposed to vocational FOS. At the same time, antecedent coping strategies differ between those who choose to enrol in liberal as opposed to vocational fields of study.

The analysis reported in this chapter supports the notion that liberal graduates chose different strategies in coping with risk than vocational graduates. The evidence is that students in liberal fields are more likely to choose a second major, to study part time, to continue their studies. In comparison, graduates in vocational fields are more likely to take co-op programs and work full time before graduation. Finally, vocational graduates

tend to possess stronger job specific skills than liberal graduates; however, in terms of employment skills, liberal graduates are better prepared than vocational graduates.

Chapter Six

Discussion and Conclusion

In this final chapter, the major findings of the dissertation will be summarised, implications of the study on university education policy will be discussed, and needs for further research will also be considered.

6.1 Conclusion

The thesis asks, how do university students manage risks in relation to their fields of study? To answer the question, we start from a theory of ‘structured individualism’, then explore liberal and vocational programs in regard to university education. The theory of ‘structured individualism,’ which is derived from the theory of risk society (Beck, 1992), forms the framework of this study. The horizontal axis represents social structure and personal agency, and the vertical axis stands for labour market outcomes (e.g., unemployment, job stability, job continuity, long-term unemployment, job income, and job satisfaction), and education returns (e.g., general employment skills and job specific skills). The whole framework is then mediated by fields of study, in which liberal or vocational education are discussed with regard to university educational policy.

6.1.1 From Fields of Study to Labour Market Outcome

To summarise the findings, we begin with the links between FOS choice and LMO. When using six indicators of LMO (unemployment rate, job continuity, job stability, long term unemployment, income, and job satisfaction), we found that some of the LMO (such as unemployment) favour vocational graduates, while others (e.g., job continuity) are in favour of liberal graduates. Hence, a link between FOS choice and labour market outcomes is established. Based on this valid linkage, social structure and personal agency are introduced to predict FOS choice as well as labour market outcomes.

6.1.2 Structure, Agency and the Choice of Fields of Study

The meaning of a linkage between FOS choice and LMO suggests that a further assessment of these complex relationships is needed. To answer the question of how social structure and personal agency affect FOS choice, a logistic regression was conducted as the first step toward uncovering how students manage risks. Among six social structural factors of gender, age, ethnicity, parent's education, and region, we found that only ethnicity and region of origin were significant. Specifically, students with visible minority background prefer vocational education, insofar as it is more likely to provide instant security of employment in the marketplace which assists them to overcome racial background disadvantages (Anisef, Axelrod, & Lin:1999). Furthermore,

region of origin appears to be a significant factor in influencing FOS choice, where students from Ontario and Quebec are more likely to select liberal education than those from the Maritimes and the West. One possible explanation is that older and most established universities with strong liberal orientation are located in these two most populous provinces.

Compared to social structural predictors, all variables of personal agency are significant in influencing students' FOS choice. For instance, students who have post-secondary education appear more likely to select vocational education while those without post-secondary experience are more likely to choose liberal education. This reflects the university practice in which many professional fields require a post-secondary degree for the entry (e.g., education, law, and medicine). In relation to geographical mobility when pursuing education, students who move away from their home provinces are more likely to pursue liberal education whereas those who stay in their home provinces are more likely to study in vocational education. Moreover, FOS choice also reflects life experience, especially the experience in the world of employment. We found that students who have work experience before the university program are more likely to choose vocational education while those who have no such an experience are more likely to enter liberal education.

To summarise the previous discussion, we found that, first, the agency factors show a stronger impact on FOS choice than structure predictors. Second, the structure

factors differ between those students who choose to enrol in a liberal area as opposed to those who register in a vocational FOS. Third, the antecedent coping strategies differ between those who enrol in a liberal education as opposed to those who study in a vocational field.

Based on the directions given by the logistic regressions, we further elaborated the influence of social structural and personal agency via a series of multivariate crosstabulations. Consistent with the logistic regressions, it was found that both structure and agency affect the FOS choice where a stronger impact of agency over structure is observed. In light of the strong presence of agency, Beck's thesis of individualisation is gaining support. We again observed a structure difference between those who choose a liberal as opposed to a vocational FOS. For example, people who have visible minority status are more likely to select vocational fields than people who have no such status. Moreover, students in Ontario and Quebec are more likely to pursue liberal education than people in other regions. Antecedent coping strategies are statistically significant in respect to chosen FOS. People who choose to enrol in a vocational field are more likely to have previous post secondary education and work experience; as well, they tend to stay in their home provinces and have student loans. Conversely, those who registered in liberal FOS are less likely to have all these characteristics.

6.1.3 Structure, Agency and Labour Market Outcomes

As a continuation of the previous section focusing on educational choice, this section moves from educational choice to educational returns. First, we found that liberal graduates use different strategies to cope with risk than vocational graduates. For example, the students in liberal fields are more likely to take a second major, to study part time, and to continue their education, while those in vocational fields are more likely to take co-op programs and work full time before graduation.

The relative importance of agency allows us to focus on how individuals have managed risk through either contemporary or subsequent coping strategies, and how these strategies will affect the labour market outcomes. For instance, taking a second major to cope with risk in the labour market is not a strategy that produces positive labour market outcomes. The supporting evidence is that five out of six LMO indicators suggest that a less favourable labour market awaits those students who select the second major. While an overall negative LMO is recognised, the vocational graduates who take a second major are likely to receive more negative LMO than the graduates in liberal fields. It is possible that if a second major is used as an alternative to the first major with less favourable LMO prospect, then the choice of the second major may further weaken the connection between FOS and LMO, thus producing precarious LMO.

Both liberal and vocational graduates, to a large extent, benefit from participating in co-op programs. However, the proportion of co-op program participants at the

university level is considerably smaller (5.4%) in the whole NGS survey. The gap of labour market outcomes is much wider among vocational rather than liberal graduates. Thus, vocational education is more suitable than liberal education to integrate co-op programs. In spite of positive LMO, co-op graduates are generally less satisfied with their jobs than those non-co-op graduates because of higher expectations.

With regard to part time study, we found that almost all the LMO indicators are in favour of the graduates with part time study experience. If the major reason for part time study is working, then the part time study implies an antecedent link between schooling and future employment. Therefore, it is relatively safe to conclude that part time study is one of the feasible strategies that university students use to respond to the changing workplace and to manage risk in the labour market.

There are two stages of education recycling in this study. In the first stage of university entry, the education recycling occurs in the forms of pathways from university to university or from college to university. In the second stage after graduation, education recycling refers to graduates continuing their education.

The analysis displays that first, university to university recycling has a significant and positive impact on the LMO for vocational graduates, but less so for liberal graduates. Second, LMO in relation to educational recycling from college to university are mixed: liberal graduates experience a majority of negative LMO except with respect to job continuity and income, while vocational graduates have LMO such as job stability

and job income that surpass the students who enter university directly from high school. Third, liberal graduates without post secondary educational background have LMO almost as positive as graduates with university education, and in most cases, better than those with college background. However, in vocational fields, the performance of the graduates with high school background in some cases is better than the graduates with college background, but less positive than the people with university background.

In brief, educational recycling based on university background has a positive impact on all the LMO across FOS. However, the impact of education upgrading based on college background is mixed: Liberal graduates have had a majority of negative LMO except job stability and annual job income, and half of the LMO for vocational graduates are negative. As a normal pathway, educational upgrading based on high school background has mixed relative outcomes. In most cases, respondents have better results than the graduates with college background, but cannot match the graduates with university background. It seems that education recycling based on university background is the strategy that produces the best LMO. However, if the upgrading is based on college background, it is more likely to produce negative LMO.

Education recycling at the stage immediately after graduation tends to produce negative LMO. High percentages of unemployment across FOS indicate that the education recycling at this stage plays a role of warehouse. Yet, positive LMO of education recycling were observed at the end of the process, in which the most positive

LMO were found in relation to education recycling from university to university as we described in the previous discussion.

From a perspective of structured individualisation, structure qualifies agency in predicting LMO. This is the reason that social structure factors, defined as sex, age, ethnicity, parents' education, and region are brought into the discussion in relation to the LMO. By way of clarification, we found that gender inequality in terms of LMO still exists across FOS choice. Women are generally in a less favourable position in terms of job stability, job continuity, and job income. However, if a woman steps into a traditionally male dominated area, such as a vocational field, she is in a more advantageous position than a woman who stays in a liberal field in terms of unemployment experience, income, and job satisfaction. With respect to age, mature graduates did better than their younger counterparts. Age as a core component of the life course demonstrates its power across FOS choices to enhance the majority of the LMO. Ethnic minority background, mediated by FOS, has a mixed to negative impact on the LMO. Despite a less favourable impact, liberal graduates with visible minority status better survive long-term unemployment, and visible minority vocational graduates have more chance to hold permanent better paying positions. Parents' educational level appears to have a mixed impact on child's LMO. The mother's education level, for instance, has a limited impact on a graduate's LMO. If there is an influence, the mother's educational level sometimes runs against positive LMO, especially in the areas of

vocational education. Father's education, in a more consistent way, demonstrates that the family of origin shows a weaker impact on graduates' LMO, especially when comparing the situation decades ago (Blau & Duncan, 1967) or at the stage of life course when people make a transition from high school to post secondary education (Anisef, et al., 1982). Region of origin still plays a significant role in affecting the LMO. Graduates in Ontario are more likely to lead the country in most LMO indicators, whereas the graduates in Atlantic Provinces and Quebec show a few drawbacks in their LMO.

In conclusion, we found that that both social structure and personal agency have shown their influence on the LMO. However, the increments of the explained variances or chi squares of regressions suggest that adding agency variables to the models, in most cases, has greatly increased the explanatory power of the models. With the model increments, therefore, it can be concluded that agency variables have played more important roles than structural factors in determining the LMO. The relative influence of structure and agency factors on LMO for graduates who choose liberal or vocational FOS is different. The pattern is that social structure tends to have stronger impact on liberal rather than vocational graduates. Furthermore, it was observed that the functions of agency in relation to LMO are differentiated by FOS choice. Liberal graduates are more likely to take a second major, study part time, and continue education, while vocational graduates are more likely to participate in co-op programs. Despite general negative LMO, vocational graduates are in a more disadvantaged position than liberal graduates if

they complete a second major or continue their education after graduation. However, liberal graduates are in a less favourable situation than vocational graduates if they complete a co-op program. With regard to structural factors, it was observed that their influence is in general weaker than agentic factors. However, region of origin and ethnic background still play a significant part in forming the LMO of the 1990 university graduates, as universities in Ontario play a leading role to promote liberal education which results in positive LMO for liberal graduates. Graduates with visible minority background demonstrate some advantages in vocational rather than liberal education.

6.1.4 The Choice of Fields of Study and Educational Return

This study also explores a broader concept of educational returns by looking at how underemployment, job specific skills, and general employment skills are related to liberal and vocational education.

Three measures of underemployment (mismatches between education and work, job and skills, as well as qualification and employment) are used in the study. What we found is that, overall, graduates from liberal education are more likely to be underemployed than those who are graduates in vocational fields. Specifically, graduates with jobs related to their FOS are more likely to produce positive LMO's than those graduates whose jobs are not related to their studies. If the job-education link is broken, the negative LMO's are more severe for vocational than for liberal graduates. University

graduates who can use the skills and knowledge acquired from their educational programs will be more likely to receive positive LMO. To compare liberal with vocational graduates, it should be noted that if skills and knowledge are not used at work, negative consequences are more severe for vocational than liberal graduates. Over-qualification represents a danger of negative LMO for both liberal and vocational graduates. Nevertheless, over-qualification shows a greater disadvantage for vocational over liberal graduates, and under-qualification demonstrates an advantage in vocational rather than liberal fields. Graduates who qualified for the job occupy the best niches in the labour market. However, liberal graduates will be better off if they were over-qualified, and vocational graduates will be in more positive positions if they were under-qualified.

To evaluate an overall university experience, a majority of the 1990 university graduates across liberal and vocational boundaries insisted that they love what they have studied. Findings suggest that over seventy percent of the liberal graduates would repeat what they have studied, and over eighty percent of the vocational graduates reported they would choose the same FOS again. Despite the variety of reasons people have for changing or repeating their FOS, almost all indicators demonstrate that those who want to change their FOS or specialities are more likely to echo their negative LMO. Moreover, we found that almost three in ten of the liberal graduates would not repeat what they had studied, but fewer than two in ten of the vocational graduates would not select the same

FOS. If FOS choices are evaluated solely from a perspective of initial job-education linkage, we have to admit that vocational graduates are much better prepared than liberal graduates for the labour market. As Heinz (1999) points out, education has been and will continue to be influenced by labour markets.

Turning to “job specific skills”, we found that vocational graduates tend to be positioned better, and liberal graduates tend to be less prepared. However, when the question refers to general employment skills and knowledge, the gap across two FOS narrows. In contrast to job specific skills, employment skills (or general skills) often link to literacy, which is one of the core components of liberal education. When comparing job specific skills with general employment skills, it can be surmised that vocational graduates are better equipped with job specific skills whereas liberal graduates are better educated in terms of employment skills (general skills).

Overall, our data analysis suggests that agency factors have a stronger impact on FOS choice than structure predictors. This observation is different from early stage of the life course or previous generations, in which social structure often played a significant role (Anisef et. al.,1980). Based on these findings, Beck’s theory of individualisation is gaining support in the areas of chosen FOS. In this connection, an individual does take more responsibility for her/his destinations, especially at the university stage. However, stating that the structure influence is weakening does not deny its presence, even a strong presence in some cases. When agency and structure are combined, it is apparent that a

structured individualisation is the force that shapes life course. Moreover, the structure factors differ between those who choose to enrol in a liberal as opposed to a vocational FOS, as liberal graduates show more structural influence than vocational graduates. In terms of personal agency, antecedent coping strategies differ between those who choose to enrol in a liberal education as opposed to a vocational field. Liberal students tend to be more likely to leave home than vocational students to pursue their education. Research also found that liberal graduates take different strategies to cope with risk from vocational graduates. Despite the initial labour market outcomes in favour of vocational graduates, the evidence suggests that students in liberal fields are more likely to take a second major, to study part time, and to continue their education. In comparison, vocational graduates are more likely to take co-op programs, and work full time before graduation. Finally, vocational graduates are better prepared in job specific skills, and liberal graduates are more prepared in general employment skills.

6.2 Implications

The controversy about liberal or vocational education is at the heart of the debate over university policy in advanced societies. By systematically discovering the different strengths and weakness in relation to chosen liberal or vocational education, the findings convey serious implications on university policy. To face the challenges of a changing

workplace and risk society, the idea of an embedded liberal education emerges from the study.

6.3 Embedded Liberal Education in a Risk Society

Consistent with the findings in the Canadian census, we found that university graduates are generally better positioned in the labour market when compared to high school and college graduates (Anisef, Axelrod, and Lin, 1999). However, we have also observed that the existing university curricula, to a large extent, separate life skills from skills needed in the world of work. As a consequence of this separation, the LMO for liberal graduates are less promising than those for vocational graduates. Inversely, educational outcomes for vocational graduates are less positive than for liberal graduates. The strengths and weaknesses of both liberal and vocational education invite us to appeal for an embedded liberal education to better prepare Canadian university graduates for the 21st century while facing a risk society. To clarify the idea of embedded liberal education, we shall first define the concept, then explain why liberal education is embedded, and how the idea is supported.

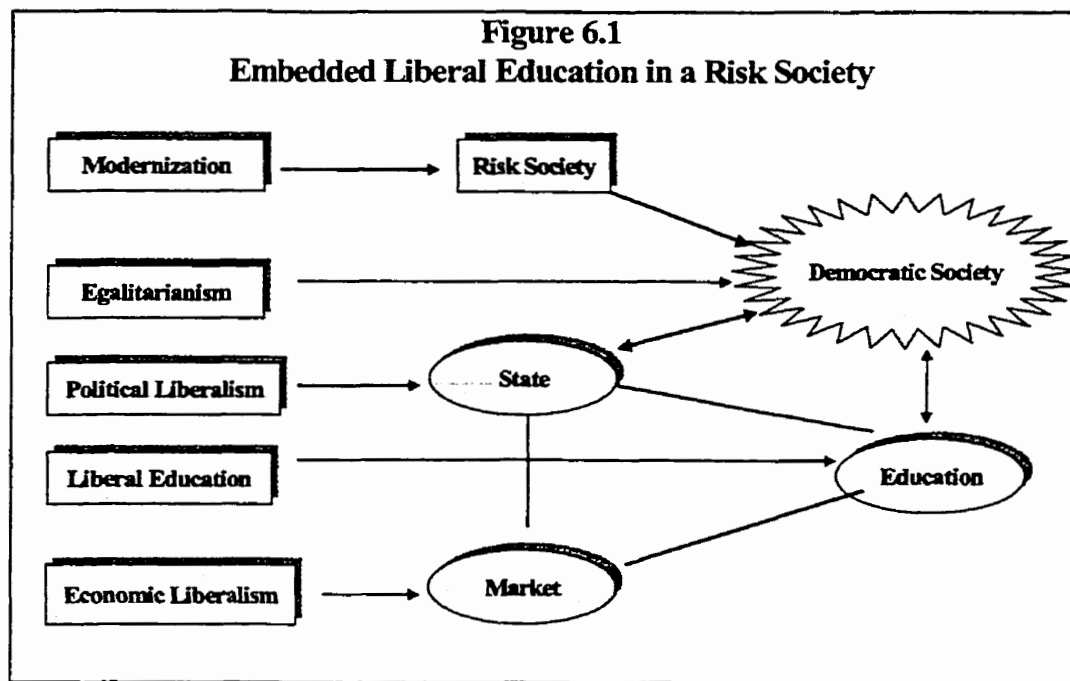
What is an embedded liberal education?

Debates over the differential outcomes afforded by a university education focus on the tension between cultural and instrumental values, or the tension between liberal and vocational education. To clarify the concepts used in the debates, we define liberal education as a pedagogy which provides a broad, balanced, and human-centred education. Hence, the main function of liberal education is to advance and disseminate knowledge, which is consistent with the role that universities have traditionally played. Vocational education, on the other hand, aims to provide specific skills for certain professions, and skill training occupies a central place in providing such an education. Assuming that liberal education and vocational education are compatible, this dissertation argues that an embedded liberal education, which reconciles liberal and vocational education, will more effectively prepare Canadian university graduates for the new century. Within this thesis, we further claim that an embedded liberal education is a systematic way of dealing with the hazards and insecurities introduced by mass university education. Thus, an embedded liberal education differs from conservative perspectives, which emphasise that university education must serve the labour markets by teaching students employment related skills to accommodate the growing demand for skilled labour forces. Simultaneously, an embedded liberal education is different from progressive perspectives because it stresses the importance of teaching students social values, such as citizenship and love of learning. It abandons the ideal of a linear

development of university education in a single liberal direction, and instead recognises a non-linear cultivation that reconciles liberal and vocational education.

Why is the liberal education embedded?

Figure 6.1 illustrates the logic that shows how liberal education is embedded. The first proposition is that the victory of modernisation has resulted in its boomerang effects.



These effects have helped create the risk society, which has been characterised as a reflexive modernisation. The profound impact of risks on a democratic society means that the side effects of any socio-economic development have to be seriously considered. The

second proposition is that democratic society is based on the idea of egalitarianism, which plays an important role in stabilising the society. However, egalitarianism is a mechanism of social stability, instead of social development, and yields a role for markets to play in stimulating growth. In this sense, a balance between stability and development is the key to be a healthy society. Therefore, the third proposition is that, in order to satisfy both functions -- stability and development -- different segments of society must follow different principles. Political liberalism is the guiding principle of states, while economic liberalism is the principle adopted by markets. Education, especially mass education, is embedded in states, markets, and societies. Unlike the market, education, especially public education, depends on tax revenue. Unlike the state, education has no political or economic power to manoeuvre, but it does have a strong cultural influence. Embedded in and monitored by these social, political and economic powers, the autonomy of the university in teaching and research is virtually limited. Therefore, its policy has been, and will continue to be influenced by the society.

The rapid development of university education is one of the several forms of modernisation underway in late-twentieth century society (Scott, 1995: preface). After World War II, and especially since the 1960's, university has increasingly become an institution of mass education. The development of mass university education has challenged traditional liberal education, which has been historically the education for elite (Mayer, 1960:144-5). At the same time, most of the hazards and insecurities of

university education, such as underemployment, are closely related to mass higher education. Embedded liberal education is meant to allow universities to deal efficiently with complex often conflicting demands from every corner of the society. In this respect, liberal education still has a place in universities, in that it nurtures the kinds of skills that give graduates the flexibility to adapt to changes. Therefore, by providing an embedded liberal education, universities can adequately meet the challenges of preparing their graduates for the new century.

The social reality and government policy implications suggest that students' FOS choice has a significant impact on their lives upon graduation. Most importantly, the selection of fields of study produces different employment outcomes as well as different patterns of transition from schooling to employment. Therefore, choosing one's field of study is a process of risk-taking in which latent consequences may not be anticipated. This process raises questions for both individuals and universities. The question that individuals should ask is, "What strategies should students adopt in order to reduce their risks encountered in labour markets?" The question to be raised by universities is, "Should universities provide a liberal or vocational education in order to enhance students' abilities to cope with these risks?" These two questions are, in essence, a single query: "What types of university education do we need to face the challenges (risks and opportunities) in an information age (OECD, 1996b)?" Of course, education receivers and providers will answer this question from different angles: for individual students, it is

a question of making better choices; for universities, it is a question of providing a better education. One of the common goals for these two interests is to make Canadian university graduates more competitive in a global economy through the efforts of individuals and universities. We reject both liberal and vocational education in its present formats, arguing that an embedded liberal education, which reconciles liberal and vocational education, will serve this elusive, but reachable target.

Individual choice of field of study depends, to a large extent, on the fields provided by universities. Therefore, the question of personal choice shifts attention to university educational policy. Despite the limitations associated with this task, the dissertation has shown the stratified labour market experiences of university graduates in different fields of study. These results inform decision-makers as to what directions Canadian universities should take as they evolve into the 21st century, and raises what is currently a very topical issue about university policy: "Should university provide a liberal or vocational education?" The answer is "yes" to an embedded liberal education as an alternative to both liberal and vocational education in their current formats.

How is an embedded liberal education supported?

An embedded liberal education is partially supported by this study. Built on this empirical study, we further argue that embedded liberal education is the demand of historical development of liberal education itself. Embedded liberal education is the

demand of mass university education. Embedded liberal education is the demand of university mission. And embedded liberal education is the demand of risk society.

To argue that the concept of **embedded liberal education is supported by the results of this study** we found that current vocational graduates upon entry to the labour market are well prepared for specific jobs but lack general employment skills. These shortcomings decrease the flexibility of vocational graduates in a changing workplace. On the other hand, liberal graduates possess adequate general employment skills, but these generally are not turned to advantage in the labour market. Poor returns to an investment in liberal education may discourage people from enrolling in this area. To achieve the goal of societal and individual well being, an embedded liberal education will capitalise on the strengths of both approaches.

The pattern of support for specific aspects of both vocational and liberal approaches found in this study are consistent with the historical debate surrounding their relative value to graduates. There are those who insist that liberal education is not compatible with vocational education. Bloom (1987), for example, insists that one must opt for one form or the other. Other -- equally enthusiastic -- proponents of liberal education argue that liberal and vocational education are compatible. Liberal education then has historically been divided into two camps. One is based on modern liberalism, which emphasises individualism as the driving force behind education. Another is built on nationalism, which stresses the interests of a nation. The former originates from the

Enlightenment Movement, while the latter derives from the Renaissance and the Romantic Movements. The Enlightenment championed the tradition of sciences, emphasising their applications, while the Romantics believed in the humanities, which include pure sciences. Because the meaning of liberation in education can be interpreted in many different ways, what should be liberated from what, and who should liberate whom have been debated since the time of Ancient Greece.

The question of who has the authority to use the name of 'liberal education' is not, important for the purposes of this dissertation. Instead, the argument offered in this study is that there is no pure form of liberal education in a liberal democratic society¹. Liberal education is always embedded in societies, in states, and in markets, which form complex relationships of interaction. As York University's new president Dr. Lorna Marsden commented in her inaugural address, universities are unique in that "they offer people the kind of experience they cannot get anywhere else. It is important to remember the mission of universities because this is the only place where people are really allowed to think broadly and deeply, and in a wide way, about old and new problems" (Kleiman and Todd, 1997:12). This uniqueness is one of the reasons why the university needs to continue providing liberal education. However, liberal education must be embedded in its social surroundings, which are critical to its survival. This is one of the meanings of "an embedded liberal education." Therefore, the argument is that for liberal education to

¹ The antithesis is that there is no pure form of vocational education either.

remain viable, it has to take the form of an embedded liberal education. The concept of an embedded liberal education reconciles the views of liberal and vocational education, and rejects the claim that liberal and vocational education are incompatible.

It is also argued that **an embedded liberal education is the demand of mass university education**. The decades since World War II have witnessed the rapid expansion of university education in Canada, demonstrated by the large proportion of high school graduates and mature students enrolled in universities. University education in Canada has become mass education since the end of the 1960's. Although its pace of growth has decreased since the 1980's Canadian university education is still unexpectedly expanding despite the decline in the number of the 18 to 24 year olds in the general population (Nobert & McDowell, 1994). One of the consequences of this mass university education is that many university graduates, who once comprised a very privileged group in terms of employment, are facing unemployment and underemployment. Who should be blamed for these problems? Many social mechanisms, such as the labour market and government, could share responsibilities. However, universities are most likely to be criticised for their failure to adequately equip their graduates with employable skills. To save university education from these crises, conservatives often use "back to..." as the key words to criticise the failure of education (Schrang, 1995). They want to return to the basics, which emphasise a rigid classic curriculum, or back to the ideals of Ancient Greece, which promote education of the soul instead of the body, or back to the Great

Books, which require basic literacy skills. By doing so, they believe that the "real" liberal education can be preserved and universities will be saved from crisis.

Radicals oppose the views of conservatives, and are frequently dissatisfied with the reforms launched by the progressives (e.g., John Dewey's philosophy of education). They argue that education reform should move more deeply and broadly in the direction of eliminating inequality. They contend that the progressives have failed to fully address the question of inequality of education, because they are limited by their capitalist ideology (Bowles & Gintis, 1976). Furthermore, radicals often ask not only to address but also to fully realise equality, in terms of gender, race, social class, and region in schooling. These perspectives have a strong affiliation with the Marxist tradition (Hurn, 1993:58-60). Within a capitalist society, this view is largely unrealistic, because it is not compatible with capitalist market principles. Those who stand on the middle ground between conservatives and radicals advocate moderate reform, but lack a systematic perspective to address the problems facing university education (Stasz et al., 1995).

The dilemmas of the traditional ways of thinking lead to the argument that a liberal education is not only embedded in states, markets, and societies, but also faces a risk society. In such a society, the traditional thinking and practice of liberal education have been seriously challenged by the increasing and conflicting demands of societies, states and markets. In order to digest these conflicting demands, universities need to provide an embedded liberal education, which can integrate liberalism and nationalism,

liberal and vocational education, theory and practice, science and arts, to prepare Canadian university graduates for the 21st century.

Embedded liberal education is also the demand of university mission.

According to Evers and O'Hara (1996), the mission of Canadian universities consists of three major components: knowledge development, skills learning and value enhancement. Along with the values of love of learning, citizenship, respect for diversity, ethical issues and environmental awareness, Evers and O'Hara classify liberal education as a part of value enhancement (p.53). However, their classification of liberal education does not match the mission statements of some of the universities. For example, the universities of Guelph and Manitoba define liberal education as "a broad, general education, designed to provide a shared educational foundation for students in a variety of degree programs" (Evers and O'Hara, 1966:53). The University of New Brunswick states that liberal education "serves society by providing broadly educated graduates" (Evers and O'Hara, 1996:53). Obviously, these university mission statements define liberal education much more broadly than Evers and O'Hara. Therefore, it is argued that liberal education as pedagogy is at the apex of the universities' mission, around which all of its other missions rotate. Based on existing university mission statements, liberal education may be defined as a pedagogy (or a philosophy of education) which provides a broad, balanced, and human-centred education. Embedded in societies, states, and

markets, this education should include knowledge development, skills learning and values enhancement. This is what I call embedded liberal education.

Like other educational institutions, universities, in a broad sense, fulfil two major functions: integrating society, and promoting individual and social development. The first function is in line with nationalism, and the second function is associated with liberalism. An embedded liberal education intends to serve these highest missions of university.

In sum, **an embedded liberal education is the demand of risk society**. The core concept of Beck's theory is "risk," which is a systematic way of dealing with the hazards and insecurities induced and introduced by modernization itself (Beck 1992:21). In the area of university education, an embedded liberal education is a systematic way to deal with risks.

6.4 Future Needed Research

As described in Chapter Three, the National Graduate Survey contains rich information about post-secondary graduates in Canada. However, this dissertation has only explored the most recent NGS (1990) available to the public, and the focus is university undergraduate programs only. For future studies, several important dimensions should be taken into consideration. First, within the university education setting, a further study may extend to university graduates beyond bachelor level in which graduate

programs should be included. The simple reason is that mass university education may soon expand to master's level, which needs earlier assessment in terms of school-to-work transition pattern and labour market outcome in relation to liberal and vocational education. Second, from a life course perspective, a further study should extend the study periods from 1982 to 1997. Due to the limitations of time and resources, this dissertation only focuses on the initial employment outcome after two years graduation. Researchers found that liberal graduates would eventually catch up with vocational graduates in terms of labour market outcomes in a longer period (Allen, 1997; Anisef, Axelrod & Lin, 1999; and Paju, 1997; Taillon & Paju, 1999). Therefore, it is necessary to investigate how liberal and vocational graduates deal with risks in the labour market through longitudinal surveys. Finally, Canadian literature reveals that university graduates are better prepared for the changing labour market and workplace than college and trade-vocational graduates (Paju, 1997; Taillon & Paju, 1999). In order to compare their LMO, the variable "educational level" which includes trade-vocational, college, and university graduates should be utilised to explore the differences among post-secondary institutions.

Appendix I

Coding Scheme of Logistic Regressions

Table 1. Definition of Variables for the Logistic Regression of FOS

		Dependent Variable Encoding				
		Liberal education=0,	Vocational Education=1			
Independent Variable		Value	Freq	Parameter Coding		
<i>Gender sex</i>	<i>Male</i>	1	3244	1		
	<i>Female</i>	2	3651	0		
<i>Age age2</i>	<i>24 under</i>	1	4320	1		
	<i>25 over</i>	2	2575	0		
<i>Visible minority visbmin</i>	<i>Yes</i>	1	735	1		
	<i>No</i>	2	6060	0		
<i>Mother's education mothed90</i>	<i>Lower</i>	1	5820	1	0	
	<i>Same</i>	2	839	0	1	
	<i>Higher</i>	3	236	0	0	
<i>Father's education fathed90</i>	<i>Lower</i>	1	4991	1	0	
	<i>Same</i>	2	1243	0	1	
	<i>Higher</i>	3	661	0	0	
<i>Region region</i>	<i>Atlantic</i>	1	1695	1	0	0
	<i>Ontario</i>	2	1574	0	1	0
	<i>Quebec</i>	3	1553	0	0	1
	<i>West</i>	4	2073	0	0	0
<i>Post-secondary Ed before this program edbefo4</i>	<i>No</i>	1	4101	1		
	<i>Yes</i>	2	2575	0		
<i>Mover/Stayer migadd</i>	<i>Mover</i>	1	706	1		
	<i>Stayer</i>	2	6189	0		
<i>Having student loan g34</i>	<i>Yes</i>	1	3951	1		
	<i>No</i>	2	2944	0		
<i>Worked Before this program b03add2</i>	<i>Not worked</i>	1	5211	1		
	<i>Worked</i>	2	1684	0		

**Table 2. Definition of Variables for the Logistic Regression of Employment Status
Liberal Education**

		Dependent Variable Encoding				
		Employed=0,	Not employed=1			
Independent Variable		Value	Frequency	Parameter Coding		
<i>Gender sex</i>	<i>Male</i>	1	1511	1		
	<i>Female</i>	2	1802	0		
<i>Age age2</i>	<i>24 under</i>	1	2133	1		
	<i>25 over</i>	2	1180	0		
<i>Visible minority visbmin</i>	<i>Yes</i>	1	293	1		
	<i>No</i>	2	3020	0		
<i>Mother's education mothed90</i>	<i>Lower</i>	1	2796	1	0	
	<i>Same</i>	2	415	0	1	
	<i>Higher</i>	3	102	0	0	
<i>Father's education fathed90</i>	<i>Lower</i>	1	2430	1	0	
	<i>Same</i>	2	569	0	1	
	<i>Higher</i>	3	314	0	0	
<i>Region region</i>	<i>Atlantic</i>	1	895	1	0	0
	<i>Ontario</i>	2	699	0	1	0
	<i>Quebec</i>	3	656	0	0	1
	<i>West</i>	4	1063	0	0	0
<i>Post-secondary Ed before this program edbefo4</i>	<i>No</i>	1	2251	1		
	<i>Yes</i>	2	1062	0		
<i>Mover/Stayer migadd</i>	<i>Mover</i>	1	377	1		
	<i>Stayer</i>	2	2936	0		
<i>Having student loan g34</i>	<i>Yes</i>	1	1829	1		
	<i>No</i>	2	1484	0		
<i>Worked Before this program b03add2</i>	<i>Worked</i>	1	834	1		
	<i>Not worked</i>	2	2479	0		
<i>Selected more than one major a08a</i>	<i>Yes</i>	1	627	1		
	<i>No</i>	2	2686	0		
<i>Co-op program a18</i>	<i>Yes</i>	1	129	1		
	<i>No</i>	2	3184	0		
<i>Part time study alladd</i>	<i>Part time</i>	1	874	1		
	<i>Full time</i>	2	2439	0		
<i>Worked full time during this program b08</i>	<i>Yes</i>	1	2369	1		
	<i>No</i>	2	944	0		
<i>Complete other PSE program g29</i>	<i>Yes</i>	1	607	1		
	<i>No</i>	2	2706	0		

**Table 3. Definition of Variables for the Logistic Regression of Employment Status
Vocational Education**

		Dependent Variable Encoding				
		Employed=0,	Not employed=1			
Independent Variable		Value	Frequency	Parameter Coding		
<i>Gender sex</i>	<i>Male</i>	1	1726	1		
	<i>Female</i>	2	1835	0		
<i>Age age2</i>	<i>24 under</i>	1	2176	1		
	<i>25 over</i>	2	1385	0		
<i>Visible minority visbmin</i>	<i>Yes</i>	1	440	1		
	<i>No</i>	2	3121	0		
<i>Mother's education mothed90</i>	<i>Lower</i>	1	3005	1	0	
	<i>Same</i>	2	422	0	1	
	<i>Higher</i>	3	134	0	0	
<i>Father's education fathed90</i>	<i>Lower</i>	1	2545	1	0	
	<i>Same</i>	2	671	0	1	
	<i>Higher</i>	3	345	0	0	
<i>Region region</i>	<i>Atlantic</i>	1	797	1	0	0
	<i>Ontario</i>	2	871	0	1	0
	<i>Quebec</i>	3	885	0	0	1
	<i>West</i>	4	1008	0	0	0
<i>Post-secondary Ed before this program edbefo4</i>	<i>No</i>	1	1843	1		
	<i>Yes</i>	2	1718	0		
<i>Mover/Stayer migadd</i>	<i>Mover</i>	1	328	1		
	<i>Stayer</i>	2	3233	0		
<i>Having student loan g34</i>	<i>Yes</i>	1	2113	1		
	<i>No</i>	2	1448	0		
<i>Worked Before this program b03add2</i>	<i>Worked</i>	1	845	1		
	<i>Not worked</i>	2	2716	0		
<i>Selected more than one major a08a</i>	<i>Yes</i>	1	601	1		
	<i>No</i>	2	2960	0		
<i>Co-op program a18</i>	<i>Yes</i>	1	325	1		
	<i>No</i>	2	3236	0		
<i>Part time study al1add</i>	<i>Part time</i>	1	706	1		
	<i>Full time</i>	2	2855	0		
<i>Worked full time during this program b08</i>	<i>Yes</i>	1	2490	1		
	<i>No</i>	2	1071	0		
<i>Complete other PSE program g29</i>	<i>Yes</i>	1	461	1		
	<i>No</i>	2	3100	0		

**Table 4 Definition of Variables for the Logistic Regression of Job Satisfaction
Liberal Education**

		Dependent Variable Encoding				
		Not satisfied=0,	Satisfied=1			
Independent Variable		Value	Frequency	Parameter Coding		
<i>Gender sex</i>	<i>Male</i>	1	1274	1		
	<i>Female</i>	2	1444	0		
<i>Age age2</i>	<i>24 under</i>	1	1762	1		
	<i>25 over</i>	2	956	0		
<i>Visible minority visbmin</i>	<i>Yes</i>	1	231	1		
	<i>No</i>	2	2487	0		
<i>Mother's education mothed90</i>	<i>Lower</i>	1	2294	1	0	
	<i>Same</i>	2	348	0	1	
	<i>Higher</i>	3	76	0	0	
<i>Father's education fathed90</i>	<i>Lower</i>	1	2003	1	0	
	<i>Same</i>	2	475	0	1	
	<i>Higher</i>	3	240	0	0	
<i>Region region</i>	<i>Atlantic</i>	1	716	1	0	0
	<i>Ontario</i>	2	582	0	1	0
	<i>Quebec</i>	3	523	0	0	1
	<i>West</i>	4	897	0	0	0
<i>Post-secondary Ed before this program edbefo4</i>	<i>No</i>	1	1851	1		
	<i>Yes</i>	2	867	0		
<i>Mover/Stayer migadd</i>	<i>Mover</i>	1	297	1		
	<i>Stayer</i>	2	2421	0		
<i>Having student loan g34</i>	<i>Yes</i>	1	1489	1		
	<i>No</i>	2	1229	0		
<i>Worked Before this program b03add2</i>	<i>Worked</i>	1	699	1		
	<i>Not worked</i>	2	2019	0		
<i>Selected more than one major a08a</i>	<i>Yes</i>	1	525	1		
	<i>No</i>	2	2193	0		
<i>Co-op program a18</i>	<i>Yes</i>	1	112	1		
	<i>No</i>	2	2606	0		
<i>Part time study a11add</i>	<i>Part time</i>	1	724	1		
	<i>Full time</i>	2	1994	0		
<i>Worked During this program b08</i>	<i>Yes</i>	1	1967	1		
	<i>No</i>	2	751	0		
<i>Complete other PSE program g29</i>	<i>Yes</i>	1	474	1		
	<i>No</i>	2	2244	0		

Table 5 Definition of Variables for the Logistic Regression of Job Satisfaction

Vocational Education

		Dependent Variable Encoding				
		Not satisfied=0,		Satisfied=1		
Independent Variable		Value	Frequency	Parameter Coding		
<i>Gender sex</i>	<i>Male</i>	1	1442	1		
	<i>Female</i>	2	1601	0		
<i>Age age2</i>	<i>24 under</i>	1	1817	1		
	<i>25 over</i>	2	1226	0		
<i>Visible minority visbmin</i>	<i>Yes</i>	1	338	1		
	<i>No</i>	2	2705	0		
<i>Mother's education mothed90</i>	<i>Lower</i>	1	2585	1	0	
	<i>Same</i>	2	350	0	1	
	<i>Higher</i>	3	108	0	0	
<i>Father's education fathed90</i>	<i>Lower</i>	1	2188	1	0	
	<i>Same</i>	2	572	0	1	
	<i>Higher</i>	3	283	0	0	
<i>Region region</i>	<i>Atlantic</i>	1	691	1	0	0
	<i>Ontario</i>	2	731	0	1	0
	<i>Quebec</i>	3	742	0	0	1
	<i>West</i>	4	879	0	0	0
<i>Post-secondary Ed before this program edbefo4</i>	<i>No</i>	1	1542	1		
	<i>Yes</i>	2	1501	0		
<i>Mover/Stayer migadd</i>	<i>Mover</i>	1	279	1		
	<i>Stayer</i>	2	2764	0		
<i>Having student loan g34</i>	<i>Yes</i>	1	1812	1		
	<i>No</i>	2	1231	0		
<i>Worked Before this program b03add2</i>	<i>Worked</i>	1	770	1		
	<i>Not worked</i>	2	2273	0		
<i>Selected more than one major a08a</i>	<i>Yes</i>	1	505	1		
	<i>No</i>	2	2538	0		
<i>Co-op program a18</i>	<i>Yes</i>	1	284	1		
	<i>No</i>	2	2759	0		
<i>Part time study a11add</i>	<i>Part time</i>	1	627	1		
	<i>Full time</i>	2	2416	0		
<i>Worked During this program b08</i>	<i>Yes</i>	1	2163	1		
	<i>No</i>	2	880	0		
<i>Complete other PSE program g29</i>	<i>Yes</i>	1	353	1		
	<i>No</i>	2	2690	0		

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