

THE UNIVERSITY OF CALGARY

Schooling for Segmented Labour Markets:

The Democratic Dilemma

BY

Valdis Gislason

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE

DEGREE OF MASTER OF ARTS

DEPARTMENT OF EDUCATIONAL POLICY AND ADMINISTRATIVE STUDIES

CALGARY, ALBERTA

AUGUST, 1986

© Valdis Gislason 1986

Permission has been granted to the National Library of Canada to microfilm this thesis and to lend or sell copies of the film.

The author (copyright owner) has reserved other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without his/her written permission.

L'autorisation a été accordée à la Bibliothèque nationale du Canada de microfilmer cette thèse et de prêter ou de vendre des exemplaires du film.

L'auteur (titulaire du droit d'auteur) se réserve les autres droits de publication; ni la thèse ni de longs extraits de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation écrite.

ISBN 0-315-32742-1

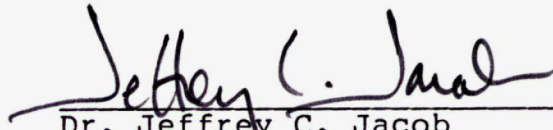
THE UNIVERSITY OF CALGARY

FACULTY OF GRADUATE STUDIES

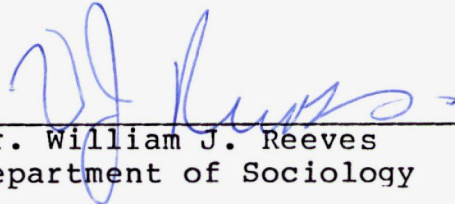
The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Schooling for Segmented Labour Markets," submitted by Valdis Gislason in partial fulfillment of the requirements for the degree of Master of Arts.



Chairman, Dr. Roger Woock
Department of Educational Policy
and Administrative Studies



Dr. Jeffrey C. Jacob
Department of Educational Policy
and Administrative Studies



Dr. William J. Reeves
Department of Sociology

Date 86 09 15

ABSTRACT

This thesis examines, and questions, how schools prepare individuals for work in segmented labour markets. After reviewing segmentation theories and describing the jobs typical of secondary, subordinate primary and independent primary labour markets, the thesis discusses how changing technology effects employment in segmented labour markets. This discussion is necessary because schools are expected to prepare individuals for jobs effected by new technology. Next, the thesis considers the educational requirements of segmented labour markets. The thesis concludes that the educational requirements of the secondary labour market, the fastest growing employment sector, are very low; and that the educational requirements of independent primary labour markets are much higher but may have little to do with the actual jobs, and productivity, of workers. Educational credentials simply make convenient, that is socially legitimate, screening devices for jobs in segmented labour markets.

The thesis next supports the argument that schools provide students destined for the independent primary labour market attitudes quite different from those provided students slated for secondary and subordinate primary

labour markets. A brief history of schooling shows that schools have long played a role in socializing North America's youth for employment in segmented labour markets and therefore in promoting social and economic inequality. At the same time, schools have played an important role in promoting equality in education. By encouraging equality in education, however, schools create an imbalance between the qualifications and expectations of graduates, and the jobs available. As the secondary labour market expands, the number of people qualified for independent primary jobs increasingly exceeds the number of independent primary jobs. Underemployment and overeducation result. Worker dissatisfaction and alienation flourish under such conditions.

Despite the increasing underemployment and overeducation of workers, evidence of inequality between and within schools suggests that schools tend to advance the interests of inequality, capital and segmented labour markets more effectively than they advance the interests of equality and democracy. The thesis concludes that both educators and democratic society would benefit if schools more actively promoted educational equality.

ACKNOWLEDGEMENTS

Special thanks to Dr. Reeves for his encouragement, time and assistance.

CONTENTS

	PAGE
ABSTRACT	iii
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS	vi
Chapter	
I OUTLINE OF THESIS	
Introduction	1
Outline	3
II LABOUR MARKETS	
Introduction	13
Introduction to Theories of Dual or Segmented Labour Markets	13
Review of Literature	18
Conclusion	42
III SEGMENTATION THEORIES DESCRIBED	
Introduction	44
Job Characteristics of Segmented Labour Markets	45
Conclusion	55
IV EFFECT OF CHANGING TECHNOLOGY ON EMPLOYMENT ...	
Introduction	57
Unemployment	58
Implications of Computer Technology	60
Worker Alienation	62
The Optimists	64
The Pessimists	65
Conclusion	73
V THE SKILL AND EDUCATIONAL REQUIREMENTS OF SEGMENTED LABOUR MARKETS	
Introduction	75
Basic Skill Requirements of Secondary and Subordinate Primary Labour Markets	75
Educational Requirements of Independent Primary Labour Markets	81
Conclusion	86
VI SCHOOLING AND THE SOCIALIZATION OF WORKERS	
Introduction	88

	Historical Aspects of Schooling and Work in North America	90
	Conclusion	102
VII	EVIDENCE OF INEQUALITY IN SCHOOLING	
	Introduction	104
	Inequalities Between Schools	105
	Socializing Students for the Hierarchy of Work	112
	Inequalities Within Schools	123
	Conclusion	133
VIII	THE DEMOCRATIC DILEMMA	
	Introduction	136
	The Compromise	136
	The Alternatives	139
	Alternative Educational Strategies	143
	Conclusion	146
	BIBLIOGRAPHY	149

Chapter I

Outline of Thesis

Introduction

Today, many people graduating from secondary and post-secondary schools cannot find jobs requiring their particular educational qualifications. As a result, many graduates are forced to accept jobs which require considerably fewer skills than they possess. These workers are commonly called overeducated or underemployed, because they work at jobs which use only a small part of their schooling (Rumberger, 1984:342; Carnoy and Levin, 1985:162). This thesis considers the implications of underemployment, and overeducation, while discussing how schools prepare individuals for employment in segmented labour markets.

Before proceeding to an outline of the thesis, the terms employment, job, and work, as used in this thesis, will be defined: the terms employment, job, and work, in this thesis, refer to activities which bring in money. The thesis completely ignores unpaid household workers for a number of reasons:

- 1) Labour statistics do not include unpaid household workers.

2) The labour force participation of women is steadily increasing: the percentage of the Canadian labour force that is female has increased from 18.5 in 1941 to 22.0 in 1951, to 27.3 in 1961, to 34.6 in 1971, and to 40.8 in 1981 (Armstrong and Armstrong, 1984:19). The percentage of the American labour force that is female has increased from 4.6 in 1800, to 10.8 in 1850, to 18.1 in 1900, to 20.0 in 1910, to 20.4 in 1920, to 21.9 in 1930, to 24.6 in 1940, to 27.8 in 1950, to 32.3 in 1960, to 36.7 in 1970, and to 42.7 in 1980 (Woloch, 1984:543).

3) The proportions of both single and married women in the labour force have increased steadily since 1960. In 1961 54.9 percent of single women and 20.8 percent of married women in Canada worked. In 1971 53.5 percent of single women and 33.0 percent of married women in Canada worked. In 1981 the figures were 61.8 percent and 51.8 percent, respectively (Armstrong and Armstrong, 1984:169). In 1960 30.5 percent of American married women and 44.1 percent of single women worked. In 1970 and 1980 the figures for married and single women were 40.8 percent and 50.1 percent and 53.0 percent and 61.5 percent, respectively (Woloch, 1984:544).

4) More than half of the women in the American labour force work out of sheer economic necessity (Levitan et al, 1981:277). To be specific, approximately four out of every nine women working in the United States in 1979 were either

single, divorced, separated or widowed. Many of these women supported children or parents as well as themselves. "In addition," Levitan et al (1981:277) explain, "42 percent of the 15 million women married to men who earned less than \$10,000 annually worked." In Canada, four out of ten women who worked full-time were single, divorced, separated or widowed in 1983 (Statistics Canada, 1984:305). Many of the married women who worked did so for reasons of economic need.

5) Recent studies (Gove, 1972; Radloff, 1975; Schaffer, 1980) show that married women who do not work have more mental health problems than either married or single women who work. This suggests that paid employment may be beneficial to the mental health of women and that educators should, for this reason, encourage females to work (Stromberg and Harkess, 1978).

In short, this thesis ignores unpaid household workers because such workers represent an ever smaller proportion of working adults. As the proportion of unpaid household workers declines, so does the need to prepare students for unpaid household work.

Outline

Chapter I of this thesis defines some of the terms used in the thesis and explains, in general terms, the objectives of the thesis. In addition, the chapter pres-

ents a brief outline of the rationale, arguments and structure of the thesis.

Essentially, the thesis examines, and questions, how schools prepare individuals for work, as defined above. The relationship between schooling and employment is complex. Sanyal (1982), considering research on the relationship between higher education and employment, concludes that four different points of view, representing four schools of thought, exist.

The first view, Sanyal (1982:442) explains,

...is the view that education provides people with skills to develop and manage the economy and related services; therefore, investment in education is presumed to be an investment in human capital, implying investment in the productive capacity of the people.

Runte (1983:2-4) calls this view the "human capital model" and claims that the model operated, practically unchallenged, in Canada throughout the 1960's.(1)

By the early 1970's, Runte (1985:5) reports, both the basic assumptions and specific policy recommendations of

(1) In terms of sociological paradigms, the human capital model may be considered a technological functionalist theory. According to Jacob (1981:73) technological functionalist theorists, such as Clark (1962), Trow (1961) and Bell (1973) suggest that "Schools and universities provide much of the training for the labour force in the necessary technical skills, and these educational institutions are continually adjusting their programmes in order to meet the training needs for an advanced industrial economy...."

the human capital, or technological functional, theorists came under attack because investment in education did not increase the productive capacity or earnings of workers as anticipated. Bluestone (1977:337-338) explains that human capital theorists assumed perfect labour markets in which workers would rise above low-wage employment, under-employment or joblessness once their human capital was raised. However, Bluestone (1977:337) contends,

...many of those who suffer from low wages and unemployment have a considerable amount of human capital. They fail to find jobs that pay a living wage because of racism, sexism, economic depression and uneven development of industries and regions.

While these observations are valid, Bluestone overlooks the fact that the number of well-paid, demanding jobs is, and always has been, limited (Rumberger, 1984:343). Labour market segmentation theory corrects this oversight.

Labour market segmentation theory, a second view of the relationship between education and employment described by Sanyal (1982:442), suggests that productivity is best attributed to jobs rather than people. In Sanyal's words (1982:442) the theory proposes that "People are matched to jobs by criteria that may be associated with education, but that education is not a determinant of productivity." In other words job demands, rather than the human capital of individuals performing specific jobs, limit the productivity of individuals.

Sanyal (1982:442) describes a third view of the relationship between higher education and employment as follows:

...education not only provides skills for performing different vocational tasks but also disseminates social values and promotes upward mobility in the society, and...acts as a screening device to select the ablest people for the best jobs.

This view exemplifies the evolutionary functionalist paradigm identified by Jacob (1981:74). According to Jacob (1981:74), the evolutionary functionalists Parsons (1959) and Driekin (1968) suggested that "Schools not only teach technical skills, they also provide experiences for students to learn the necessary skills for living and working in an organizational and industrial society." Although teaching social values is clearly one of the roles of modern education, this thesis argues that education alone does not promote upward mobility in society, or prepare the most able people for the best jobs. Education simply qualifies certain people (not necessarily the most able people) for the best jobs.

The fourth view of the relationship between higher education and employment described by Sanyal (1982:442) is that:

...the idea of correspondence between education and employment is an illusion existing only in the minds of school leavers and educational authorities and has little to do with performance on the job. The usual practice of recruiting school leavers for certain jobs on the basis of

certain educational qualifications leads new job seekers to believe that they are entitled to specific types of jobs.

In examining, and questioning how and why schools prepare individuals for work, this thesis addresses all four points of view identified by Sanyal (1982). In particular, the thesis reviews the strengths and weaknesses of labour market segmentation theories before applying segmentation theory to the discussion of how schools prepare individuals for work.

The second chapter of this thesis encompasses a review of literature dealing with theories of dual or segmented labour markets. The chapter concludes that segmentation theories, while far from perfect, provide a simple, but fairly accurate, view of the world of work.

Chapter III of this thesis describes segmented labour markets, the products of segmentation theory, in some detail. The chapter first explains that people can use both job characteristics and the structure of capital to identify discrete labour markets segments. Because educators and systems of education have little direct influence over the structure of capital, the chapter and the remainder of the thesis largely ignore labour markets identified using the structure of capital. Instead, the thesis uses labour market segments identified on the basis of job characteristics typical of discrete labour market segments.

The bulk of the chapter describes specific job characteristics used to distinguish between three discrete labour markets or labour market segments -- the secondary, subordinate primary and independent primary labour markets.

The thesis devotes two entire chapters to reviewing and describing segmentation theories and segmented labour markets because they offer educators simple, yet relatively accurate, descriptions of the types of jobs available to school leavers. Moreover, the descriptions of segmented labour markets in Chapter III indicate the typical skill and educational requirements of jobs in secondary, subordinate primary and independent primary labour markets. By identifying the typical skill and educational requirements of jobs in discrete labour market segments, segmentation theory helps educators identify and understand the relationship between types of work and education. Segmentation theory is important to this thesis for this reason. It provides educators a systematic means of linking, and understanding, the link between work and schooling.

Because schools are expected to provide students many of the skills required to find and maintain employment, it is important that schools provide students the skills necessary to meet the demands of jobs created or altered by changing technology. In order to identify the skills students require in the face of changing technology, Chapter

IV considers how changing technology effects employment in segmented labour markets. The chapter concludes that new technology will cause secondary jobs to grow at the expense of subordinate primary and independent primary jobs. The educational implications of an expanding secondary labour market are considered in Chapter V.

Chapter V attempts to identify the specific educational requirements of segmented labour markets despite a surprising dearth of empirical data dealing with the basic skill requirements of different types of jobs. The chapter concludes that the educational requirements of the secondary labour market, the fastest growing employment sector, are exceedingly low. The educational requirements of independent primary labour markets are much higher but may have little to do with the actual jobs, and productivity, of workers. Chapter V suggests that higher education and educational credentials simply make convenient, that is socially legitimate, screening devices for jobs in segmented labour markets.

Chapter VI suggests that in addition to providing individuals the educational credentials necessary for independent primary employment, schools provide students destined for the independent primary labour market attitudes quite different from those provided students slated for secondary and subordinate primary labour markets. To

be specific, students destined for independent primary jobs are socialized into the dominant status culture. Students destined for subordinate primary or secondary jobs are, in turn, socialized to respect the dominant status culture (Collins, 1971:1011; Collins, 1979; Watkins, 1985; Willis, 1977; Wilcox, 1982). Chapter VI supports the suggestion that schools socialize students for their expected labour market destinations by describing aspects of the history of work and schooling in North America. The chapter also describes and discusses the conflict between schooling for segmented labour markets and for equality in North America.

Chapter VI concludes that schools have, in fact, played an important role in promoting equality of opportunity. By encouraging equality of educational opportunity, however, schools create an imbalance between the qualifications and expectations of graduates and the jobs available. As the secondary labour market expands, the number of people qualified for independent primary jobs increasingly exceeds the number of independent primary jobs. Underemployment and overeducation result. Worker dissatisfaction and alienation flourish under such conditions (Carter, 1976; Rumberger, 1984; Berg, 1970; Quinn and Mandilovitch, 1975; Kalleberg and Sorensen, 1973).

In the end, Chapter VI suggests that schools tend to advance the interests of inequality, capital and segmented

labour markets more effectively than those of equality and democracy. The chapter equates the interests of inequality with those of segmented labour markets and capital because capitalism, and the segmented labour markets associated with capitalism, promote economic inequality as a matter of course.

Chapter VI equates the interests of equality with those of democracy because democracy, by definition (The Oxford International Dictionary of the English Language, 1958:478), denotes "...a social state in which all have equal rights." As Wilcox (1985:295) points out, equal educational and employment opportunities are among the rights promoted by democratic states. Canadian and American schools operate in supposedly democratic capitalist states. However, because the goals of capitalism are inherently anti-egalitarian while the goals of democracy are inherently egalitarian, Canadian and American schools are torn between promoting equality in the form of equal educational opportunity, and promoting inequality in the form of unequal educational opportunity (Carnoy and Levin, 1985).

Chapter VII documents ways in which schools promote inequality between and within schools. Like Chapter VI, Chapter VII concludes that schools advance the interests of inequality, capital and segmented labour markets more

effectively than they advance the interests of equality and democracy.

Chapter VIII, the last chapter in this thesis, explains that schools in democratic states such as Canada and the United States schools are expected to provide equal educational opportunities in the interests of democracy and equality. At the same time, schools in these democratic states are expected to prepare students for their adult roles in segmented labour markets (Carnoy and Levin, 1985). Because segmented labour markets are inherently unequal, schools cannot meet the demands of segmented labour markets and equality simultaneously. In responding to this "democratic dilemma", schools in Canada and the United States have compromised by meeting the demands of inequality, or segmented labour markets, better than they meet the demands of equality. Chapter VIII discusses this compromise and the alternatives available to schools. The chapter, and the thesis, conclude that schools can best promote the interests of democratic society by actively pursuing equality in education.

In terms of making an original contribution to the social sciences, the thesis, adds to segmentation theory by showing how school systems, past and present, have contributed to the development of segmented labour markets.

Chapter II

Labour Markets

Introduction

Before examining how schools prepare individuals for work, a viable theoretical framework was sought to help organize and understand the vast array of activities defined in this thesis as work. After examining the strengths and weaknesses of theories of dual or segmented labour markets, a particular version of segmentation, or dual labour market, theory was chosen to lend order to the examination of the relationship between schooling and work.

This chapter starts by briefly describing, or introducing, theories of dual or segmented labour markets. The chapter then reviews literature dealing with theories of dual or segmented labour markets to determine the viability of such theories.

Introduction to Theories of Dual or Segmented Labour Markets

Theories of bilateral or multiple labour markets

contend that both the supply and demand sides of the labour market are segmented into largely discrete, though necessarily related, labour markets. Tinto (1981:500) explains that:

The supply side (individuals) is represented by the human capital factors of education, ability, technical skills and on-the-job performance and by the social factors of race, sex, social origins, migration of workers and the amount of information persons hold about the labor market. The demand side (occupation) is represented by organizational factors such as the occupation and industry in which the individual is located and the particular work context within which employment is experienced.

Theories of dual or segmented labour markets concentrate on labour market segmentation⁽²⁾ on the demand or occupational side because, as Richard Edwards (1979:166) explains, considerable analysis suggests that the fundamental differences in labour market outcomes and processes "...are not so much among the workers as among the jobs workers hold."

Reich et al (1973) introduce and describe segmentation theory in the 1973 article "Dual Labor Markets A Theory of Labour Market Segmentation". According to Reich et al (1973:359), one can most usefully differentiate two labour market segments -- the primary and secondary -- using four

(2) Reich, Gordon and Edwards (1973:359) define labour market segmentation "...as the historical process whereby political-economic forces encourage the division of the labor market into separate submarkets, or segments, distinguished by different labor market characteristics and behavioral rules."

related criteria. The first criteria is job stability. "Primary jobs", say Reich et al (1973:), "require and develop stable working habits; skills are often acquired on the job; wages are relatively high; and job ladders exist. Secondary jobs do not require and often discourage stable working habits; wages are low; turnover is high; and job ladders are few." The next criteria Reich et al use to identify labour market segments are personality characteristics. According to Reich et al (1973:360) "Subordinate primary jobs are routinized and encourage personality characteristics of dependability, discipline, responsiveness to rules and authority, and acceptance of a firm's goals....independent primary jobs encourage and require creative, problem-solving, self-initiating characteristics and often have professional standards for work. Voluntary turnover is high and individual motivation and achievement are highly rewarded." Reich et al (1973:360) also suggest that one can use the criteria of race and sex to identify distinct segments within secondary, subordinate primary and independent primary labour markets.

Other researchers use the structure of capital to identify labour market segments and to explain differences between jobs. As Wanner and Lewis (1983:308-309) explain it, advocates of the dual economy perspective, beginning with Averitt (1968), "...have argued that the trend toward concentration and centralization of wealth and resources

has caused the development of advanced capitalism to increasingly polarize the economy into two main sectors -- each characterized by different forms of social and economic production organization...." Large, oligopolistic firms concentrated in the extractive, construction, petrochemical, transportation, and communication industries, in portions of the durable manufacturing, wholesale trade, and professional industries form the core sector of this dual economy. Such core industries, Wanner and Lewis (1983:308) explain, are generally "...characterized by high product-market concentration, product diversification, high profit margins, and capital intensiveness." In addition, firms in the core sector foster industrial stability through long-range planning. Long-range planning, in turn, fosters job stability. Mobility within firms is a manifestation of job stability. Sorensen and Kalleberg (1981) suggest that jobs in the core sector tend to be structured to maintain continuous production and skills acquisition. Continuous production and skills acquisition, Wanner and Lewis (1983:309) explain, are "...often achieved by the organization of internal firm labor markets in which employees enter at one level and advance within the firm itself, protected from outside competition for their jobs."

Smaller firms concentrated in agricultural production and in portions of non-durable manufacturing, wholesale and

retail trade, and most services, form the periphery of the dual economy. Such firms, Wanner and Lewis (1983:309) explain, "...typically have little power over factor and product markets, due to the competitive nature of these markets, and have relatively low profit margins." Considering job-stability, Wanner and Lewis (1983:309) explain that "Since firms in this sector generally aim to maximize short-term profits, most jobs are not likely to develop a worker's skills, are characterized by high work turnover, and often are not organized into internal labor markets. Thus the internal labor markets often associated with core firms provide distinct job ladders not regularly available in the secondary labor markets that are often associated with periphery firms."

Marshall (1974:857) calls the view of dual or segmented labour markets which is based on the structure of capital investment "radical" because he feels that it draws heavily on Marxist economic theory. Bowles and Gintis (1977:173-177), on the other hand, consider such theories of dual or segmented labour markets quite distinct from Marxist economic theories because Marxist labour theory of value does not account for stratification or segmentation in the labour market. In any case, Marshall, Bowles and Gintis all suggest that theories of dual or segmented labour markets present a viable alternative to classical Marxist economic theory.

Review of Literature

A stratified sample(3) of studies was selected to determine the viability of theories of dual or segmented labour markets because:

1) The studies of dual or segmented labour markets encountered identified segmented labour markets on the basis of two different criteria: job characteristics and structure of capital. Although a number of articles mentioned both criteria, all of the articles which explicitly considered theories of dual or segmented labour markets emphasized one or the other basis of segmentation. Thus it made sense to group articles which dealt primarily with primary and/or secondary labour markets together, and those which dealt with core and/or periphery, or state, monopoly, oligopoly and/or competitive capital sectors, together. Because articles favouring segmentation on the basis of job characteristics were encountered as often as articles favouring segmentation on the basis of the structure of capital, it seemed reasonable that the related categories, or strata, contain approximately equal numbers of articles representative of studies using either job

(3) In a stratified sample, all available studies are divided into categories or strata. Then, some studies from each category or strata are selected for review. According to Light and Pillemer (1984:33) such stratification "...guarantees representation for each important type of study, without forcing every single study into the review."

characteristics or the structure of capital to distinguish labour market segments.

2) Not all studies dealing with dual or segmented labour markets were available.(4)

3) Stratified sampling of studies allowed the selection of a reasonable number of studies for review.

4) Light and Pillemer (1984:33) claim that "Stratified sampling is especially valuable when study characteristics are systematically related to program outcomes". Assuming that economic return to education is a type of program outcome, and that basis of segmentation is a study characteristic, it seems that certain "study characteristics", in this review of dual or segmented labour markets, "are systematically related to program outcomes". To be specific, economic returns to education appear to vary less between core and periphery, or capital, sectors (Hodson, 1978; Beck et al, 1978) than between primary and secondary labour markets (Buchele, 1981; Osterman, 1975; Rosenberg, 1975).

(4) For example, the book *The Dynamics of Labour Market Segmentation* (Frank Wilkinson (ed.) was unobtainable. Other books and articles, particularly unpublished reports, were difficult or impossible to locate. For instance, Richard Edwards (1979) cited an unpublished paper by Robert Buchele (1976) entitled "Jobs and Workers: A Labor Market Segmentation Perspective on the Work Experience of Middle-Aged Men". Both Buchele and Edwards were written and asked if either of them had copies of this paper or if they knew where copies might be obtained. Buchele replied that the paper had never been published and was therefore unavailable. In its stead he sent an article from *The Dynamics of Labor Market Segmentation*. Edwards did not reply.

This relationship between study characteristics and program outcomes helps justify the decision to stratify samples.

5) Two of the studies (Armstrong and Armstrong, 1984; Woloch, 1984) selected in a preliminary literature search do not specifically consider, or apply, theories of dual or segmented labour markets. These studies may conveniently be grouped under the heading "historical examples". They were included in an effort to avoid a type of selection bias. To be specific, they were included to determine if segmented labour markets can be identified in studies which do not explicitly seek to prove or disprove the existence of segmented or dual labour markets. Articles which directly consider aspects of dual or segmented labour markets may be suspected of research bias simply because they self-consciously seek to support, or refute, theories of dual or segmented labour markets.

6) To avoid another form of selection bias, studies which might not support the theories were included. In addition to choosing the best, and not necessarily the most supportive, quantitative studies of dual or segmented labour markets, two critiques of segmentation theory, one by Wachter (1974) and one by Cain (1975), were selected. The critiques fall into a distinct group or strata which might appropriately be called "critiques of segmentation theory". These studies hopefully correct for the possible

bias of author's supporting theories of dual or segmented labour markets.

7) The generalizability of empirical findings varies from study to study. Presumably the variety of data sources, sample sizes, sample characteristics (that is sex, employment status, marital status, race, etc) and outcomes measured in the stratified selection of studies will lead to some general conclusions regarding the viability of segmentation theories. Consistently similar findings among such varied studies should indicate the generalizability of theories of dual or segmented labour markets. At the same time, outcome differences between different sample populations should help delineate the limits of segmentation theory.

In an effort to avoid publication bias, three unpublished studies (Andrisani, 1973; Rosenberg, 1975; Carnoy and Rumberger, 1976) which tested the claims made by theories of dual or segmented labour markets were located and reviewed. All three studies used job characteristics to distinguish labour market segments. Andrisani (1973:2135-A) found that for both black and white youths "...the probability of secondary-to-primary mobility is greater than the likelihood of secondary sector confinement". He also found that high school graduates, black and white, earn more than dropouts in primary and secondary labour markets. Andrisani's was the only study reviewed to

report considerable mobility between labour market segments. His was also the only study to find that economic returns to education were similar in both primary and secondary labour markets.

As it happens, Andrisani's negative findings result from a very limited sample population rather than from publication bias. Andrisani interviewed a relatively small number (159) of American males 14 to 24 years old in 1966. All of the males were out of school and had 12 or fewer years of education. Moreover, the sample contained a disproportionate number of blacks. As a result, Andrisani's findings apply to a very limited segment of the American population. It is no wonder that they differ from the results of studies which consider much different sample populations.

Rosenberg (1975:474-A) considered 10,450 males aged 21-64 living in low-income areas of Brooklyn, Cleveland, Detroit and San Francisco. He found:

1. Limited mobility between sectors.
2. That "...schooling plays a much stronger role in first job determination than in current job determination".
3. That members of minority groups are more likely than whites to work and remain in the secondary sector.

Rosenberg's findings regarding career mobility are consistent with the findings of Tolbert (1982) and Wanner and

Lewis (1983).⁽⁵⁾ Rosenberg's findings regarding schooling and minority group membership agree with those of Paul Osterman (1975). In short, the results reported in Rosenberg's study do not differ substantially from the results reported in a number of published papers measuring the same or similar outcomes.

Although Carnoy and Rumberger (1976) conclude that their findings neither prove nor disprove the existence of segmented labour markets, their findings differ little from those in published papers. Carnoy and Rumber simply interpret their findings more negatively than many published authors.

In summary, the results from the studies of Rosenberg (1975) and Carnoy and Rumberger (1976) compare favourably to the results in published studies. Andrisani's negative findings result from a very limited sample population rather than from publication bias. There is therefore little evidence of publication bias among the studies selected.

As mentioned earlier, the selected quantitative studies of dual or segmented labour markets used diverse

(5) Please note that Tolbert (1982) and Wanner and Lewis (1983) used the structure of capital to distinguish labour market sectors. In addition, they considered much older sample populations (45-59 years of age) than Rosenberg (1975). For these reasons the studies of Tolbert and Wanner and Lewis should be compared to Rosenberg's study with caution.

sources of data, different sample sizes, and variously aged, coloured and sexed respondents. More to the point, they identified and used a variety of labour market sectors in their analysis of dual or segmented labour markets.

Among the selected studies using job characteristics as the basis of segmentation Andrisani (1973), Rosenberg (1975) and Carnoy and Rumberger (1976) identify secondary and primary labour market segments. Osterman (1975) distinguished between secondary, upper and lower tier primary labour markets. Buchele (1981) recognized professional/managerial, semi-professional/technical, subordinate white-collar, primary blue-collar and secondary workers.

Among the selected studies using the structure of capital to distinguish labour market segments, Beck et al (1978 and 1980) and Wanner and Lewis (1983) identified core and periphery industrial sectors. Tolbert (1982) distinguished between oligopolistic and competitive industrial sectors while Hodson (1978) distinguished between monopoly, competitive and state sectors of production. The units of analysis, or labour market segments, obviously differed considerably from study to study.

In the selected quantitative studies of dual or segmented labour markets the outcomes measured also differed from study to study. In addition, researchers

tended to operationalize similarly named outcomes differently. Differences in outcomes measured were compounded by the facts that:

1. Different studies used different bases of segmentation and different sample populations.
2. The labour markets actually distinguished varied from study to study.

Consider the human capital factors measured by some of the studies which identify labour markets on the basis of job characteristics. Andrisani (1973), using a sample of males aged 14 to 24 in 1966, with 12 or fewer years of schooling, found that high schools graduates earned more than dropouts in both primary and secondary labour markets. Buchele (1981:218), meanwhile, measured the relationship between the human capital factors of schooling (number of years of primary and secondary schooling completed), college (number of years of post-secondary education completed), experience (number of years with current employer) and earnings within five job categories. His sample included females and males of working age. Osterman (1975:517-518) measured how the human capital factors of education (years of schooling completed), and age (which is related to experience and tenure) influenced the earnings of white and black urban males "...who were heads of families, who were without health disabilities which impinged upon their work activity, and who were in the

labor force during the year [1967]". These examples illustrate that both the factors of human capital measured and the operationalization of these factors vary from study to study.

Another outcome frequently measured was mobility between sectors. In all of the studies selected mobility between sectors refers to the movement of workers from one of the identified labour market segments to another. Unfortunately the labour market segments varied considerably from study to study. Because the sectors themselves varied from study to study, mobility between sectors actually measured different types of movement in different studies.

Theories of dual or segmented labour market suggest that, all things considered, workers in secondary or peripheral sectors earn less than workers in primary or core sectors (Edwards, 1979; Hodson, 1978). Many of the selected quantitative studies sought to verify or refute this claim. Different studies measured earnings differently. For example, Osterman (1975) measured annual earnings, Buchele (1981) measured weekly earnings and Andrisani (1973) measured hourly earnings or wage rates. To complicate matters, different studies controlled for different independent variables. Osterman (1975:517) included annual earnings, age, years of schooling completed, age squared,

race, weeks unemployed previous year, and hours worked previous week, in his regression analysis of earnings.

Buchele included the independent variables of schooling, college, experience and tenure to his regression analysis of earnings. Furthermore, Buchele employed five job categories or labour segments in his analysis while Osterman used three. Buchele's sample was much smaller than Osterman's (1857 as compared to 4606). In addition, Buchele's sample included 668 females while Osterman's contained none. When such studies conclude that, all things considered, (6) workers in secondary sectors earn less than workers in primary sectors, their conclusions are, obviously, not perfectly equivalent.

As the Osterman/Buchele example illustrates, the independent variables varied from study to study. Race and sex were two independent variables often included in studies of dual or segmented labour markets. Studies which considered sex as an independent variable distinguished between male and female workers. Buchele (1981), Carnoy and Rumberger (1976), Beck et al (1978 and 1980) and Hodson (1978) all found women to be concentrated in secondary or peripheral sectors. Moreover, Buchele (1981:222) found that women earned less than men in all labour market segments. Buchele (1981:223) concluded that labour market

(6) "All things" in this context correspond to the independent variables controlled for.

segmentation theory does not adequately account for this finding. The findings of Hodson (1978:470) and Beck et al (1980:125) support Buchele's conclusion regarding sexual discrimination.(7) Beck et al (1978:718), however, found that there is no statistically significant evidence of earnings discrimination in the periphery sector after controlling for human capital and occupational variables but that "In the core sector...there is evidence of significant adverse race and sex main effects on earnings even after controlling on human capital and occupational variables". These results suggest that sexual discrimination is not always uniform across sectors..

Considering race, the studies by Andrisani (1975), Osterman (1975) and Hodson (1978) identified workers as black or white. Rosenberg's (1975) study distinguished between whites and members of minority groups. The studies of Beck et al (1978 and 1980) and Wanner and Lewis (1983) distinguished white from nonwhite workers. Wanner and Lewis (1983:314) found that nonwhite males were more likely to work in the periphery than core sector. They also found that the mobility of whites and nonwhites between sectors

(7) Sex and race are among the four criteria Reich et al (1973) suggested can most usefully be used to identify labour market segments. The four criteria, Reich et al imply, are related but different. This being the case, it seems that the findings of Buchele (1981), Hodson (1978) and Beck et al (1980) are not entirely inconsistent with the claims of segmentation theory as described by Reich et al.

differed (see Wanner and Lewis, 1983:313-321 for details). Hodson (1978:455) found that "...blacks are over represented in the competitive sector relative to the monopoly sector" and that blacks were concentrated in secondary (as opposed to primary) labour markets (Hodson, 1978:457). Beck et al (1978:711) found that a disproportionate number of nonwhites worked in the peripheral sector. Beck et al (1980:125) concluded that:

- 1) Minority workers run a disproportionate risk of working in the periphery sector and that this risk remains even when human capital factors are controlled.
- 2) The earning value of human capital is greater for whites than nonwhites, for men than women, and for workers in the core than for workers in the periphery.

As these examples show, different studies considered and measured different relationships between race and labour market segmentation.

It seems that the outcomes measured by studies of dual or segmented labour markets are not similar enough to combine. They are, however, similar enough to compare. Thus one study's findings regarding earnings, mobility, human capital factors, unemployment, race or sex may be compared to another study's findings regarding the relevant outcome. As the discussion of the relationship between the independent variables race and sex illustrate, studies need not

measure exactly the same thing to show similar trends or to reach similar conclusions.

The empirical findings of the selected quantitative studies quite consistently support the claims made by theories of dual or segmented labour markets, despite differences in research design, sources of data, sample sizes, sexes and ages, and bases of segmentation. One exception to this consistency is Andrisani's (1973) study, which failed to support the claim of segmentation theorists that little mobility exists between labour market segments.

Andrisani (1973:2135-A) found considerable mobility between secondary and primary sectors, as well as a consistent relationship, within secondary and primary sectors, between education and earnings. Andrisani's findings result from a very limited sample population. In this case outcomes were clearly related to research design.

Segmentation theorists suggest that, generally speaking, job stability is highest among primary workers. Beck et al (1978:711) found "...no significant differences between sectors in either the current unemployment rate for the experienced labour force or in the proportion of workers who have been unemployed at least once in the past ten years, a weak indicator of work stability". Beck et al (1978:711) suggest that this finding might "...be due more to an insensitivity of the empirical measure than to true

similarities in the unemployment experience of core and periphery workers". In this case, Beck et al themselves attributed their unexpected findings to research, or measurement, design.

Wanner and Lewis (1983:313-314), considering male workers 45-59 years of age in 1966, found that both white and nonwhite workers in the core sector "...had a higher average average number of weeks of unemployment than workers in the periphery for both 1966 and 1976". Wanner and Lewis (1983:314) suggest that this finding reflects the fact that "During a recession, unemployment is highest in the core, while during time of economic prosperity workers in the periphery suffer higher rate of unemployment". Thus Wanner and Lewis attribute their findings to the general state of the economy when their study was conducted, rather than to research design. This explanation may be questioned on the grounds that America did not experience a recession until the mid 1970's. Moreover the findings of Wanner and Lewis (1983) correspond to the findings of Beck et al (1978). This suggests that rates of unemployment may be more similar than segmentation theory predicts.

Unexpected or inconsistent outcomes in the studies by Beck et al (1978) and Andrisani (1973) were related or attributed to research design. It seems, however, that results are related to research designs in any case,

because all studies, including those selected for the review of literature, have their own particular purpose and design which in a sense controlled or limited outcomes.

Outcomes were related to characteristics of participants and settings. For example, Wanner and Lewis (1983:314) suggested that they found that core workers in their sample had a higher rate of unemployment than workers in the periphery because the study was conducted during a recession. The extreme age (45-59) of their sample might better explain their findings because large companies are more likely to retire workers early than small or peripheral firms that can save money by exploiting older workers who have few alternative prospects for employment. In any case the outcomes of Wanner and Lewis's study appear to be related either to settings, that is economic climate, or to sample characteristics -- namely the age of workers.

Rosenberg (1975) considered a sample of men living in low-income areas of Brooklyn, Detroit and San Francisco. Clearly his findings will not apply to an upper-middle-class group of men or men and women. Similarly Andrisani's (1973) findings regarding a sample young men with 12 or fewer years of schooling will not apply to the working population in general. In these studies the generalizability of outcomes is clearly related to participants and settings.

Osterman (1975:515) used a sample of white and black urban males, "...who were heads of families, who were without health disabilities which impinged upon their work activity, and who were in the labor force sometime during the year [1967]". Anticipating biased results, Osterman (1975:515-516) suggested that "...the secondary sector would have been larger in proportion to the others [subordinate primary and independent primary] had individuals living alone, people with health defects, and women been included". In fact, Buchele (1981), Carnoy and Rumberger (1976), Beck et al (1978 and 1980) and Hodson (1978) all found women to be concentrated in secondary or peripheral sectors. This shows that Osterman's outcomes were indeed effected by participant characteristics.

Tolbert (1982:475) found that career mobility between sectors decreased with age. This finding suggests that studies using older sample populations may report stronger relationships between outcomes measured and market segments than those with young sample populations.

Beck et al (1978 and 1980) used large and varied sample populations. In their 1978 study, their (Beck et al, 1978:708) sample population included 1683 male and female, white and nonwhite persons "...who reported working full or part-time, not working because of temporary illness, a strike or annual leave, and those who were laid-off or

unemployed and seeking work". The sample excluded the inexperienced unemployed and persons, like housewives, students, and retirees, not in the labour force. Beck et al (1980:116) used a similar, but much larger (62568 persons), sample population in their 1978 study. Hodson (1978) used the 1973 equivalent of Beck et al's (1980) data source and more or less the same sample population (see Hodson, 1978:444-445 for details). The findings of Beck et al (1978 and 1980) and Hodson (1978) should describe and apply well to the general working population, as well as to female, male, white and nonwhite subpopulations.

Buchele (1981) used a fairly large and varied sample of males and females. He did not, however, distinguish workers on the basis of colour. Thus his findings apply to the general working population as well as to male and female subpopulations.

As these examples show, the outcomes discussed in this review of literature are clearly related to characteristics of participants and settings. The studies reviewed report remarkably consistent findings despite this. The studies (Andrisani, 1973; Wanner and Lewis, 1983; Osterman, 1975; Rosenberg, 1975) with limited generalizability, provide valuable details regarding particular segments of America's working population. These details can be used to fill the

gaps left by studies which considered large general sample populations.

Turning to non-quantitative studies, consider the studies by Woloch (1984) and Armstrong and Armstrong (1984). Their studies did not specifically consider or apply theories of dual or segmented labour markets, yet they provided quantitative evidence to support the claims of segmentation theory. For example, statistical summaries in Woloch's book show that American women have been concentrated in peripheral or secondary jobs since at least 1900 (Woloch, 1984:545). Armstrong and Armstrong (1984:27) show that Canadian women have been concentrated in peripheral or secondary jobs at least since 1951. Armstrong and Armstrong (1984:29-31) also show that Canadian women have, for the years considered, always earned less than men within the same sectors of labour.

Articles by Reich et al (1973) and Edwards (1979) argue persuasively in favour of segmentation theory while Phillips and Phillips (1984) use the ideas of segmentation theory to explain the relationship between women and work. By applying the ideas of segmentation theory to the specific problems of women, they show readers the analytic power of segmentation theory.

This leaves the critiques of Cain (1975) and Wachter (1974) to consider. Cain's (1975:20-21) most persuasive

arguments against studies supporting dual or radical theories of the labour market are that:

1) Such studies do not show that workers are clearly destined for, and confined within, particular labour market segments.

2) Such studies do not explain discrimination any better than neo-classical theories which suggests that all labour market deviations (such as discrimination) result from the interplay of supply and demand in a competitive labour market (McConnel and Pope, 1981:219; Lord, 1979:210).(8)

The first of these criticisms is valid. The second is not. Certainly Becker (1957) and Arrow (1973), in landmark neo-classical studies of discrimination, failed to convince Ray Marshall (1974) and Stephen Lord (1979) that neo-classical theories account for discrimination better than segmentation theories.

Cain's critique of dual or radical theories of the labour market simply shows that politically conservative thinkers believe that neo-classical theories explain the world better than dual or radical theories. The dichotomy

(8) Lord (1979:215) explains that neo-classical "...theory assumes that in competitive equilibrium all 'factors of production' will get paid according to the value of their marginal product. Wage differentials can then be attributed to two sources. First, individuals differ in their endowments [or human capital]....Second, individuals differ in their tastes. Some individuals have a greater relative preference for leisure over income...."

between neo-classical and dual theorists seems analogous to the dichotomy between deterministic and voluntaristic theorists: they view the world differently, and one group can never fully accept the ideas of the other. Cain's (1975:21) conclusion that dual and radical theories have made important contributions in the areas of empirical research and policy prescriptions may represent the best recommendation possible from a supporter of neo-classical theories of the labour market.

Wachter (1974:643) argued against dualist claimed that jobs in primary or core sectors are by their very nature better than jobs in secondary or peripheral sectors. Wachter (1974:643) claims that "...the internal market screens workers and places the good ones in good jobs". Wachter offered no evidence to support this claim. Wachter (1974:678) also claimed that mobility between sector exists. This is true: limited mobility between sectors has been documented. Next Wachter (1974:678) claimed that "...wage structure shows no evidence of bipolarization". The fact that 7 of the 8 selected quantitative studies which considered the relationship between earnings and labour market sector found that workers in secondary or peripheral sectors earned significantly less than workers in primary or core sectors suggest that this claim is unfounded. After applauding dualist treatments of unemployment and underemployment, Wachter (1974:680) concluded

that "...The dual model does not provide an overall theory of the labour market", (9) and asserted that the "novel empirical findings" of dualist studies "can be integrated into a traditional model and indeed are more easily understood in such a context." Ray Marshall (1974) and Stephen Lord (1979) question this assertion on the grounds that neoclassical economic theory fails to adequately explain discrimination, or systematic stratification, in the labour market. Indeed, Marshall (1974:856) feels that dual (or primary and secondary) labour market theories account for discrimination more effectively than neoclassical theory. This is interesting in light of Buchele's (1981) assertion that segmentation theories do not adequately account for discrimination.

As the critics justly point out, segmentation theories describe the world imperfectly. Nevertheless, the studies considered in this review of literature generally supported, or failed to discount, theories of segmented or dual labour markets. While accepting the viability of segmentation theories, one must recognize that such theories have shortcomings. The next few pages suggest

(9) Although Ray Marshall (1974:857) tends to support dual labour market analysis he admits that "So far it is a classification system more than a theory. Moreover, the analysis and description apply only to parts of the economy and are not therefore a complete system."

research which might strengthen, or at least clarify, the claims of segmentation theories.

Most studies of segmented or dual labour markets fail to compare the outcomes within labour markets identified in different ways. Future studies should attempt to identify and explain the differences, as well as the links, between labour market segments identified using the structure of capital and those identified on the basis of job characteristics. In the process, studies should determine which basis of segmentation shows the strongest correlation with the particular outcome studied. In this way researchers can identify if and when the structure of jobs influences outcomes (such as earnings) more than the structure of capital.

A problem relevant to the discussion above is that of women and work.⁽¹⁰⁾ Buchele (1981), Hodson (1978) and Beck et al (1980) found that women earned less than men in all sectors while Beck et al (1978) found that women earned less than men only in the core sector. This discrepant finding must be resolved through further research of the nature described above. It may well be that the structure

(10) Recall that the term work, as used in this thesis, refers to activities which bring in money. Thus all discussions of women and work in this thesis exclude women who do not get paid for work in the home.

of jobs influences the earnings of working women more than the structure of capital.

Another problem related to the consistently low earnings of working women requires further study. To be specific, Buchele (1981) concluded that segmentation does not account for the fact women earn less than men in all sectors, while Phillips and Phillips (1983) argued that one must understand (and presumably accept) segmentation theory to understand the economically disadvantaged position of working women. Further research will help resolve this difference of opinion. Certainly the disadvantaged position of women in the labour force should be studied both within and outside the context of segmentation theory if researchers wish to understand and improve women's disadvantaged position in the work force.

A number of claims made by segmentation theories are weakly supported. Other claims suggest further possibilities for study. For example, theories of dual or segmented labour markets claim that there is little mobility between identified labour market segments (Andrisani, 1973:2135-A). However, as both Wachter (1974) and Cain (1975) point out, mobility between sectors exists. Researchers must make an effort to more fully determine and explain the nature and patterns of mobility between primary and secondary, or core and periphery, sectors to make up

for this weakness in theories of dual or segmented labour markets.

Theories of dual or segmented labour markets also claim that jobs in the secondary market do not seem to lead to better jobs while jobs in the primary market usually do (Edwards, 1979:166). Although the findings of Wanner and Lewis (1983) support this claim, the differences between patterns of promotion in secondary and primary labour markets have not been thoroughly studied.

Educators should be particularly interested in patterns of promotion within different sectors of the labour market because promotion patterns in secondary and, to a lesser extent, in primary markets hardly resemble patterns of promotion in schools. This has serious implications for schooling, if one assumes that the role of schooling is to prepare individuals for employment. In any case, a better explanation of promotion patterns within labour market segments would strengthen segmentation theories.

Theories of dual or segmented labour markets also claim that economic returns of education differ from sector to sector. Empirical findings have consistently supported this claim. Educational planners as well as theorists should consider more closely the links between earnings and education in different sectors.

The problems of unemployment and underemployment are pervasive in modern society. Wachter (1974) indicated that theories of dual or segmented labour markets provide a useful theoretical framework in which to study these problems. Yet the findings of Wanner and Lewis (1983) and Beck et al (1978) do not support the dualist claim the unemployment is higher in secondary or peripheral sectors than in primary or core sectors. Clearly further research and thought will help explain these inconsistent findings. Additional studies of unemployment and underemployment may also help identify and solve problems of systematic unemployment or underemployment within segments of the work force. Certainly underemployment might be reduced if educational planners and theorists considered more closely the links between earnings and education in different sectors when preparing young people for employment.

Conclusion

By and large, the studies reviewed in this review of literature supported, or failed to discount, the viability of theories of dual or segmented labour markets. This is not to say that segmentation theories describe the world perfectly. In fact, there is much truth in Marshall's (1974:857) assertion that segmentation theory is more of a classification system than a theory. The descriptive nature of segmentation theories is certainly very useful in

organizing and examining the links between schooling and work. Indeed, it might be more appropriate to call segmentation theories, as used in this thesis, segmentation systems of classification. However, all of the articles reviewed in the thesis referred to "theories" of dual or segmented labour markets. In the interests of consistency, this thesis, like the articles reviewed, will call segmentation systems of classification "segmentation theories". The next chapter will accordingly describe, in some detail, those descriptive aspects of segmentation theory used to examine ways in which schools prepare students for work.

Chapter III

Segmentation Theories Described

Introduction

Segmentation theories suggest that people can use job characteristics and the structure of capital to identify discrete segments on the demand side of labour markets. Researchers such as Hodson (1978), Beck et al (1978 and 1980), Tolbert (1982) and Wanner and Lewis (1983) used the structure of capital to identify core or monopoly, state, and peripheral or competitive sectors. Reich et al (1973), Edwards (1979), Berger and Piore (1980), Andrisani (1973), Rosenberg (1975), Buchele (1981) and others used job characteristics to distinguish between secondary, primary or subordinate primary and independent primary labour markets. The two bases of segmentation are different yet related. As Randy Hodson (1978:434) explains, the structure of capital precedes the jobs upon whose characteristics primary and secondary labour market categories are based.

Educators cannot directly influence the structure of capital. They can, however, prepare students to meet job demands. Because this thesis examines how schools prepare individuals for work, or jobs, the remainder of this thesis

will consider labour market segments identified solely on the basis of job characteristics.

Job Characteristics of Segmented Labour Markets

Edwards (1979:164) identifies three distinct labour markets -- secondary, subordinate primary and independent primary -- which hire workers for different types of jobs. He distinguishes between the labour markets on the basis of clusters of job characteristics typical of each. The remaining pages of this chapter will outline the clusters of job characteristics used by Edwards and others to distinguish between labour markets.

According to Edwards (1979:170) and Piore (1975:126), low paying jobs of casual labour which provide little employment security or stability and few opportunities for advancement characterize the secondary labour market. Jobs in this labour market require few skills and promote relatively high voluntary turnover. As Watkins (1985:15) explains it, "The secondary labour market which dominates the periphery of the economy is characterized by labour-intensive technologies whose production processes are routinized with repetitive tasks which can be done by people with little or no training." Because employers invest little in training, employers in the secondary labour market easily dismiss and replace workers as their labour needs change (Carter, 1976:62). Employers can also

employ part-time workers with little training for secondary jobs (Sweet, 1980). Because workers are so easily replaced, employers reward neither seniority nor education in the secondary labour market.

The types of jobs which make up the secondary labour market are : 1) low skill, non-unionized manufacturing jobs; 2) service jobs such as those held by janitors, waiters and waitresses, guards, personal care workers, hospital orderlies, deliverymen and messengers, attendants and so on; 3) low level positions in retail and wholesale trade -- jobs held by sales clerks, check-out clerks, inventory stockers and so on; 4) lowest-level clerical jobs held by typists, file clerks, data entry personnel and so on; and 5) seasonal jobs such as those of migrant agricultural labourers and loggers (Edwards 1979:167). None of these jobs offer security or opportunities for advancement.

On the other hand, the subordinate primary market, according to Edwards (1979:179), offers "...some job security, relatively stable employment, higher wages and....well established paths for advancement." This market, like the secondary market, encompasses both production and nonproduction jobs. Unlike the secondary labour market, however, the subordinate primary market generally provides long term, stable work with prospects for advancement and some job guarantees. Unions and management jointly

negotiate seniority, grievance and other contractual rights in the subordinate primary market. In either case, the jobs of the subordinate primary market may be considered permanent, rather than temporary or casual (Edwards, 1979:171; Berger and Piore, 1980:18-19).

Subordinate primary jobs are repetitive, routinized and tend to be subject to machine pacing. Workers learn the required skills quickly, often on the job, and usually have little control over their own jobs. Advancement in the subordinate primary labour market almost always depends on seniority within a firm and wages tend to increase significantly with experience and age (Edwards, 1979:173; Berger and Piore, 1980:18). Economic returns to age and experience within the secondary labour market are much smaller than economic returns to age and experience in the subordinate primary labour market. Paul Osterman (1975:516-518), for example, found that 41 year old male workers in the secondary market earned only 4 percent more than their 31 year old coworkers while workers of the same ages in the subordinate primary market received wages which differed by 18 percent (calculated from Osterman's (1975) Tables 2 and 4).

Osterman (1975) also found that economic returns to schooling are higher within the subordinate primary market than within the secondary market. To be specific, Osterman

(1975:516-518) found that the average subordinate primary worker earned an additional 6 percent per year for each year of schooling while secondary workers realized a mere 1 1/2 percent increase in wages for each year of schooling (calculated from Osterman's (1975) Tables 2 and 4). Carnoy and Levin (1985:65-66), meanwhile, report that "Education can become a liability in the unionized sector. A highly educated employee is likely to view routinized jobs as even more stultifying and boring than otherwise, and is likely to be more ambitious for upward mobility and new experiences than the fixed seniority in this sector can accommodate." This argument suggests that education has limited value in the unionized sector of the subordinate primary labour market.

Workers in the subordinate primary market are protected, usually by unions, against arbitrary dismissal, while secondary workers may be dismissed for disciplinary or for arbitrary reasons even during boom times.(11) Despite job protection in the subordinate primary market, jobs may be lost during depressions when production exceeds demand. High rates of unemployment within the subordinate

(11) Unionization often marks the transition from the secondary market to the subordinate primary market. In other words, jobs in the secondary market can be upgraded, through unionization, to join the subordinate primary labour market, just as subordinate primary jobs can be downgraded to secondary jobs through loss of union protection.

primary market may prevail, as demonstrated by the experience of the 1970's and 1980's. However, positions within the subordinate primary labour market are lost in order of seniority and when business picks up workers are called back to work in order of seniority. Thus a worker laid off by Ford becomes a laid-off auto worker, with the prospect of re-employment, rather than becoming just another unemployed person. In this sense positions in the subordinate primary labour market differ dramatically from positions in the secondary labour market; dismissal seems neither arbitrary nor permanent as laid-off workers in the subordinate primary labour market retain ties of seniority with the jobs from which they were laid off (Edwards, 1979:173).

The independent primary market, like the subordinate primary market, explains Edwards (1979:174), offers "...stable employment with considerable job security, established patterns of career progression, and relatively high pay." Carnoy and Levin (1985:64) claim that "...employees in this [independent primary] sector have the most autonomy, the highest pay, and the most job security of any group of workers in the economy." Unlike jobs in the subordinate primary market, however, jobs in the independent primary market 1) typically require general, rather than firm specific, skills which are acquired through advanced or specialized schooling; 2) demand specific educational qualifications; 3) are not centered on operating

machinery; 4) may have career ladders which involve movement between firms; 5) require individuals to meet occupational or professional standards of performance; and 6) are more likely than jobs in other labour markets to require independent, self motivated individuals. Most notably, jobs in the independent primary market foster occupational consciousness: independent primary job-holders come to define themselves in terms of their occupations (Edwards, 1979:177).

Edwards (1979:174) identifies three major groups of jobs or occupations within the independent primary market. The first group consists of long term employees such as supervisors, executive assistants, personal and specialized secretaries, foremen, bookkeepers, clerical, sales, and technical staff, who are recognized and rewarded for expertise within their particular firm. The status of such workers tends to be firm-specific; their status would be jeopardized by moves between firms. The second group of independent primary jobs involves craft work; the jobs of electricians, carpenters, sheet metal workers, plumbers, welders, machinists and so on fall into this category. The third major group of jobs within the independent primary labour market includes professional positions -- accountants, engineers, scientists, doctors, nurses, economists,

lawyers and so on(12) (Edwards, 1979:174). As the jobs listed indicate, the independent primary market, like other labour segments, includes both blue and white collar occupations (Edwards, 1979:174). However, the majority of workers in the independent primary labour market are less likely to be laid-off than workers in secondary or subordinate primary labour markets (Edwards, 1979:177). Craft workers constitute the exception, with the highest propensity for both layoffs and voluntary quits.

The public sector supports a large proportion of independent primary workers, particularly those in firm-specific and professional occupations. In 1979 Edwards (1979:174) claimed that governments employed between 35 and 45 percent of all professional and technical workers in the United States. People qualified as teachers, social workers, nurses, doctors, accountants, lawyers and engineers were recruited in great numbers to carry out welfare, warfare and regulation functions. The public sector accounted for between a fifth and a third of all independent primary employment in the United States.

Public education, health, welfare and warfare systems are now fairly well established -- they no longer need to recruit new workers to plan and implement the systems. At

(12) Professional and craft workers generally achieve upward mobility by moving from firm to firm.

the same time, the populations of most Western countries are growing more slowly today than in the recent past. Many workers hired to plan and implement systems of public service now work to maintain existing systems. Attrition policies and government cutbacks lead to few job openings. In the opinion of Carnoy and Levin (1985:64), resulting slow downs in American public sector expansion are particularly threatening to the independent primary employment of highly educated women and minority workers.

In Canada, the public sector hired the majority of university graduates, presumably for independent primary jobs, during the 1960's and 1970's (Picot, 1983). In the 1980's Morgan (1981:xix) predicts a "...dramatic decline in new entrants into the public service compared to the 1970's". This decline started in the 1970's -- Zsigmond et al (1978:192), for example, report that "...by 1976 hiring of new teachers [in Canada] was one-third what it had been in 1969, but the number of graduates seeking jobs was one and a half times the 1969 level." Because teaching is dominantly a female profession, this example supports the claim of Carnoy and Levin (1985:64) that public sector slowdowns threaten the independent primary employment of highly educated women.

Groups of jobs within the independent primary labour market differ, particularly in patterns of unemployment and

career advancement (Edwards, 1979:175). Supervisory and other long term administrative employees tend to stay with one company. These workers, claims Edwards (1979:175), experience "...the highest "tenure in present jobs" of all workers," the lowest rate of overall unemployment, and the fewest periods of unemployment. In addition, workers in this group are: 1) least likely to voluntarily quit their jobs, 2) most likely to have received company training, and 3) unlikely to have been laid off (only professional workers are laid off less frequently). "Moreover," says Edwards (1979:175), "they are the only group of workers for whom having more than thirty years' experience contributes positively to earnings."

In contrast, professional or craft standards, as well as employer imposed job structures, tend to regulate the career paths of professionals and craft workers. As a result, professional and craft workers change jobs nearly as often as secondary workers. Rytina (1982:31) found that within the independent primary market 6.8 percent of professional, technical and kindred workers, 8.8 percent of managers and administrators, and 8.3 percent of craft and kindred workers changed jobs between January 1980 and January 1981. Within the secondary market Rytina (1982) found that 10.9 percent of salesworkers, 13.6 percent of clerical and kindred workers, 18.6 percent of labourers and 12.3 percent of service workers changed jobs in the same period

of time. Buchele (1976) found that the average number of "year's of tenure in present job" for professional workers was 11.7 and 11.6 respectively, 11.3 for secondary workers, 13.8 for subordinate primary workers and 15.2 for independent primary supervisory workers. Edwards (1979:176) explains that "The fact that professional workers earn a substantial return to experience through the first nineteen or so years of working, while secondary workers get no return..." suggests that job changes by professional workers generally represent career advances.

Job switching does not imply similar progress for craft workers, who, like secondary workers, receive little in return for greater experience. Most craft workers change jobs in order to maintain their employment in occupations that Buchele (1976) found paid 30 percent more, on average, than jobs in the secondary labour market. In light of such monetary advantages, it is not surprising that craft workers retain very strong ties with their jobs, unions and crafts when laid off (Edwards, 1979:176).

The average pay in independent primary jobs is significantly higher than that in other labour market segments (Buchele, 1981:222; Osterman, 1975:518-519; Berger and Piore, 1980:19; Edwards, 1979:174). Moreover, workers in independent primary jobs receive higher wages in response to experience or age and formal education than workers in

other labour markets (Carnoy and Rumberger, 1976; Beck et al, 1978 and 1980; Buchele, 1981; Edwards, 1979). Paul Osterman (1975:516-518) found that male workers 42 years old earned 34 percent more than workers of 32 in the same field within the independent primary labour market. Osterman also found that each year of schooling boosted annual earning almost 10 percent within the independent primary labour market (calculated from Osterman's (1975) Tables 2 and 4).

Conclusion

In economic terms independent primary jobs are clearly more desirable than secondary or subordinate primary jobs. Unfortunately, there exist a limited number of independent primary jobs. Indeed, many observers (Rumberger, 1984; Carter, 1976; Levin, 1984; AFL-CIO, 1983; O'Toole, 1975) believe that the secondary labour market is expanding considerably faster than the independent primary labour market, despite steady increases in the average educational qualifications of workers (Rumberger, 1980; Watkins, 1985).

Many observers have linked the rapid growth of the secondary labour market with the tendency of new technology to reduce the skill requirements of work. Others suggest that technology creates as many jobs and skill demands as it destroys. Which ever argument one favours, one must recognize that labour markets are not static. They change

in response to changing economic circumstances and changing technology. Schools must prepare individuals to meet the skill demands of jobs effected by changing technology. The next chapter considers the effect of changing technology on employment and on the skill demands of various jobs.

Chapter IV

Effect of Changing Technology on Employment

Introduction

There is no consensus regarding the long-term effects of changing technology(13) on employment (Selleck, 1983:3; Rumberger, 1984:10; Hamrin, 1981:29). Pessimists believe that, in the long run, more jobs will be lost through technological change than gained, and that many of the jobs remaining will require fewer skills and provide less satisfaction.(14) Optimists tend to focus on the potential positive long-term effects of technological change.(15) Optimists suggest that new jobs in new industries, new applications of technology and greater quality of work life will

-
- (13) Technology, as used in this thesis and defined by Form and McMillen (1983:148), refers to "...the tools, equipment, and machines that workers use or the tools, equipment, and machines that directly and indirectly affect the worker's activities."
 - (14) The pessimists include Jenkins and Sherman (1979), Braverman (1974), Coombs (1979), Menzies (1981), Levin (1983), AFL-CIO (1983), Carnoy and Levin (1985), Galombos (1984), Rumberger (1984), and Hollifield (1983).
 - (15) The optimists include Peitchinis (1983), Hoffman (1979), Senator Susan Ryan (1983), and Lewis (1983).

compensate for jobs lost in the short run (Selleck, 1983:3-4).

Unemployment

In the short run, many authors (The Canadian Government Task Force on Microelectronics and Employment, 1983; Harris, 1984; Menzies, 1981; The Canadian Federation of Independent Business, 1983; Jenkins and Sherman, 1979; Rumberger, 1984) believe that recent changes in technology make unemployment in today's labour force inevitable. Consider, for example, four uses for integrated circuits. First, they are the basic components for new products such as digital watches, calculators and word processors. Second, they replace conventional circuitry in existing products such as televisions and cash registers. Third, they direct machines to perform repetitive or predictably changing tasks. Fourth they increase the volume and speed of information handling systems such as telecommunications' system X or the data bases of insurance companies (Jenkins and Sherman, 1979:48-49,87,90-92,99). The second, third and fourth uses, in which integrated circuits effect processes, tend to reduce employment at production levels through substitution, or jobless growth. Micro-circuitry allowed IBM to make ten times as many logic circuits in 1979 as it did in 1970 with no growth in its labour force (Jenkins and Sherman, 1979:94-95). Also, machines with

integrated circuits now perform many of the tasks traditionally performed by telephone operators (Rumberger, 1984:6). In short, computers (in conjunction with the related phenomena of robots and automation) enable fewer people to produce more goods (Smith, 1984:44).

Because manufacturers more often use microprocessors in processes than in products at present (The Economist, 1985:73), new products and services are not being introduced fast enough to offset employment lost through automated production of existing goods. The market for existing goods is limited: people need only so many televisions, cars and washing machines.

New products create new markets not yet saturated: the microwave oven, for example, fills a niche in the market not satisfied by conventional ovens or by the prepared food industry. Likewise the VCR fills a niche not satisfied by conventional televisions or cinemas. Unfortunately, manufacturers tend to introduce new products slowly because large corporations benefit most by fully exploiting existing product markets before introducing new products. Unless manufacturers introduce new products fast enough to offset employment lost when they use micro-electronics in manufacturing, unemployment among production workers seems inevitable (Hamrin, 1981:19). Yet technology did not precipitate widespread unemployment when applied to

manufacturing in the past. Why do many observers consider jobless growth an inevitable short-run consequence of new technology?

The answer is: technological changes associated with "the chip" represent a new phenomena in technical innovation. In the past technical innovations resulted in machines replacing muscle power; the computer and its adjuncts for the first time allow machines to replace brain power (Jenkins and Sherman, 1979:85; Rumberger, 1984:21). The implications for labour are considerable.

Implications of Computer Technology

Today, computers and their adjuncts perform skilled as well as unskilled and semi-skilled labour functions. In the automobile industry, for example, a technician with a computer can now complete in one day the work tasks that once took a draftsman three weeks to complete. In manufacturing, robots or pick-and-place machines can replace unskilled assembly line workers. A team composed of one worker and a robot can now complete the work once performed by a dozen workers in the air craft industry (Smith, 1984:44). In addition, semi-skilled and skilled machine operators can and often are replaced by computer-numerically-controlled machine tools. Between 1960 and 1970, jobs for machinists declined by 125,000 in the United States due to the increased use of

numerically-controlled machine tools (DiCesare, 1975:28). Computer-aided design and manufacturing systems, often operated by persons trained to program computers rather than to design the products in question, can reduce or eliminate the design functions of skilled craftsmen.

(Jenkins and Sherman, 1979; Selleck, 1983). Computer-aided phototypesetting equipment displaced 29,000 compositers and typesetters in the United States between 1960 and 1970 (Rumberger, 1984:19). Moreover, the assembly process may be simplified by the use of micro-circuitry in the manufactured goods themselves. Electronic cash registers require only 25 percent as much labour for assembly as their mechanical and electromechanical counterparts (Hamrin, 1981:25). In combination, these facts suggest that computer technology threatens all three labour market segments in the manufacturing sector.

Computers will also do much of the information handling previously done by clerical staff in white collar industries like banking (Menzies, 1981:47). Automated tellers will take over many of the tasks currently performed by tellers (Rumberger, 1984:6). Administrators will have faster access to more information and will be able, using computers, to perform more sophisticated analysis and manipulation of funds (Rumberger, 1984:23). In banking, as in many white collar industries, employment in

the secondary labour market will be most negatively affected by computer technology (Menzies, 1981).

In addition, office automation equipment -- micro computers that perform such functions as word processing, financial analysis and filing-- may replace a large number of administrative support workers (secretaries, bookkeepers, file clerks and so on) in offices. Equitable Life Insurance reduced its clerical staff in one office from 25 to 3 in 1983 by transferring files to computers (Rumberger, 1984:23-24). Again it seems that new technology negatively effected white collar employment in the secondary labour market.

Worker Alienation

In addition to eliminating jobs, a number of authors suggest that technology gradually removes any control workers may have over the work process. According to Harry Braverman (1974:51-58), capitalists must gain control over the work process in order to predict and therefore control the profits associated with the human phenomena of surplus labour. In the past human labour represented the variable portion of capital expenditures: the capitalist could not accurately predict how much surplus labour he could demand from each worker. New technology and scientific management give the capitalist greater control over the work process and therefore over the surplus labour of each worker by

standardizing and fragmenting labour. In the words of David Hogan (1985:143) "...mechanization enabled capitalists to assume greater control of the labor process by destroying the irregular work patterns of handicraftsmen, displacing the intelligence of the artisan with the rhythms of the machine, and reconstituting the division of labor and wage hierarchies on an entirely new technical and social basis. Taylorism [that is scientific management] did little more than advance this process and legitimate it."

As Marglin (1982:295) explains it, the fragmentation and separation of tasks assigned to each worker in the development of modern industry is a means by which the employer can maintain control of the work process. In the words of Gorz (1972:32) "...the minute division of labor renders the process of production totally extraneous to the workers; it robs them of the possibility of determining how much work they want to do, it prevents them from tampering with work speeds." In short, Braverman, Marglin, Hogan and Gorz suggest that the deskilling of work associated with new technology reduces worker autonomy and increases managerial control of workers, particularly secondary and subordinate primary workers. Carnoy and Levin (1985) identify additional problems associated with the general deskilling of work. To be specific, Carnoy and Levin (1985:70) claim that:

The reduction in job opportunities for highly educated workers also created the contradiction of alienation and frustration among workers who had high expectations when entering the labor market. Higher education has traditionally entitled its recipients to a secure, remunerative career holding jobs with a high degree of autonomy, responsibility, and status. As college graduates with these job expectations have been confronted with the reality of routinized, standardized work, they have felt frustration and alienation. Increased production of college graduates can only exacerbate the contradiction between expectations and reality, between socialization patterns and actual workplace reproduction requirements.

The Optimists

Despite all of the job loss and alienation attributed to new technology, some observers believe that new technology can positively effect employment. As Williams puts it:

There are labour-saving technologies that abolish jobs; there are also new technologies that create whole industries and new jobs. In the past, technology has created far more jobs than it has abolished. We think on that that we could do more to make technology work in a purposive manner as part of employment policy. (Hoffman, 1979:14)

Rumberger and Levin (1984:344-345) effectively block this optimistic view by pointing out that the new technologies of the past simply reduced the physical demands of work. New technologies today reduce both the mental and physical demands of work. Moreover, the increasingly low costs of implementing new technologies, relative to the costs of labour, ensure the implimentation of new technology, frequently at the expence of labour.

In a manner similar to Williams (1979), Stephen Peitchinis (1983:92) points out that new products, new processes and increases in knowledge create new sets of work functions or occupations. At the same time, Peitchinis (1983:92) argues,

...increases in knowledge that relate to the activities of specific occupations may result in the formation of separate sets of work functions, and the creation of new occupations or different grades of the same occupation.

"In either case", Peitchinis contends, "the number of occupational categories tends to increase." The difficulty lies in determining whether the number of jobs in new occupational categories will balance the number of jobs lost through technological innovation.

The Pessimists

Russel Rumberger (1984:5) believes that, in the future, technology will destroy more jobs than it creates by introducing machines and processes which replace manual and mental labour "...while continued increases in productivity...limit the ability of the economy to generate enough new jobs to offset those displaced by technology." Lynn Gisi (1983:40) and Rumberger (1984:16-23) report that automation has caused many thousands of occupations to disappear from the American labour market in the past twenty years. During the same period, Gisi adds, more than 6,000

new occupations emerged and today there exists a serious shortage of highly skilled technical workers.

The reported shortage of highly skilled technical workers has fostered the belief that high technology industries(16) will, in the words of Watkins (1985:29) "...result in increased employment in jobs which require higher level skills than...previously demanded from the workforce." To illustrate the prevalence of the belief, Watkins (1985:30) reports that the Australian "...Minister for Education and Youth Affairs, Senator Susan Ryan, has written that, as the economic recovery takes place, the jobs which will eventuate for young people will require higher levels of education and training than in the past (Age, 19 July 1983, p. 18)". Likewise American educator Arthur Lewis (1983:10) writes that "...education is the driving force in the information era...." and that "More and more careers will require backgrounds in science, mathematics, and computer science. Fewer careers will be open to the undereducated." Such claims are, in a sense, valid. Careers, that is jobs characterized by occupational mobility and advancement (job characteristics found only in the independent primary labour market), will more often require scientific training in the future. However, mil-

(16) According to Watkins (1985:29) "High-technology industries...are mainly concerned with the design, development and production of new goods which reflect state-of-the-art scientific and technical knowledge."

lions more people will find employment in the secondary labour market, where educational achievement barely effects job mobility, security, advancement or pay, than in the independent primary labour market.

Studies by Rumberger and Levin (1984) and Levin and Rumberger (1983) indicate that the growth in secondary jobs will far exceed the growth of high-technology careers. To be specific, employment projections by Rumberger and Levin (1984) and Levin and Rumberger (1983) suggest that only 7 percent of new employment will occur in the high-technology field. Moreover, rapid growth in high-technology occupations does not, they suggest, translate into large numbers of jobs because high-technology industries are not, by and large, labour intensive industries.

In addition, Rumberger and Levin (1984:344) claim that many of the occupations found in high-technology industries require few skills and command below average wages. Watkins (1985:31) reports that "This trend has become so pronounced that many of the production-line jobs in the computer industry are now being exported out of Silicon Valley to Asian cities where female workers with little training and paid much lower wages perform the repetitive tasks (see Siegal 1979; and Howard 1981)." (17) Rumberger

(17) Siegal (1979:16) reports that the wages of Asian assemblers vary from about 5 percent of the American norm in Indonesia to nearly 25 percent in Hong Kong.

and Levin (1983) estimate that high-technology jobs comprise less than one quarter of the jobs in high-technology industries.

Examining figures from the US Bureau of Labour Statistics Levin and Rumberger (1983) found that the projected number of very low-skilled clerical and service jobs will greatly exceed the projected number of jobs in high-technology occupations. To be specific, Levin and Rumberger (1983:5) report that between 1978 and 1990 approximately 150,000 new jobs for computer programmers are expected to emerge. There will be 800,000 new jobs for fast food workers and kitchen helpers in the same 12 year period. In addition, there will be 200,000 new jobs for computer systems analysts between 1978 and 1990. This represents a relative increase of over 100 percent. At the same time, there will be over 600,000 new jobs for janitors and sextons. "In fact," Levin and Rumberger (1983:5) claim, "more new jobs for janitors will be created than new jobs in all all the five occupations with the highest relative growth rates."

Silvestri et al (1983:45), representing the US Department of Labour Statistics, predict that the following forty occupations, in order of decreasing percent of total job growth, will experience the largest absolute job growth, in the United States, between now and 1995. Long term predic-

tions of occupational growth such as this are notoriously inaccurate because technological innovations constantly alter old occupations and add new ones. For example, micro-circuitry made the word processor both possible and affordable. Word processors reduce the number of secretaries and typists required to complete a given volume of typing. As a result, the demand for secretaries (the third occupation on Silvestri et al's list of growing occupations) and typists is actually declining while the demand for word processing operators is increasing (U.S. Bureau of the Census, 1982:402; U.S. Bureau of the Census, 1984:389). Nevertheless, Silvestri et al's occupational predictions remain valuable because they indicate a trend toward job growth within secondary and independent primary labour markets in service and information sectors.

- (s) building custodians
- (s) cashiers
- (s) secretaries
- (s) general clerks, office
- (s) salesclerks
- (p) nurses, registered
- (s) waiters and waitresses
- (p) teachers, kindergarten and elementary
- (s) truckdrivers
- (s) nursing aids and orderlies
- (p) sales representatives, technical

- (p) accountants and auditors
- (p) automotive mechanics
- (p) supervisors of blue collar workers
- (s) kitchen helpers
- (s) guards and doorkeepers
- (s) food preparation and service workers,
fast food restaurants
- (p) managers, store
- (p) carpenters
- (p) electrical and electronic technicians
- (p) licenced practical nurses

- (p) computer systems analysts
- (p) electrical engineers
- (p) computer programmers
- (p) maintenance repairers, general utility
- (s) helpers, trades
- (s) receptionists
- (p) electricians
- (p) physicians
- (p) clerical supervisors
- (p) computer operators
- (s) sales representatives, nontechnical

- (p) lawyers
- (s) stock clerks, stockroom and warehouse
- (s) typists
- (s) delivery and route workers
- (p) bookkeepers, hand
- (s) cooks, restaurants
- (s) bank tellers
- (s) cooks, short order, specialty and fast food

Note that all of the jobs listed fall into either secondary (s) or independent primary (p) labour markets (indicated by p's and s's in brackets beside each occupation listed) (18) and that almost all of the jobs listed are service or information oriented. In addition, 8 of the 10 occupations

-
- (18) Some of the jobs listed could belong to more than one labour market. Supervisors of blue-collar workers, for instance, could be part of the secondary labour market if they supervised non-union workers and had no prospects for promotion. On the other hand, supervisors of blue collar workers with opportunities for promotion would belong to the primary subordinate labour market. At the same time, clerical supervisors could belong to either the secondary or independent primary labour market, depending on their chances for promotion. Also, "hand bookkeepers" could describe either highly qualified accounting specialists or data entry personnel; clearly the former belong to the independent primary market while the latter more likely belong to the secondary market. The labour market which included the most cases of the job in question was used when indicating the labour market to which the occupations listed belonged.

expected to experience the largest percentage of job growth in the United States belong in the service sector of the secondary labour market.

Candee S. Harris claims that "The emergence of the service sector as the predominant employer and the relative decline of the manufacturing sector, as productivity and product mixes have changed, are well documented trends." Certainly the United States and Canada are becoming "information societies". (19) In 1971 40 percent of Canadians worked in information related areas (Science Council of Canada, 1982:12). By the mid-1970's more than half of America's working population was engaged in information handling (Hamrin, 1981:14). Furthermore, the American Productivity Centre predicts that approximately 90 percent of jobs in America will be information or service oriented by 1995 (Smith 1984:44).

In Canada, Laura Selleck (1983:1) reports that the five occupations expected to provide the most new jobs are: janitor, nurses' aid, sales clerk, cashier and waiter or waitress. All of these jobs belong to the service sector of the secondary labour market.

(19) In Robert D. Hamrin's words (1981:14), "An information society is economically based more on the production, transmission and storage of information than on industrial goods."

Watkins (1985:32) concludes that "While there will be growth in high-technology occupations, these will entail only relatively small numbers. The largest future growth in occupations is in the service area of the economy, while the fastest absolute growth will be in such jobs as custodians of buildings, nurses aides, salespeople, cashiers, waiters or waitresses (see Rumberger 1984). Of these fastest growing occupations none are related to high technology." Such facts led Rumberger and Levin (1984:22) to conclude that "...not only will high tech provide few job opportunities in the future economy, but most new jobs will require no postsecondary schooling and will pay wages significantly lower than the average".

Turning to the problem of automation -- a particular form of high-technology -- an AFL-CIO committee on the evolution of work (1983:8) suggests that a two tier work force will develop in the face of continuing automation. The committee predicts that the "information rich" -- a few executives, scientists and engineers, professionals and managers, with challenging, responsible, high-paid, full-time jobs -- will comprise the top of the labour hierarchy. The "information poor" -- low paid workers performing relatively simple, dull, low-skill, routine, high-turnover jobs that will often be part-time and lack job security and opportunities for advancement -- will fill the bottom. Between these two levels, they claim, rela-

tively few permanent, well-paid, full-time, skilled, craft production and maintenance jobs will persist. Continuing automation, they suggest, will virtually eliminate middle management jobs.

Like the AFL-CIO committee on the evolution of work, Coombs (1979:10) believes that new technology will tend to concentrate wealth, income and power in the hands of a few while increasing poverty at the lower end of the socio-economic scale. As Watkins (1985:32-33) interprets the situation,

...unless there is a massive transformation of the economy and society, there will evolve a highly educated elite who will develop and direct the form of technological change, while the majority of society will be occupied in fairly low-skilled service industries. In this way high technology is reinforcing the class nature of society while tending to accentuate the redistribution of power and the creation of increased imbalances between society's economic classes.

Conclusion

In terms of segmented labour markets, Watkins, Coombs, Rumberger and Levin, the AFL-CIO and even the US Department of Labour clearly believe that the secondary labour market will grow at the expense of subordinate primary and independent primary labour markets. Segmentation theorists (Edwards, 1979; Berger and Piore, 1980; Rumberger and Levin, 1984; Watkins, 1985; and Carter, 1976) suggest that

the skill requirements of the secondary labour market are much lower than those of the independent primary labour market. The next chapter considers in some detail the skill requirements of segmented labour markets and the role educational credentials play in an increasingly segmented, or stratified, world of work.

Chapter V

The Skill and Educational Requirements of Segmented Labour Markets

Introduction

This chapter considers the skill and educational requirements of secondary, subordinate primary, and independent primary labour market segments. Because unionization and pay, and not skill or education requirements, are used to distinguish between secondary and subordinate primary labour markets, this chapter will discuss the skill and educational requirements of secondary and subordinate primary labour markets together. Because skill and educational credentials are considerably more important in independent primary labour markets, this chapter will discuss the independent primary labour market separately.

Basic Skill Requirements of Secondary and Subordinate Primary Labour Markets

Oswald Hall and Richard Carlton (1977) studied the basic skills required in what segmentation theorists would call secondary and subordinate primary jobs in a variety of

industries in a medium sized (Population 50,000-75,000). Ontario community. Hall and Carlton (1977:201) concluded that employers displayed "...a minimal concern for academic skills." In the textile industry, Hall and Carlton (1977:191) reported, employers "...would accept workers "if they could breathe, walk, and talk"." In fact, employers commonly filled production jobs in the textile sector with workers possessing very low levels of formal education. Many of these employers were, in the words of Hall and Carlton (1977:191), "...more than willing to accept the "slow learners" of the school system....In their eyes, the failure in the school system was more likely, in this industry, to be a stable worker than was the student who performed well in secondary school."

In general manufacturing jobs, Hall and Carlton (1977:193) concluded that satisfactory health and physical condition were the most fundamental job requirements. Academic achievement was "...a very minor consideration..." in the selection of new workers. Hall and Carlton (1977:193) also found that employers in general manufacturing seemed to prefer drop-outs, especially from technical courses in secondary school, because they often turned out to be more stable workers than high school graduates. This finding supports Quinn and DeMandilovitch's (1975) claim that education can be a liability in the unionized sector.

Turning to white collar jobs (in the secondary labour market), Hall and Carlton again found that most jobs used fairly elementary academic skills. In banks, Hall and Carlton (1977:178) report, "Only elementary mathematics is required." Moreover, bank tellers and clerks require few writing skills because they usually communicate orally. This explains why supervisors considered "good oral communication" the most important qualification for clerks and tellers. Good oral communication, Hall and Carlton (1977:179) explain, entails a pleasant way of interacting with customers and co-workers, rather than academic communication skills.

Employers felt that jobs in retail sales required slightly more elementary school mathematics than the jobs of bank tellers and clerks (Hall and Carlton, 1977:182). Writing generally constitutes a minor part of retail sales jobs. Thus employers usually required neat and legible handwriting rather than complex grammatical and compositional skills. Once more employers considered oral communication important. Like bank tellers and clerks, workers in retail sales must convey a "good personality"(20) and communicate well with others using

(20) According to Hall and Carlton (1977:182) "...a "good personality"....entails a pleasant mode of dealing with customers and co-workers...."

everyday conversation skills (Hall and Carlton, 1977:182-183). (21)

According to Hall and Carlton (1977), general office jobs, involving filing, typing, copying, taking calls, keeping accounts, taking dictation and so on often use skills taught in commercial courses in secondary schools. To be specific, Hall and Carlton (1976:188) report that candidates for general office jobs "...need typing skills for most positions, with both speed and accuracy expected for the more demanding positions. They also need the basic clerical skills of clear and legible writing, and competence in grammar and spelling." When jobs involve accounting, applicants require mathematical competence of an elementary sort. In addition to these skills, Hall and Carlton (1976:188) claim, applicants "...need a flexibility of manner that permits them to move readily from one sort of work to another."

Glenn and Feldberg (1977), researching the deskilling of work in the clerical field, claim that "...old skills have been made trivial and opportunities to develop skills have been reduced. [Moreover,] traditional specialties

(21) According to Robert Moore (1984:68) "...the social skills required in work are primarily developed in the home and community and not at school." This claim implies that the good oral communication skill and personality required by bank tellers, clerks and workers in retail sales are learned outside of school.

such as stenography and bookkeeping, which required extensive training, have been displaced or simplified beyond recognition. The skills now required are more mechanical as in operating a xerox machine, lower level, as in typing addresses on automatically typed correspondence, and/or narrower, as found in the administrative support centre." These facts, combined with the findings of Hall and Carlton (1977), suggest that clerical, or general office, workers use relatively few academic skills on the job.

Comparing the skill demand of white and blue collar jobs (in secondary and subordinate primary labour markets), Hall and Carlton (1977:40) conclude that white collar jobs, particularly office jobs, require a few more basic academic skills than blue collar jobs, although both categories of jobs use only a "miniscule part" of the basic skills schools try to provide. More important from the perspective of segmentation theory, Hall and Carlton (1977:29) found that, despite the fairly elementary academic skills required in white-collar jobs, employers preferred "overschooled" workers for white collar jobs. "Bankers", Hall and Carlton (1977:29) report, "would select university graduates as tellers even though the work appeared to require only grade six schooling." By contrast, employers of blue-collar workers seemed to prefer "...the more poorly schooled employee, or the school dropout, noting that the worker with little education was more likely to be

satisfied with blue collar work, and also come to work regularly." (Hall and Carlton, 1977:30) These findings suggest that educational credentials, rather than basic academic skills, enhance employment opportunities more in white-collar than in blue-collar sectors of secondary and subordinate primary labour markets.

Thurow's (1975, 1977) job competition model of the labour market helps explain the educational inflation encountered in the white collar sector of the secondary and subordinate primary labour markets as well as the preference of drop-outs for blue-collar work. Thurow's job competition model of the labour market, like segmentation theory, suggests that rather than workers looking for jobs, jobs look for workers. As Jacob (1981:79) explains, "The purpose of education from this point of view is not occupational preparation in terms of learned skills, but the certification of trainability -- that those whom the job selects can be trained to learn the appropriate skills on-the-job." It follows that a person's occupation and income are limited by their relative position in a labour queue composed of potential employees and by the jobs available in the labour market at a given time (Thurow, 1977:328). "If the educational level of the Labour Queue increases without corresponding changes in the distribution of job opportunities," Jacob (1981:79) explains, "employers will simply require higher levels of education to fill

their positions, assuming they benefit from the lower training costs the educational increases supposedly create." This explains why the employer in Hall and Carlton's (1977) study preferred "overschooled" workers for white collar jobs -- they felt that "overschooling" reduced training costs. It also explains why employers preferred dropouts for blue collar jobs -- employers felt that they benefitted more from the increased commitment of poorly educated workers than they would benefit from any reduced training costs associated with well-educated workers.

Educational Requirements
of
Independent Primary Labour Markets

Empirical evidence, and common sense, suggest that educational credentials are more important in independent primary jobs than in either blue or white-collar sectors of secondary and subordinate primary labour markets. Employers of engineers, accountants, doctors, lawyers, teachers, nurses, electricians, managers, geologists, computer analysts, welders, and executive secretaries almost always demand post-secondary educational credentials, be they diplomas, trades tickets or degrees. Thus employers use educational credentials to exclude school dropouts, and even high school graduates, from independent primary labour markets. Despite this, degrees, diplomas and trades tick-

ets do not guarantee individuals independent employment, they simply make independent primary employment possible. The pages which follow consider why educational credential are so often required to gain independent primary employment.

Berger and Piore (1980), examining the link between learning and segmented labour markets, suggest that independent primary workers typically use abstract learning while subordinate primary and secondary workers more often use concrete learning in their jobs. Abstract learning involves the learning of abstract concepts used to perform concrete work operations (Berger and Piore, 1980:20). For example, an education student learns at an abstract level how to prepare an effective exam. When faced with a class of thirty grade six students the education graduate applies his or her abstract knowledge of exam making to the task of preparing an exam which will effectively test the knowledge of his or her grade six students. As Berger and Piore point out, and as this example shows, abstract learning can, and often does, occur outside the actual place of work. This explains why workers in the independent primary labour market often require formal educational qualifications.

Concrete learning, explain Berger and Piore (1980:20), "...requires the display of the specific operations

involved in the context in which they will be performed." In other words, concrete learning involves on-the-job learning. For example, subordinate primary workers assembling cars learn to perform their assembly tasks on-the-job. Someone actually shows assembly line workers specific sequences of operations which they memorize and later perform by rote.

Berger and Piore's (1980) explanations of abstract and concrete learning suggest that acquisition of additional knowledge and skill is an important asset in the independent primary labour market because independent primary workers regularly use abstract knowledge to direct actions. Additional knowledge and skill is relatively unimportant in subordinate primary and secondary labour markets where on-the-job learning, or learning-by-example, dominates. This approach to learning and work skills helps explain why independent primary workers receive the largest economic returns to age, education and experience: upward or vertical career mobility, or promotions, make sense only when one acquires skills and experiences which will help one perform more difficult jobs in the future. Skills acquired in subordinate primary or secondary jobs seldom enable one to perform other, let alone more difficult, jobs in the future.

Put another way, higher levels of education may add to the individual productivity of independent primary workers while adding little or nothing to the individual productivity of subordinate primary or secondary workers. On the other hand, higher levels of general education might add to the flexibility and therefore to the occupational mobility and employability of secondary or subordinate primary workers. In any case, a post-graduate degree does not increase the ability of a garbage collector to collect garbage because the job of collecting garbage makes no use of higher education. Human capital theorists may have overlooked this fact when they suggested, in the words of Watkins (1985:14), "...that individuals who invest in high skill levels will receive proportionately higher wages which reflect their enhanced productivity." In fact, Randall Collins (1979:15) claims, "The main contribution of education to economic productivity...appears to occur at the level of the transition to mass literacy and not significantly beyond this level."(22)

The findings of Berg (1970) tend to support the conclusion that higher education does not necessarily contribute to individual productivity or job performance. Berg

(22) Collins (1979:13-16) and Thurow (1977:332-333) differentiate between economic productivity, measured in terms of aggregate levels of education in a society and overall economic activity or GNP, and higher individual productivity measured in terms of job performance.

(1970:85-104, 143-176), considering the contributions of education to individual productivity, or job performance, found that among samples of factory workers, maintenance men, sales clerks, technicians, secretaries, bank tellers, engineers, industrial research scientists, military personnel and federal civil servants, the better educated employees were not generally more productive and in some cases were less productive than less educated employees.

Mark Blaug (1985) suggests that educational credentials help legitimize labour market segmentation regardless of true spot marginal productivity⁽²³⁾ of workers. In other words, well educated independent primary workers don't necessarily add more to the value of the product they help produce than do secondary workers, although their contributions to the production process are typically more highly rewarded.⁽²⁴⁾ Consider, for example, workers in the textile industry. Does the work of designers, market analysts and marketing managers (with all of their experience and educational credentials) add more real value to the fabrics

(23) Sloan and Zurcher (1970:274) define the marginal productivity theory of wages as "The theory that wages tend to equal the value of the product that would be lost if one less worker were employed." The true spot marginal productivity of a worker corresponds to the value of the product that would be lost if a particular worker were not employed.

(24) Please note that this argument contradicts the fundamental premises upon which neo-classical theories of the labour market are based.

produced than the work of those who tend looms, or sew the fabrics? It's hard to say. But, according to Blaug (1985:25), it doesn't really matter whether schooling actually increases the spot marginal productivity of individuals as long as everyone believes that schooling increases productivity. And, claims Blaug (1985:25), workers do believe that schooling increases spot marginal productivity, because, as Michael Carter (1976:56) explains, the emphasis on independent achievement rather than group achievement in school tends to "...reconcile the ideology of equal opportunity with the reality of enormous and systematic inequalities in incomes by representing the resultant individual achievement differences as the source of the income inequalities." Employer's may safely use educational credentials to recruit individuals to different labour markets precisely because so many people believe that educational credentials are the product of individual effort and therefore fair or socially legitimate criteria for recruitment.

Conclusion

Blaug's observations suggest that educational credentials act as convenient, that is socially legitimate, screening devices for jobs. This is particularly true for independent primary jobs which use abstract learning. The findings of Hall and Carlton (1977) suggest that it is less

true of secondary and subordinate primary jobs which use concrete learning or relatively elementary academic skills. Although Hall and Carlton (1977) found that the employers of white-collar workers in the secondary labour market often use educational credentials to select or screen applicants, they also found that educational credentials did little to enhance employment opportunities in blue-collar sectors of secondary and subordinate primary labour markets.

The next chapter suggests why educational credentials make effective screening devices for segmented labour markets. In addition, it considers the socialization of students for work and aspect of the history of schooling in North America.

Chapter VI

Schooling and the Socialization of Workers

Introduction

Chapter V suggests that employers commonly use educational credentials to select or screen independent primary workers. In other words, employers use educational credentials to exclude those without appropriate educational credentials from independent primary jobs. Because employers generally pay independent primary workers more than secondary and subordinate primary workers, employers may also be accused of using educational credentials to limit the economic opportunities of individuals lacking appropriate educational credentials.

Secondary and post-secondary schools typically provide individuals the educational credentials necessary for independent primary employment. More to the point, subordination/fragmentation theorists would argue, secondary and post-secondary schools provide students slated for secondary and subordinate primary labour markets attitudes and skills quite different from those provided students slated for independent primary employment. To be specific,

subordination/fragmentation theorists suggest that, in order to maintain their advantages, elite groups use the bureaucratic structure of schools to socialize a docile and willing labour force (Jacob, 1981:75). According to Jacob (1981:75) the neo-marxist theorists Bowles and Gintis (1976:125-148, 298-303) and Behn et al (1976) suggest that key elements in socializing a docile and willing labour force are the processes of subordination and fragmentation (Jacob, 1981:75). By teaching lower class students to take orders, respond to extrinsic rewards (gold stars, grades, praise, etc.), and to perform repetitious and meaningless tasks, subordination/fragmentation theorists suggest, schools produce docile and amenable workers (Jacob, 1981:75). At the same time, these and other conflict theorists suggest, upper- and middle-class students are socialized for managerial and executive work (presumably in the independent primary labour market) (Jacob, 1981:75). As Randall Collins (1971:1011) explains it, "...employers use education to select persons who have been socialized into the dominant status culture: for entrants into their own managerial ranks, into elite culture; for lower-level employees, into an attitude of respect for the dominant culture and elite which carries it."

Watkins (1985:21-22), considering the socialization of lower-level employees, implicitly supports the claims of Collins and other subordination/fragmentation theorists

when he states "...that in an increasingly fragmented and routinized workplace, the changing demands of modern work have caused employers to seek employees who are resigned to 'obedience, submissiveness and a willingness to carry out mundane tasks cheerfully'...." Frith (1979:9), discussing skilled work, likewise supports Collins' claims when he states that "What is being demanded from the "skilled" worker is not a specific task but a general set of attitudes." In sum, Collins and others suggest that: 1) a major function of schooling is to socialize students for their future positions in the hierarchy of work; and 2) a major function of educational credentials is to identify the labour market segments for which schools have socialized students.

The section below describes aspects of the history of schooling and work in North America which tend to support many of the claims made by subordination/fragmentation theorists. At the same time, the section describes the conflict between the socialization of students for their expected positions in the hierarchy of work and the promise of equal opportunity implicit in North America's democratic states.

Historical Aspects of Schooling and Work in North America

Educational institutions have long played a role in socializing North America's youth for employment. During

the first half of the nineteenth century, when work was often centered around the home, school systems were largely an extension of the family (Carnoy and Levin, 1985:8). However, Carnoy and Levin (1985:9) explain, "As work shifted from the home and the workshop in small communities to factories in cities or mill towns, the family or family-orientated community school became an inappropriate instrument for socializing the young to the new economic realities of American life." Professional educators and state bureaucracies took over the task of educating the urban poor (Carnoy and Levin, 1985:9). These professionals, claim Bowles and Gintis (1976), attempted to use schooling to prepare or "civilize" the urban poor for America's new industrial society.

A number of states modelled their school systems on the Massachusetts Common School Reform, a program developed by Horace Mann. In 1837, the state of Massachusetts passed a bill to establish a state board of education. The board of education, appointed by Governor Everett, recommended, and the Governor appointed, Horace Mann to the job of permanent executive secretary (Perkinson, 1976:62). Like many of his contemporaries, Horace Mann believed that people should be controlled and restrained by education (Perkinson, 1976:61). To be specific, Horace Mann believed that "The mobs, the riots, the burnings, the lynchings, perpetrated by the men of the present day, are perpetrated, because of

their vicious or defective education when children."
 (Perkinson, 1976:63). Mann proceeded during the twelve years of his secretaryship to recommend and implement numerous strategies to improve the education of children.

Edwin Dexter (1904:99-101) summarizes Mann's most important contributions to public education in America. "First and foremost:" says Dexter (1904:99), "Mann was opposed to the district system of organization..." In its stead, Dexter (1904:100) reports, Mann championed the town unit of administration and called for adequate supervision of schools. Second, Dexter (1904:100) reports, Mann fought for adequate funding of public schools. Third, Mann was a central figure in the campaign for normal schools and better trained teachers. Fourth, Mann succeeded in instigating a longer school year. As Dexter (1904:100) explains, "In 1837 one-third of the children within the state were without any school advantages whatsoever, while a large proportion of the remainder attended school but two or three of the winter months, or a few weeks in the summer. In 1839 the minimum school year for all districts was fixed at six months...." The fifth of Mann's most important contributions to public education in America, says Dexter (1904:100), was his fight "...for good, clean, sanitary schoolhouses: fit 'temples of science' as he denominated them...." Sixth, Dexter (1904:100-101) reports, Mann attempted to achieve some uniformity in text-

books and, seventh, Mann recognized the importance of public libraries in educating American's.

Ontario, under the guidance of Egerton Ryerson, also adopted many of the reforms recommended by Horace Mann. In 1871, the Education Act of 1871 established four months of free, universal and compulsory education for Ontario children aged seven to twelve. Unfortunately, school attendance remained very low despite this legislation (Porter et al, 1982:16). Guillet (1960) reports that according to Dr. David Fotheringham, a prominent educational critic of the nineteenth century, 27 percent of Ontario's children were not at school at all. Half of those who were at school attended less than 50 days a year. Only fifteen percent of Ontario's children went to school for more than 200 days a year. "Still," Porter et al (1982:16) conclude, "it was an achievement to have overcome the opposition to universal education and to have put into place a structure that would eventually enable all children to become educated."

By the late nineteenth century American industrialists were questioning the merit of a common school experience for all children. David Hogan (1985), considering the rise of vocationalism in Chicago, reports that Allan Story, president of Chicago's board of education in the mid-to-late 1880's was an early proponent of differentiated

education. "In his annual report for 1887," writes Hogan (1985:155),

Story rejected the traditional curriculum, calling it "misleading and useless" for those children who would be "compelled to make their own living." Schooling should give such children a taste for manual labor, "especially the mechanical occupations." Traditional common schooling was not democratic but undemocratic, and it was undemocratic because it taught all children subjects of relevance only to a small percentage of the high school population, neglecting the practical needs of the majority....

Story went on to explain that the function of the public school was to provide "the children of our working population" (who constituted over three-fourths of the entire number) with an education that would make more useful and better workmen "than their parents in the same occupation." The schools should recognize "the real intellectual and social differences of the pupils in our schools" and ought to provide a different kind of education to the 90 percent who left school before completing grammar school. While schools should provide the "wealthy and intelligent classes" with an "intellectual training for their offspring," the "children of the laboring classes" required an education that would help them "earn a living," to become "intelligent and useful citizens or workmen." In sum, the school should act as a differentiated sorting device to direct children into the economy where the need was greatest --industry-- and to teach students the value of manual work and "industrial habits."

By 1900, Hogan (1985:159) claims, the school board and educational officials of Chicago had generally accepted Story's arguments in favour of differentiated schooling.

In 1912, Hogan (1985:164) reports, the City Club of Chicago Education Committee issued a report explicitly supporting a differentiated system of vocational education

on the grounds

...that a differentiated system of vocational education would institutionalize the connections between the school system and the occupational structure by linking various types and levels of schooling to the labor market. The high school would train noncommissioned officers of industry, while the elementary and trade schools would train the rank and file of the industrial army. "The high school," the report concluded, "is pre-eminently the place to train the leaders, at least the non-commissioned officers in the industrial army, whereas the rank and file are and probably will be obtained mainly from the lower academic levels."

In short, the City Club of Chicago Education Committee recommended that schools prepare students for segmented labour markets.

By 1916, Bowles and Gintis (1976:190) report, businessmen and professionals accounted for almost 80 percent of the school board members in a sample of 104 American cities. Under the guidance of these businessmen and professionals (who represented less than 11 percent of the nonagricultural labour force) differentiated vocational schooling flourished. Schools began to use standardized tests and vocational counselling to assign students to different tracks and ability groups and to different curricula (Spring, 1972).

According to Anne Morgenstern (1966:10), the practice of ability grouping in American public schools began in the 1920's. By 1926, Morgenstern (1966:11) reports, 36 cities out of 40 with populations of 100,000 or more segmented

students in some or all elementary grades into ability groups. The Detroit Plan, a system of tracking developed by Dr. Charles Barry in 1919, was quite typical.

"According to the plan", Morgenstern (1966:11) explains, "20 percent of the pupils who received the highest scores on intelligence tests in each grade were called the X group; those who had scores in the middle 60 percent constituted the Y group, and those with scores in the lowest 20 percent formed the Z group."

Such nominally meritocratic systems of educational tracking, claim Porter et al (1982:9) did

...not benefit the majority of working-class children because of the emphasis on early selection based on tests of intelligence and cognitive skills weighted in favour of middle- and upper-class children. This is so in part because the tests tested the kinds of things that middle-class children had an advantage in learning, but also because of attitudes and motivations, the dispositions to learning and other cultural elements that middle-class parents transmitted to their children.

Selection on the basis of tests which favour the middle-class child means that the middle-class child is more likely to find himself in a superior academic stream, providing an entry to higher learning and, finally, into positions of responsibility and control in the world of work.

The claim of Carnoy and Levin (1985:10) that, historically, "...public education [in America] tended to prepare the children of workers and immigrants for one set of occupations in the work hierarchy and the children of profession-

als and manager for other, higher positions." tends to support these claims of Porter et al.

Bob Davis (1983) suggests that even today systems of differentiation in Ontario's high schools effectively sort students for different labour markets by reproducing many of the features of stratified, or segmented, labour markets. To be specific, Davis (1983:45) claims that high schools are large places and experiences within them are highly fragmented:

The fragmentation (or specialization as it is more euphemistically called) begins with the fact that a student is at one kind of high school (say a technical/vocational school) rather than another (say a collegiate). Secondly, a student is in one program (say general-level) rather than in another (say academic). The student also takes a set of separate subject from separate teachers. Students are also divided into separate grades....

The high school is also a place where a hierarchy of authority stretching from principal to student is clear and experienced. A hierarchy is also clearly perceived by school people in the various school programs and subjects....

A chance to make serious decisions or be party to knowledge about the workings of the school as a whole vary according to where you sit in the hierarchy. Few, if any, basic or general-level students are members of students' councils or athletic society executives.

The high school is also a place where much time and effort is expended in checking punctuality, attendance, behavior, and attitudes....

The high school, finally, is a place where one gets a daily visual reminder of the difference between manual labour and mental labour:

general-level students in the shops,
advanced-level students in the libraries....

All these factors make the modern high school a very good place to learn the demands of modern business and industry. The same fragmentation of one's labour, the same hierarchy of power, the same control by those on the top of large-scale

changes and policies, the same gulf between manual labour and thinking labour....

Like Davis (1983), Bowles and Gintis (1976) argue that schools prepare students for the social relations of production. More important, they argue that one can best understand the development of schooling in America as an attempt to supply compliant and efficient workers. Certainly the history of the rise of differentiated schooling supports this argument. In the words of Carnoy and Levin (1985:14), "...schools have traditionally reproduced the unequal, hierarchical relations of the nuclear family and capitalist workplace." At the same time, Carnoy and Levin (1985:14) point out, schools "...have represented the expansion of economic opportunity for subordinate groups and the extension of basic human rights." In other words, Carnoy and Levin (1985:24) suggest that, over time, schools in North America have fostered the two contradictory goals of inequality and equality.

To support this suggestion, Carnoy and Levin (1985:14) cite the attempt of "...the democratic and egalitarian movement of the mid-nineteenth century...to establish schools for the entire population on the basis of a common set of principles, compulsory attendance laws, community funding, and lay control, [which] gave way at the turn of the century to a movement to professionalize, centralize,

and bureacratize the schools, bringing them into line with the emerging labor needs and disciplinary methods of industrial monopoly capitalism." The Great Depression, Carnoy and Levin (1985:14) proceed to explain, weakened big business and led to a "...resurgence of strong social movements during the 1930' and 1940's...". Schools again became places which championed equality and democracy. "The results in the subsequent decades", claim Carnoy and Levin (1985:14), "were a greater protection of individual rights and pursuit of egalitarian aims, which undermined many features of the school-workplace correspondence."

Like Carnoy and Levin (1985), Michael Carter (1976:57) suggests that there exist inherent contradictions between the egalitarian and utilitarian goals of schooling. For example, Carter (1976:57) points out,

Hierarchical production structures require schools to produce relatively great numbers of people who will docilely accept subordinate positions and relatively few people with the "credentials" and attitudes appropriate to high-status, high-paying jobs. Yet the schooling system, propelled by parental demands for increased educational attainments for their children and trapped by its own public image as a provider of equal opportunity, has a tendency to overexpand and produce relatively too many college-educated students.

As a result of school's producing surplus college graduates, Statistics Canada (1978:183) reports that many graduates "...were forced to accept lower-paying, less demanding jobs. During the first half of 1977 about 30% of

all applicants for clerical positions, the formal educational requirement of which is grade 10, held university degrees or college diplomas or certificates." Many of the remaining graduates accepted jobs for which they were overqualified.

The problem of educational inflation, or overeducation, is not new. Russell Rumberger (1984:343) reports that the number of college graduates in the United States tripled between 1960 and 1980. Unfortunately, Rumberger (1984:343) explains, "...the number of college graduates in the U.S. labor market increased three times as fast as the number of high-level jobs" in that period of time. Despite large increases in the number of teachers and professionals employed in the public sector, professional and managerial (or long-term) jobs comprised only one quarter of jobs in the United States throughout the 1960's. Professional employment increased somewhat during the 1970's even though the growth in public sector employment slowed. In any event, there were fewer "high-level jobs", presumably in the independent primary labour market, than college graduates between 1960 and 1980. Graduates were (and are) forced to accept jobs for which they were (are) overqualified. In 1980, more than 20 percent of all recent female college graduates in the United States worked in secretarial and clerical positions. Much of the mismatching of workers to jobs occurred during the reces-

sions of the 1970's and 1980's. According to Rumberger (1984:344), "By 1980 almost half of all recent college graduates were employed outside the professional and managerial occupations."

The production of surplus credentialed workers has, Carter (1976:73) claims, "...led to a legitimation crisis." In the first place, Carter explains, it is extremely difficult for educators and employers to sustain the myth that those in high-paying, high-status jobs are there because of superior ability when so many individuals have post-secondary credentials. More important, claims Carter, is the fact that post-secondary institutes teach attitudes appropriate to independent primary jobs. Students are socialized to expect nonroutinized, high-paying jobs with some autonomy. When forced to accept subordinate, routinized jobs these students feel dissatisfied and alienated and may eventually rebel (Carter, 1976:73).

Jacob (1981:77) calls the conflict between the promise of equal educational opportunity and the realities of preparing students for segmented or stratified labour markets the democratic dilemma. Discussing the democratic dilemma, Jacob (1981:79) states that the "...educational inflation necessary to make the apparent reconciliation between the conflicting demands of opportunity and selection naturally undercuts the demands of efficiency, and

consequently there arise serious dislocations in the links between educational and labour markets." The job dissatisfaction, alienation and possible rebellion mentioned by Carter (1976:73) are among the "serious dislocation in the links between educational and labour markets" mentioned by Jacob (1981:79). So too are the disparities, identified by Hall and Carlton (1977) and Berg (1970), between the academic skills, or educational credentials, of workers, and the skills actually required to perform most jobs.

Conclusion

School systems are influenced by two conflicting goals. On the one hand schools advance the interests of capital by attempting to supply compliant and efficient workers. On the other hand they advance the interests of democracy by supporting, in theory if not in fact, equality of opportunity and freedom of expression (Carnoy and Levin, 1985:12). Historical evidence suggests that North American schools have tended to advance the interests of capital, segmented labour markets, and inequality more effectively than they have advanced the interests of equality and democracy.

The chapter which follows looks for further evidence of inequality in the schools of today. The evidence found suggests that schools continue to advance the interests of

capital and segmented labour markets more effectively than they advance the interests of equality and democracy.

Chapter VII

Evidence of Inequality in Schooling

Introduction

Inequality in schooling can take many forms. Some schools offer more hours of instructions than others. Some schools have better teachers and teaching facilities than others. Some schools offer more academic or vocational courses than others. Some schools charge tuition while others are publicly funded. Such differences or inequalities which occur between schools will be considered in the first portion of this chapter. The second portion of this chapter will discuss an ethnographic study by Kathleen Wilcox (1982) which identified specific classroom techniques used to socialize students for the hierarchy of work. Because the study compared classrooms in schools of different socioeconomic class, the study is considered a concrete example of inequalities between schools. The third portion of this chapter will consider differences or inequalities in instruction which occur within schools. To be specific, the third portion of this chapter will discuss educational tracking, a practice used more often than not in North American schools (Oakes, 1985).

Inequalities Between Schools

Goodlad (1983), considering the democratization of knowledge, found gross school-to-school differences in hours of instruction, subjects offered, hours of instruction per subject and allocation of teaching resources in American public schools. Looking at 13 American elementary schools, Goodlad (1983:790-791) reports substantial differences in both the total hours of instruction and in the subject allocation of instructional time. Total hours of instruction ranged from just over 18.5 hours at Newport Elementary School to 27.5 hours -- or approximately 50 percent more -- at Dennison Elementary School. On average, the 13 elementary schools offered nearly 22.5 hours of instruction per week. Goodlad (1983:790) reports that teachers at both Dennison and Newport (with the most and fewest hours of instruction, respectively), spent much of the time available to them teaching language arts and mathematics. At Dennison, teachers allotted 6.67 hours and 4.33 hours, respectively, to language arts and mathematics. At Newport 8.42 and 4.12 hours, respectively were allotted to these subjects. "But," Goodlad (1983:790) explains, "...because of the vast differences in time available for instruction, these hours represented 45 and 22 percent, respectively, of the total time available at Newport, compared with only 24 and 16 percent at Dennison." Teachers at Newport were left with only 1.81 and 1.12 hours,

respectively, for social studies and sciences. At Dennison teachers had over five hours a week to devote to each of these subjects.

The conclusion Goodlad (1983:792) reaches regarding the distribution of knowledge in elementary schools is that "...there are substantial school-to-school inequities in regard to the distribution or democratization of knowledge. These inequities are not associated with race, color, or economic status. They are a consequence of where one happens to attend school." In other words, Goodlad (1983) found that inequities in the distribution of knowledge in elementary schools were more or less random.

Wilcox (1982), by contrast, found that the allocation of material resources, as well as teacher and state expectations of students, varied systematically with the socio-economic status of schools. To be specific, Wilcox (1982:282-283) found that school spending for the 1973-74 year was 61 percent greater at the upper-middle-class school than at the lower-middle-class school. Coons, Clune and Sugarman (1970) and Owen (1972) also found that children of lower socioeconomic origin were likely to have less money to spend on their education (Carnoy and Levin, 1985:111). Teachers at the upper-middle-class school Wilcox studied earned 27 percent more, on average, than the teachers at the nearby lower-middle-class school she stud-

ied. Moreover the average class size was considerable smaller at the upper-middle-class school than at the lower-middle-class school (28 students as compared to 20). Teachers at the upper-middle-class school generally expected students to go to university while teacher at the lower-middle-class school expected students to find lower-level (or secondary and subordinate primary) jobs (Wilcox, 1982:296-298). The state department of education expected students at the lower-middle-class school to score between the 30th and 70th percentiles on achievement test in math, writing and so on,. They expected students at the upper-middle-class school to score between the 85th and 99th percentiles. The state department of education judged the overall performance of the schools in question on the basis of these expectations. In short, Wilcox identified systematic inequities in regard to the distribution of resources, expectations and performance of students in schools located in different socio-economic areas.

To determine the distribution of knowledge in secondary schools, Goodlad considered the allocation of teaching resources. At the junior high level, Goodlad (1983:792) reports, 22 percent of teachers taught English, 18 percent mathematics, 14 percent social studies, 12 percent science, 12 percent vocational education, 10 percent the arts, and 1 percent foreign language. At the senior high level, 23 percent of teachers taught vocational education, 20 percent

English, 13 percent mathematics, 13 percent social studies, 12 percent science, 9 percent physical education, 8 percent the arts, and 5 percent foreign languages.

These figures do not show the vast school-to-school differences in teacher allocation. Fifteen percent of the teachers at Euclid Junior High School taught English. At Crestview Middle School, more than twice this percentage of teachers taught English. Manchester Junior High School allocated 4 (7 percent) of 54 subject teachers to science. Laurel Middle School assigned 3 of 15 (20 percent) of its teachers to science. Eighteen percent of Bradford's teachers taught social studies. Only 9 percent of Laurel's teachers were in social studies. At Fairfield Junior High School 5 percent of teachers taught art compared to 21 percent at Atwater Junior High School. The percentage of teachers teaching vocational courses ranged from 4 percent at Laurel Middle School to 22 percent at Manchester Junior High School. The difference in the allocation of teachers to vocational education was even more spectacular at the senior high level where 13 percent of teacher at Newport Senior High School taught vocational courses compared to over 42 percent of teachers at Fairfield Senior High School. Forty-one percent of the teachers at Euclid Senior High (a small school) taught vocational education courses. This percentage was equal to the total percentage of teachers teaching English, mathematics, science, social studies

and foreign languages at Euclid Senior High School. By contrast, 61 percent of Newport Senior High School's staff taught these subjects (Goodlad, 1983:793; 1984:22-23).

Goodlad (1983:793-794) suggests that it would be nice to "...think that these curricular differences resulted from a careful process of rational planning by each school faculty in collaboration with community representatives." Unfortunately, Goodlad and his colleagues were unable to find evidence of such systematic planning. Instead, Goodlad (1983:794) suggests, such gross school-to-school differences in allocation of teaching resources are "...more the result of omission than commission." Whether planned or not, the between-school variability documented by Goodlad suggests that public school students do not have equal access to knowledge. In other words, Goodlad's findings indicate that many American public schools do not offer all students the same educational opportunities.

At the same time, Leonard Baird's (1977) study of 42 elite secondary schools in America indicates that private or independent schools offer students educational opportunities unavailable to most, if not all, public school students. In the first place, independent secondary schools generally enrol fewer students than public secondary schools.(25) The relatively low enrolment at elite

(25) The number of students enrolled in the 42 elite sec-

schools results in relatively small classes. According to Baird (1977:4) "...most schools try to keep them no larger than twelve to fifteen students." In addition, Baird (1977:2) reports, the curriculum of elite schools is overwhelmingly academic -- English, mathematics, science and languages. "The total variety of academic courses", Baird (1977:4) explains, "is great. Language instruction, for example, usually includes several languages, sometimes going beyond French, Spanish, and Latin to include Russian, Greek, Arabic, or Chinese...." By contrast, one of the smallest schools in Goodlad's (1983:792-793) sample had no foreign language teachers at all. Another had one Spanish teacher.

The elite schools in Baird's study emphasize academic subjects because they specialize, in the words of Baird (1977:xiii), "...in the preparation of students for the rigors of the college classroom." Indeed Baird (1977:3) reports that "In many schools, courses explicitly or tacitly include preparation for the College Board test as part of the coursework."

ondary schools studied by Baird (1977:1) ranged from less than 200 to more than 900 students. The number of students enrolled in the 13 public senior high schools studied by Goodlad (1984:22-23) ranged from 61 at a small rural high school to 3006 at a large urban high school. The average number of students at the 13 public high schools was 1366.

For a number of reasons, the elite schools are very successful in placing their graduates in highly selective colleges. First of all, they offer rigorous academic training. Second, the elite schools carefully select students who are unusually bright and highly motivated (Baird, 1977:11).(26) Third, the parents of these bright, motivated students pay high tuition fees in order to enhance the post-secondary opportunities of their children. As Baird (1977:11) puts it: "One of the basic assumptions made by many parents, who pay thousands of dollars to send their children to independent schools, is that their children's chances for entrance to highly selective colleges will be much greater if they apply from an independent school than if they apply from a public school." Fourth, at most elite schools there are people who work full-time and others who work part-time at college admission (Baird, 1977:12). This work usually begins in the students junior year. In the student's senior year, most elite schools check that students have formally applied to all suitable colleges. With all this help and all of their academic advantages, it is no wonder that students of elite schools so often win places at highly selective colleges.

(26) Baird (1977:10) reports that "...students enter independent schools with extremely high ambition; virtually all the students said they would definitely or probably go to college." The same cannot be said for the majority of public school students.

The gross school-to-school differences identified in Goodlad's studies of public schools seem insignificant compared to the inequalities between the elite secondary schools Baird studied and the public secondary schools Goodlad studied. Clearly the children of the upper-middle- and upper-class who attend elite schools experience educational and, subsequently, employment, opportunities far superior to those of most public school students. In turn, Kathleen Wilcox's ethnographic study of schools, discussed below, suggests that within public school systems, students at upper-middle-class schools experience educational, and therefore employment, opportunities superior to those experienced by students attending lower-middle-class schools.

Socializing Students for the Hierarchy of Work

Kathleen Wilcox's (1982) ethnographic study of ways in which teachers socialize students for adult work roles suggests that schools start to socialize students for upper-level, that is independent primary, or lower-level, that is secondary or subordinate primary, occupations very early in the educational process. In the last four months of the 1974-1975 school year, Wilcox (1982) observed two grade one classrooms in suburban California communities with 50,000 to 100,000 inhabitants. One classroom was in a lower-middle-class school. The other classroom was in an upper-middle-class school (Wilcox, 1982:280). The study

took the form of a controlled comparison in which all variables, except socioeconomic status, were held as constant as possible (Wilcox, 1982:274-275).

Wilcox (1982:281) allows that "While a comparison between only two classrooms does not permit great generalizability, the richness of an in-depth ethnographic approach allows the potential of collecting a wealth of data at a high level of validity, an important concern in an exploratory study of this kind." In other words, a small sample size limits the generalizability of Wilcox's study, but not its contributions to the understanding of the relationship between schooling and work. In addition, the generalizability of Wilcox's (1982) study and this thesis are limited because they deal only with the role schools play in socializing student for work. Neither Wilcox nor this thesis attempt to consider the ways in which schools socialize students to meet life experiences outside the realm of work. Indeed, neither Wilcox's study nor this thesis aspire to explain completely the socialization of student for work.

On the basis of background research and on-site observations, Wilcox (1982:272-273) chose to analyze three dimensions of the process of socializing students for work. "The dimensions", Wilcox (1982:272-273) explains, "consisted of (1) cognitive or skill requirements for dif-

ferent jobs, including self-presentation skills; (2) the relationship to authority at different levels of the work hierarchy; and (3) self-image and general level of work-related expectations suitable for different positions." Wilcox's treatment of each of these dimensions will be discussed in turn.

Wilcox (1982) tends to understate the role teachers play in preparing students to meet the cognitive or skill requirements of different jobs. She does this for two reasons. In the first place, Wilcox (1982:273) questions the importance of developing cognitive and skill requirements because, she suggests, human capital (or using Jacob's (1981:75) terminology, technological functionalist) theorists have greatly overemphasized the importance of cognitive aspects of job performance and therefore of schooling. Like Frith (1979:9) and Collins (1971,1979), Wilcox seems to believe that employers of upper-level (or independent primary) workers seek general sets of attitudes as much as specific skills among potential workers. Certainly Chapter V of this thesis suggests that the skills, but not the educational credentials, required for most jobs are minimal. Secondly, Wilcox is studying grade-one students. It is difficult to extrapolate from the skills developed among grade one students to the skills required by adults working at different levels in a very generally defined hierarchy of work. If Wilcox had used the concepts of segmentation

theory, instead of a rather generally defined concept of a stratified labour force, she might have concluded that the teacher of upper-middle-class students expected to enter independent primary labour markets emphasized cognitive skills associated with abstract learning, far more than the teacher of lower-middle-class students expected to enter secondary or subordinate primary labour markets.

Despite her apparent reluctance to discuss the development of cognitive or skill requirements at the grade-one-level, Wilcox (1982:290) reports that "Ethnographic evidence from both classrooms [studied] revealed that the teachers associated reading group level with ability level; both considered reading to be the "name of the game" at the first-grade level." Wilcox (1982:283) also reports that the results of state reading tests administered in 1975 to second grade students at the schools studied showed that the median achievement level of lower-middle-class students was slightly below the 70th percentile while the median achievement level of the upper-middle-class students was slightly below the 100th percentile. Although Wilcox (1982) makes no effort to link these facts, they suggest that upper-middle-class students are better prepared for abstract learning than lower-middle-class students.

Regarding the dimension of self-presentation, Wilcox (1982:273) explains that "Appropriate manners of speech and demeanor vary according to the level of the job hierarchy at which one is placed." For example, Wilcox (1982:273) compares the good communication and presentation skills desired in professional and managerial workers with the somewhat lower communication and presentation skills demanded of production and service workers. In terms of segmentation theory, she compares the communication and presentation skills used by independent primary workers with those used by secondary and subordinate primary workers.

Studying how teachers develop self-presentation skills, Wilcox (1982:291-292) found that the teachers at both the lower-middle-class and upper-middle-class schools studied used "sharing sessions". At the lower-middle-class school, Wilcox (1982:291) reports, "...sharing took place only about once every three days at irregular times, often convened at the request of one of the students. The teacher appeared to think of sharing as a nice activity but not one so important that it needed to happen daily." The teacher offered students few procedural instructions, allowing the children to share their "treasures" with very little intervention or feedback (Wilcox, 1982:291). On the basis of these and other observations, Wilcox (1982:292) concludes that the lower-middle-class children "...were

being socialized to perform before a group in a relatively haphazard way, with very little attention placed on developing extended verbal skills of the kind appropriate to the upper levels of the occupational hierarchy." (27)

At the upper-middle-class school, the teacher took the sharing sessions much more seriously. Each day, Wilcox (1982:292) reports, began with ten minutes of sharing. The sharing sessions, says Wilcox (1982:292), gave the teacher "...numerous opportunities to review academic materials through her follow-up questions and to give procedural suggestions to individual speakers about grammar and presentation." In short, the teacher used grade-one sharing sessions to develop among her students those skills suitable for independent primary jobs, or what Wilcox (1982:293) describes as "...that smooth and carefully monitored interaction that characterizes the upper occupational echelons of the culture of the United States."

Turning to the issue of authority, Wilcox (1982:273) makes use of Kohn's (1967) theory of worker motivation. Kohn (1967) suggests that employers expect lower level (or secondary and subordinate primary) workers to accept the direction of external authority. Higher level (or independent primary) workers, Kohn suggests, are expected to dis-

(27) In terms of segmentation theory, one might conclude that these students were being socialized for secondary and subordinate primary labour markets.

dent primary) workers, Kohn suggests, are expected to display independence in performing their jobs. In Wilcox's words "...it is presumed that employees in lower level jobs must be motivated and directed by structures external to themselves, while those at higher levels are presumed to be "self-directed" by internal motivations that correspond to organization needs." Theoretical and empirical studies by Gintis (1971), Bowles and Gintis (1976), Collins (1971 and 1979), and Edwards (1976), tend to support Kohn's theory.

In terms of schooling, Wilcox (1982:274) suggests, "...one would expect to find that socialization for jobs in the lower portions of the work hierarchy would involve the use of externally imposed methods of motivating students to behave in ways that the teacher or school considers appropriate." To socialize students for higher level roles, Wilcox (1982:274) suggests that one would expect teachers to encourage "...students to internalize and identify with the norms and requirements of the school so as to be "self-directing" within that context."

In practice, Wilcox (1982:288) found, as she hypothesized, that external control was the dominant mechanism used by the teacher of lower-middle-class children expected to enter lower-level (secondary or subordinate primary) occupations. To be specific, Wilcox (1982:288) found that teacher commands constituted the single most

common control strategy. "The second most common strategy", Wilcox (1982:288) reports, "was the use of direct praise and blame, such as "That's good" or "No, that's not right." and so on, in which the teacher's opinion is a direct external sanction. Rule repetition was also common." As Wilcox (1982:288) explains, "The use of command or sanctions resting on the authority of the teacher and or rule repetition keeps the responsibility for control localized in an external source."

Although external control strategies and messages dominated in the lower-middle-class classroom, Wilcox (1982:288) found that "...Approximately 17 percent of teacher control strategies and 19 percent of teacher control messages..." were internal. Unfortunately, Wilcox notes, the teacher tended to use internal modes of control to control classroom behavior rather than to teach specific academic skills. For example, Wilcox (1982:288) reports that the teacher consistently refused to settle disputes, encouraging children to take responsibility for solving their differences themselves. The teacher also encouraged lower-middle-class students to learn to use classroom resource materials without her assistance. The teacher tended to use external stimuli to motivate her lower-middle-class students academically. Wilcox (1982:289) found that, on the whole, the teacher of lower-middle-class students "...reinforced a pattern in

which the impetus for action came not from the children themselves but from an external or authority figure who issued rules and regulations." According to Wilcox (1982:291), and Carter and Carnoy (1974:42), such external motivation is typical of lower level, that is secondary or subordinate primary, jobs.

The teacher of upper-middle-class students consistently encouraged children to internalize responsibility for academic work. Although this teacher's behavioral standards were, if anything, stricter than those of the teacher of lower-middle-class students, Wilcox (1982:) reports that "...the control focus of almost all of her statements was on the academic implications of behavior." Wilcox (1982:290) suggests that such internal modes of control in the classroom act as methods of socialization "...appropriate to higher levels of the stratified workplace...[because] higher-level jobs are ones in which norms and objectives must be internalized for occupational success."

It is worth noting that in both of the classrooms studied, Wilcox (1982:290) found that children in the upper half of the reading groups "...received significantly more internal messages than children in the bottom half of the reading groups...They also received significantly more academic messages." In other words, in both classrooms an

internal approach was most commonly used with children perceived to have high academic ability and therefore high potential for the independent labour employment.

In terms of developing the self-image and occupational expectations of children, Wilcox (1982:293-295) found significant differences between the two teachers and schools studied. The teacher at the upper-middle-class school, Wilcox (1982:293) reports, "...continually reinforced a "you can do it" attitude." In addition, she constantly linked the consequences of present activities with the future. The teacher regularly reminded her upper-middle-class grade-one students that they needed to prepare for university study. These students were also made aware of the demands of second grade.

Wilcox (1982:294) concludes that the upper-middle-class children studied were learning to expect upper-level (or independent primary) jobs and to consider the future consequences of present actions. The latter skill, Wilcox (1982:294) explains, is crucial to the handling of choices and decisions with important future ramifications -- the kinds of choices and decisions characteristic of many professional and managerial (or independent primary) jobs.

At the lower-middle-class school the teacher rarely mentioned the future consequences of present activities.

The emphasis was almost entirely on the present (Wilcox, 1982:294). The teacher, says Wilcox (1982:294-295), virtually ignored the future of the lower-middle-class children in her class. The teacher never mentioned university and seldom mentioned academic activities beyond the first grade. In short, the teacher of lower-middle-class children did little or nothing to build in her students positive self-images with regard to their future occupation status. In terms of segmentation theory, one might conclude that the teacher was preparing students for dead-end and/or repetitious jobs in secondary and subordinate-primary labour markets.

Wilcox (1982:295) concludes that the grade one teachers studied, systematically, and unconsciously, socialized students for their expected destinations in the hierarchy of work. Moreover, Wilcox (1982:295) states, "The pattern of differences observed in the ways in which the two teachers socialized the children in their classrooms for adult work roles is...directly in conflict with the promise of equal opportunity offered by the educational system in the United States." The conflict between the promise of equal educational opportunity and the realities of preparing students for segmented or stratified labour markets has plagued North America for centuries. Jacob (1981:77-80) terms this conflict the democratic dilemma. The next sec-

tion of this chapter documents the history and the results of the democratic dilemma in North America.

Inequalities Within Schools

The findings of researchers studying tracking tend to suggest that schools which track students effectively prepare students for segmented labour markets. In the words of William J. Schill (1985:70). "...vocational education makes a contribution to the maintenance of social differentiation by limiting the aspirations of children from lower SEI families to lower SEI occupations." This conclusion is ironic in view of Jeannie Oakes (1983:328) assertion that "One of the most frequently articulated goals of vocational education has been to increase the economic opportunities of poor and minority youth by providing them with specific occupation skills." From the perspective of segmentation theory, this claim is ridiculous. The independent primary labour market, the best paid employment sector, is virtually closed to individuals with vocational training. Rather than increasing "the economic opportunities of poor and minority youth by providing them with specific skills" vocational education limits the economic opportunities of poor and minority youth by limiting their access to the independent primary labour market. At the same time, considerable evidence suggests that vocational education does little or nothing to increase

employability in secondary and subordinate primary labour markets (Plunkett, 1960; Duncan, 1964; Collins, 1979; Grubb and Lazerson, 1974, 1982; Oakes, 1983).

If vocational education limits the employment and economic opportunities of individuals how do other types of tracking effect the educational and therefore the employment and economic opportunities of school leavers? More important, is educational tracking or ability grouping common enough to effect significant numbers of school leavers? The answer is yes: students all over North America and Europe are tracked, in one way or another. Moreover, Jeannie Oakes (1985:59) reports that "...despite differences in track systems, tracking effects on students seem to be remarkably similar."

Oakes (1985:41), studying the tracking practices at 12 junior and 13 senior high schools which "...differed in ways that, taken together, would reflect the diversity of American schools in general...", found that all but one of the schools used homogenous grouping, or tracking, of one form or another. Moreover, Oakes (1985:45-46) reports that tracking

...existed in two distinct but overlapping forms....One form was the division of the total school program into academic and vocational curricula with students classified as either "vocational" or "academic" students. At some schools a third or fourth division was made. These additional tracks were academically focused but designated for students not pointed toward colleges and universities....

A second type of tracking consisted of divisions within each of the larger curricular areas. All schools divided one or more of their academic subjects into homogenous ability or achievement groups. At some schools this system overlapped the academic/vocational split. At others academic tracking was the only form.

The second, course-based or informal type of tracking, is the type most commonly used in Alberta where students are free to choose low-, medium-, or high-track courses leading to general or advanced high school diplomas (Alberta Education, 1985). In Ontario, tracking is more formal with students entering either 4-year Business and Commerce, Science, Trades and Technology and Arts and Science programs or 5 year Business and Commerce, Science, Trades and Technology, or Arts and Science programs (Porter et al, 1982:192). In any case, whether tracking is formal or informal is largely irrelevant according to Findley and Bryan (1975:10) who claim that "At high school, assignment to a curriculum or program of study, may be a part of a total ability grouping program. On the other hand, ability grouping is often accomplished to a degree by self-selection in which individual students choose their programs of study freely or with some regard to prerequisites. In essential respects, the differences between the two methods is analogous to the distinctions between de jure and de facto segregation."

Oakes (1985) found that students in different tracks were asked to learn different things. For example, Oakes (1985:89-90) found that teachers of adolescents considered to be of low ability or achievement listed "...learning to be "less outspoken", or to "cope with frustration," or to "keep themselves clean," or to "begin and end each day with a smile," or to "take a directive order and act upon it,"...among the five most critical things students should learn during the year". These learning objectives are conspicuously well suited to secondary and subordinate primary jobs where workers ususally have little or no control over the work process and where close supervision is common (Berger and Piore, 1980:21; Carter, 1976:61).

Teachers of high-track classes identified the following skills among the five most critical things they wanted students to learn after a year in their class:

Interpreting and identifying....Ability to reason logically in all subject areas.... The art of research....Scientific reasoning and logic....Investigating technology, investigating values....Self-reliance, taking on responsibilities themselves...To think critically -- to analyze, ask questions....(Oakes, 1985:80).

These skills are conspicuously well suited to independent primary jobs where workers are commonly expected to possess the abstract knowledge and authority to perform the tasks associated with their jobs (Berger and Piore, 1980:19).

Turning to student's perceptions of "the most impor-

tant thing" they learned or did in a given class, Oakes (1985:85-89) found that high-track students identified the following kinds of skills:

- ...how to make a hard problem easier to solve.
-how to organize myself and present an arugument.
-how to argue in a calm and collected way.
-How to express myself through writing and being able to compose the different thoughts in a logical manner; this is also a class where I may express my creativity.
-learned to study completely, and to know everything there is to know.
-learned to be creative and free in doing things.
-learned to look into depth of certain things and express my though on paper.

Low-track students were more likely to identify things like:

- ...Behave in class.
-Manners
-How to shut-up.
-Working on my Ps and Qs.
-the most important is coming into class and getting out folders and going to work.
-being quiet when the teacher is talking.
-how to listen and follow the directions of the teacher
-to respect the teacher.
-to get along with the students and the teacher.

These responses suggest that the teachers of these students succeeded in preparing students for segmented labour markets. More important, they appear to have fostered different attitudes among students in different tracks. Teachers also provided high-track students more instruction than low-track students.

According to Oakes (1985:98), teachers, asked the proportion of class time spent on instruction or learning activities, reported that the following percentages of time were spent on instruction in their classrooms:

	Instruction
High-track English	82 percent
High-track Mathematics	77 percent
Low-track English	71 percent
Low-track Mathematics	63 percent

After three days of observation in each classroom, observers reported that teachers spent the following percentages of time on instruction in their classrooms:

	Instruction
High-track English	81 percent
High-track Mathematics	81 percent
Low-track English	75 percent
Low-track Mathematics	78 percent

High-track students clearly received more instruction than low-track students. According to Oakes (1985) they also did more homework.

Oakes (1985:101) found that the average expected homework time for high track English classes was 42 min-

utes, for high-track math classes it was 38 minutes, for low-track English courses it was 13 minutes and for low-track math courses it was 27 minutes. Clearly low-track students spent less time on task than high-track students. Low-track students may also receive lower quality instruction than high-track students.

According to Schafer and Olexa (1972:12), The discrepancy between the education received by lower- and upper-track students,

...results from low expectations by teachers, damaged self-esteem because of the stigma attached to lower tracks, poor peer models, dull subject matter, and ineffective and uninspired teaching in the lower track. Because lower-income and minority-group students are disproportionately assigned to lower tracks and because the lower tracks are marked by inferior instruction and learning, the chances are substantially reduced that these students will retain an interest in school and experience success there.

The findings of Goodlad (1983) support the claims that low-track students receive lower quality education than upper-track students.

Goodlad (1983:798) analyzed the subject matter content, instructional practices and several aspects of student-teacher relationships in nearly 300 junior and senior high school English and mathematics classes. Goodlad (1983:798) found "...clear differences among the track levels in all these areas, with the differences invariably favoring the upper tracks." To be specific,

Goodlad (1983:798) found that high-track English and mathematics classes "...were more likely to be taught high-status knowledge: standard works of literature, expository writing, language analysis, mathematical process, the ideas of mathematics, and the application of these processes and ideas to other subjects...." At the same time, Goodlad (1983:798) reports, "Low-track classes were far more likely to encounter utilitarian content: basic reading skills, simple narrative writing, functional literacy skills, language mechanics, arithmetic computations, simple measurements, and the like...." Moreover Goodlad (1983:798) found that "Teachers in low-track classes sought to have students learn to follow rules and stressed conforming rather than divergent thinking...."

Regarding instruction, Goodlad (1983:798) reports that "...there were marked differences between teachers of high- and low-track classes." To be specific, Goodlad (1983:798) found that "Teachers in high-track classes displayed greater variability in their teaching practices, greater clarity in their presentations and requirements, and more enthusiasm." Such procedures, Goodlad (1983:798) observes, are commonly associated with good teaching and improved learning. In other words, high-track students in Goodlad's (1983) study received higher quality instruction than low-track students. In addition, Goodlad (1983:798) found that the climates of high-track classrooms were usually

more positive and therefore more conducive to study and learning than the climates of low-track classrooms. These findings suggest that low-track students receive an education inferior to that received by high-track students.

The problem of educational segmentation or tracking is compounded by inadvertent tracking of certain socioeconomic, racial and minority group members. Schafer and Olexa (1971:11) cite three publications (Backman and Secord, 1968:80; Hobson v. Hansen, 1967:407; Pearl, 1967:316) which claim that administrators and teachers are more likely to assign white middle-class students than minority or lower-income students to college-preparatory tracks in high school. "This situation", Schafer and Olexa (1971:11) say, "may result from direct discrimination by a counselor or teacher, from unintended and unrecognized race or class bias, from differing parental pressures on counselors or teachers, or from different projections of the student's college chances, based on knowledge of the school careers of older siblings or on perceptions of family resources for college."

In any case, poor children seem to be disproportionately represented in the tracked classes of secondary schools. According to Goodlad (1983), relatively small percentages of poor American children (compared with their total representation in the school as a whole) are

found in high-track classes while relatively large percentages are found in low-track classes. In multiracial schools, reports Goodlad (1983:799), minority children are overrepresented in low-track classes. In Ontario, Porter et al (1982:193) found that enrolment of grade twelve students in 5 year programs declined systematically with socio-economic status. Enrolment ranged from a low of 51 percent of the children of unskilled parents in 5 year programs to a high of 86 percent of children with parents in the higher professions in 5 year programs. In other words, Porter et al (1982), like Goodlad (1983), found that poor children were disproportionately represented in the low-track classes of secondary schools.

According to American Judge Shelley Wright (Hobson vs Hansen, 1967:514) "...the track system amounts to an unlawful discrimination against those students whose educational opportunities are being limited on the erroneous assumption that they are capable of no more." In 1983, John Goodlad (1983:800) concluded that inequities associated with tracking serve "...to disadvantage children from poor and minority households. In other words, in schools employing tracking and practices differentiating high- and low-track classes..., poor and minority students do not...have equal opportunity to gain access to knowledge."

In summary, many highly reputable observers, researchers and educators believe that educational tracking, be it formal or informal, seriously restricts the educational opportunities of students, particularly students from poor and minority households. By restricting the educational opportunities of students, tracking indirectly limits the employment and therefore economic opportunities of school leavers. At the same time, tracking effectively prepares individuals for segmented labour markets by providing low-track students the skills and attitudes required in secondary and subordinate primary jobs and high-track students the skills and attitudes required in independent primary jobs.

Conclusion

The educational differences which exist within and between North American schools seem to meet the demands of segmented labour markets better than they meet demands for educational equality. This is particularly true of educational tracking, a system which systematically discriminates against those destined for secondary and subordinate primary labour markets.

Criticisms of tracking center around educational, social, and economic inequalities that are the direct or indirect result of educational tracking. Studies suggest that educational tracking tends to disadvantage children of

the poor and minority groups. This being the case, it logically follows that educational tracking discriminates in favour of children who do not belong to minority groups and who are not poor.

This observation suggests why tracking is so pervasive in North America despite abundant research showing that low-track students would be better off, and high track students no worse off, in terms of knowledge transmitted, in mixed ability classes (Goodlad, 1983; Findley and Bryan, 1975). Educational tracking tends to improve the chances of independent employment for the children of the upper- and middle-classes (Porter et al, 1982). More important, in terms of segmentation theory, educational tracking tends to meet the demands of segmented labour markets. However, as the number of individuals with educational credentials increasingly surpasses the number of independent primary jobs, the correspondence between schooling and segmented labour markets weakens.

As the gulf between schooling and independent primary employment grows, the North American myth of equality of opportunity becomes harder to sustain. At the same time, Carter (1976:63) suggests, the threat of massive social unrest and violence resulting from frustration and envy (particularly among educated secondary workers) grows along with the secondary labour market. School systems committed

to advancing the interests of capital must strive to dissipate such unrest. School systems committed to the ideal of equality of educational opportunity must widen the gap between the relatively low educational requirements of today's segmented labour markets and the average educational qualifications of workers and therefore foster social unrest.

The next, and last, chapter considers the educational alternatives of meeting the skill and attitudinal demands of segmented labour markets, or of promoting equality in education. The chapter begins by describing the "democratic dilemma" confronting schools. Next, the chapter explains the compromise position adopted by school systems in the United States and Canada. The chapter considers alternative ways of addressing the democratic dilemma and concludes that democratic society would profit if educators promoted educational equality rather than educational segmentation.

Chapter VIII

The Democratic Dilemma

Introduction

Schools in democratic states such as Canada and the United States are expected to provide equal educational opportunities in the interests of democracy and equality. At the same time, schools in these democratic states are expected to prepare students for their adult roles in segmented labour markets (Carnoy and Levin, 1985). Because segmented labour markets are inherently unequal, schools cannot meet the demands of segmented labour markets and equality simultaneously. In responding to this "democratic dilemma", schools in Canada and the United States have compromised by meeting the demands of inequality, or segmented labour markets, better than they meet the demands of equality.

The Compromise

On the one hand, schools are expected to prepare students for work in segmented labour markets. Because secondary and subordinate primary labour markets are very authoritarian places, schools encourage students destined

for these labour markets to meekly follow orders (Bowles and Gintis, 1976; Carter, 1976; Wilcox, 1982; Oakes, 1985). Because independent primary jobs more often involve independent thought and action (Edwards, 1979; Berger and Piore, 1980), schools encourage students destined for independent primary labour markets to develop some critical thinking skills.(28)

Critical thinking skills are important because, David Suzuki (1985:5) explains, individuals, be they scientists, voters or politicians, must think critically in order to reach sound ethical decisions regarding the application of scientific knowledge. Watkins (1985:35) elaborates on this theme by suggesting that schools

...equip students with the more fundamental, expansive skills of being able to critique and reflect on the changes taking place in their society. In so doing, education would make students more technologically aware; aware of the ideological, political, and economic and social considerations embedded in what seems to be 'natural' technological progress....education should ensure that students can make well-informed choices so that technology is used in the interests of, not against, the majority of people.

(28) Carter (1976:72) claims that by teaching students to reduce problems to symbols, or impersonal components, educators reduce the capacity of students to think critically. In other words, Carter claims that schools encourage students destined for independent primary labour markets to fragment their knowledge. Without integrating knowledge, students cannot truly think critically.

In short, Watkins and Suzuki suggest that schools provide students both the knowledge and the critical thinking skills necessary to become informed citizens of today's increasingly technological world.

The democratic dilemma, in the face of increasingly segmented, or stratified, labour markets is that the success of a democratic state depends on the ability of all of its citizens to make well-informed decisions regarding technical and political issues affecting them. To make well-informed decisions, citizens require critical thinking skills. However, citizens with well-developed critical thinking skills must, inevitably, criticize or question authority. "Good" secondary and subordinate primary workers do not question authority -- they perform tedious, fragmented or mindless tasks without question -- or else they risk losing their jobs (Carter, 1976:61).

Schools are left in a compromising situation. They can either, as Watkins and Suzuki suggest, encourage all students to develop critical thinking skills and thereby risk challenges to the status quo; or they can support the economic system which supports them, and prepare students for segmented labour markets. Because socializing students for "available adult roles" is one of the major functions of schools, Wilcox (1983:271) suggests that it is natural for schools to compromise the democratic ideal of equality

by preparing students for stratified (or segmented) labour markets.

The Alternatives

Schools can address the democratic dilemma in three ways. They can either:

- 1) Prepare students for segmented labour markets and ignore demands for equality in the form of equal educational opportunity; or
- 2) Offer students equal educational opportunity and ignore the demands of segmented labour markets; or
- 3) Attempt to address some of the demands for educational equality while meeting some of the demands of segmented labour markets.

At the beginning of the twentieth century school boards, comprised predominantly of businessmen and professionals, systematically pursued the first of these alternatives and prepared students for segmented labour markets (see Hogan, 1985; Bowles and Gintis, 1976; Carnoy and Levin, 1985). By the 1930's and 1940's the great depression had weakened big business and led to a resurgence of egalitarian ideals. Accordingly, schools during the 1930's and 1940's became places which to some extent supported and extended the ideals of equality and democracy (Carnoy and Levin, 1985:14). Schools in the ensuing 30 years tended to pursue the third of the alternatives described above by meeting some demands

for educational equality and many of the demands of segmented labour markets. In the late 1970's and 1980's Carnoy and Levin (1985:15) claim that America "...entered a new period in which the State began to try to roll back the gains in social mobility and entitlements won during the previous 50 years and to bring the educational system into correspondence with the realities of family resources and the market place." In other words, Carnoy and Levin (1985) suggest that in the 1980's American schools are once more pursuing the first of the alternatives described above and preparing students for segmented labour markets while ignoring, or turning down, demands for educational equality. (29)

The second alternative described above is the only alternative which North American schools have not actively pursued. (30) Carnoy (1976:284), Bowles and Gintis

(29) Carnoy and Levin (1985:263) reach the conclusion that "In this decade, the pressures for using the schools for reproduction of the work force have achieved primacy over those on the side of democratic and egalitarian reforms." The arguments presented in this thesis suggest that pressures for using schools to reproduce the work force have maintained primacy over pressures to promote democratic and egalitarian reforms since the turn of the century. There does, however, seem to be a resurgence of anti-egalitarian sentiment as the conservative administrations of Thatcher, Reagan and Foster reduce or cut funding to programmes promoting equality of educational opportunity (Halsey, 1984; Carnoy and Levin, 1985).

(30) Although the common school reform movement of the nineteenth century encouraged equality in instruction, it did not enable the children of the poor to pursue

(1976:248), and Cummings (1982:34) suggest that equal schooling might create the political opportunity for organizing economic equality and therefore undermine the existing capitalist economic system. This suggests why North American schools have never whole-heartedly pursued policies promoting equal educational opportunity.

Objectively considering the three alternative means of addressing the democratic dilemma, one wonders which would be most beneficial to society in general. Carnoy and Levin (1985:266) suggest that society would gain the most by promoting "...greater equity in both labor markets and schools." In other words, Carnoy and Levin tend to support the alternative which North American schools have never actively pursued. Similarly, Carnoy (1976:284), Bowles and Gintis (1976:248), and Cummings (1982:34) support equal schooling on the grounds that equal schooling might create the political opportunity for organizing economic equality.

Cummings (1982:34) suggests that if schools produce high average levels of capability among graduates, graduates might exert pressure for egalitarian change. In Japan, for example, industry has, to a certain extent, adjusted to the egalitarian education and sentiments of Japanese youth by substantially reducing age and rank based

higher education and therefore to achieve equal educational opportunity.

in-firm wage differentials. In other words, Japanese industry formally acknowledges the common skill base of employees by offering workers in secondary, subordinate primary and independent primary labour markets similar wages.(31) Examining Japan and the Japanese system of education, Cummings (1982:34) concludes that, given appropriate conditions, educational systems "...can produce egalitarian outcomes in young people and these young people as they join adult institutions can exert pressure for egalitarian change." If Cumming's conclusion is valid, it suggests that wage differentials between secondary, subordinate primary and independent primary labour markets may be reduced if North American's adopt more egalitarian systems of primary and secondary education.

On a more pessimistic note, one might argue that unless wage differentials between secondary, subordinate primary and independent primary labour markets are substantially reduced, either increasing or decreasing average levels of schooling will lead to widespread discontent and possibly to social unrest. On the one hand, overeducated or underemployed workers tend to be dissatisfied workers.

(31) Cummings (1982:17) reports that "In 1970, Japan's Gini coefficient for personal income distribution was .28 (0 signifies perfect equality) compared with .40 for the United States and the United Kingdom, .47 for Germany, and .52 for France. Among the 14 countries surveyed in this study, only Hungary and Czechoslovakia with Gini coefficients of .26 and .24, respectively, had a more equal distribution."

On the other hand, Carter (1976:63) suggests, individuals confined to secondary labour markets experience "...low wages, insecure working conditions and harsh living circumstances. The threat that this reality poses...is the threat of massive social unrest and violence resulting from frustration and envy...." In short, it is likely that workers will resent secondary employment whether or not they are well educated. This fact, along with the facts that:

- 1) Lower average levels of schooling will undermine democratic ideals by placing more power in the hands of the rich and well educated; and
 - 2) Many teachers will lose their independent primary jobs if average levels of schooling decline as the Reagan, Thatcher and Foster administrations advocate;
- suggest that educators and democratic societies have little to lose and much to gain by more effectively promoting educational equality.

Alternative Educational Strategies

If one accepts the conclusion that democratic society would benefit the most by promoting equal educational opportunity, one must consider if and how educators can promote equal educational opportunity. John Goodlad (1983:700) and Jeannie Oakes (1985:206) suggest that schools can promote equality of educational opportunity by

placing students in mixed ability classes, thereby avoiding some of the educational, and therefore occupational, segmentation inherent in tracked systems of education.

Goodlad (1983:794) also suggests that the problem of "inexplicable, gross, school-to-school differences" in curricula might be solved by the specification of broad, general, curriculum minima. Jeannie Oakes (1985:206) explains that "...if students were given a common curriculum, ideally comprised of high status knowledge now primarily reserved for students in high tracks, the closing off of students' access to future opportunities would be considerably postponed and perhaps lessened."

The call for curriculum minima has met with some opposition, largely because educators cannot agree on which general, or basic, communication, computation and life skills individuals require (Whitworth, 1977:5-6). Moreover, critics of minimum competency teaching, often equated with curricular minima, have long expressed the fear that "minimums will become the norms" (Gisi, 1983:46). In addition, it is not entirely clear that general academic curricula will advance the interests of equality more effectively than they advance the interests of capital accumulation.

Like Goodlad, Oakes, Suzuki, and Watkins, Blaug (1985) favours general academic curricula. However, Blaug

(1985:27) believes that "...there is a real economic merit in general, academic education as a hedge against technical dynamism." In other words, Blaug believes that schools can better advance the interests of capital by preparing everyone to meet changing technological demands. Blaug seems to think that overeducated workers are more useful, in an increasingly technological society, than undereducated workers.

Hall and Carlton's (1977) study of the basic skill demands of secondary and subordinate primary labour markets suggests that employers of white-collar workers in secondary labour markets agree with Blaug. However, their study also suggests that employers of blue-collar workers in secondary and subordinate primary labour markets prefer poorly educated workers. In any event, Hall and Carlton found that secondary and subordinate primary jobs demand quite elementary academic skills. This fact, and the fact that "...workers with more education than their jobs require are likely to suffer more job dissatisfaction than other workers" (Rumberger 1984:345), suggests that schools might best advance the interests of capital by reducing, rather than increasing, the average educational levels of workers.

To reduce average levels of education, school systems need only track more students into dead-end programs. If more students enter dead-end programs, particularly if the

programs terminate fairly early in the schooling process (say in tenth grade), school systems could reduce average levels of education while saving time and money. This argument again leads to the democratic dilemma: if secondary and subordinate primary workers use only elementary academic skills, why should schools provide secondary and subordinate primary workers more advanced academic and critical thinking skills? Society could save a lot of money by segmenting school systems to match the educational demands of segmented labour markets. After all, why should society finance extensive systems of secondary and post-secondary education when most graduates will never use their abstract learning on the job?

The answer, in Jacob's (1981:77) words, is that "Our democratic values support giving students full opportunity to achieve academic, and the resultant economic and occupational success." Another answer is that life extends beyond the confines of the workplace and that well-educated citizens tend to strengthen technologically advanced societies by making informed, rational decisions about such critical issues as the use of nuclear power, artificial intelligence and limited resources. Both these answers support the conclusion that democratic societies would benefit the most by pursuing equality in education.

Conclusion

This thesis has developed a number of arguments in favour of promoting equal educational opportunity despite the demands of segmented labour markets. The next step is to develop strategies for achieving equal educational opportunity in the face of segmented labour markets. Recommending that schools implement mixed ability classes and broad, general, curricular minima is insufficient; proponents of equality in education must test their recommendations in the schools.

Efforts to test the effectiveness of strategies for promoting equality in education will be hampered by political opposition, inertia within school systems, and by inequalities outside of schools. Among other things, inequalities outside of schools effect the attitudes of teachers and students within schools (Willis, 1977; Wilcox, 1982). School-to-school and student-to-student differences in instruction often arise from teacher expectations regarding the labour market destinations of students (Carter, 1976; Willis, 1977; Wilcox, 1982). Carnoy (1976:285) suggests that, as a first step toward reducing inequalities in instruction, and in society, teachers must be made aware of their expectations or biases. Next teachers must learn to overcome these biases.

It is easy to recommend that teachers learn to recognize and overcome their biases. It is another matter to develop effective methods of overcoming teacher biases. Teacher education or teacher training programs might help raise the consciousness of teachers. Computer-aided-instruction or computer-managed-learning might, on the other hand, help reduce the impact of teacher expectations, or biases, on students by reducing the duration and the need for teacher-student interactions. Neither of these solutions have been tested or proved.

In conclusion, strategies for achieving equality in education are, as of yet, poorly developed and largely untested. This does not diminish the desirability of educational equality, it merely poses a challenge to educators, educational planners and administrators, students, and parents. This thesis therefore ends by recommending that students, parents and practitioners of education accept the challenge of achieving equality of educational opportunity within the next century.

Bibliography

Alberta Education

1985 Junior-Senior High School Handbook 1985-86. Alberta: Minister of Education.

American Federation of Labor and Congress of Industrial Organizations Committee on the Evolution of Work

1983 The Future of Work. ERIC document ED 233 137.

Andrisani, Paul James

1973 An empirical analysis of the dual labor market theory. Ph.D. dissertation, Department of Economics, Ohio State University, 1973. Abstract appears in Dissertations Abstracts International 37: 2135-A.

Armstrong, Pat and Armstrong, Hugh

1984 The Double Ghetto. Toronto: McClelland and Stewart.

Arrow, Kenneth J.

1973 "The Theory of Discrimination," in Orley Ashenfelter and Albert Rees eds. Discrimination in Labor Markets. Princeton, N.J.: Princeton University Press. 3-33.

Averritt, R. T.

1968 The Dual Economy: The Dynamics of American Industry Structure. New York: Norton. cited by Wanner and Lewis (1983).

Backman, Carl W. and Secord, Paul F.

1968 A Social Psychological View of Education. New York: Harcourt Brace Jovanovich. cited by Schafer and Olexa (1971).

Beck, E.M., Horan, Patrick M. and Tolbert, Charles M.

1978 "Stratification in a dual economy: a sectoral model of earning determination," American Sociological Review 43: 704-720.

Beck, E.M., Horan, Patrick M. and Tolbert, Charles M.

1980 "Industrial segmentation and labor market discrimination," Social Problems 28: 113-130.

Becker, Gary S.

1957 The Economics of Discrimination. Chicago: University of Chicago Press.

- Becker, Gary S.
1964 Human capital. New York: Columbia University Press.
- Behn, William H., Carnoy, Martin, Carter, Michael A., Crain, Joyce C., and Levin, Henry M.
1976 "School Is Bad; Work Is Worse," in M. Carnoy and H. M. Levin eds. The Limits of Educational Reform. New York: McKay. 219-244. cited by Jacob (1981).
- Bell, Daniel
1973 The Coming of Post Industrial Society. New York: Basic Books. cited by Jacob (1981).
- Ivar Berg (ed.)
1981 Sociological Perspectives on Labor Markets. New York: Academic Press.
- Berger, Suzanne and Piore, Michael J.
1980 Dualism and Discontinuity in Industrial Societies. Cambridge: Cambridge University Press.
- Blaug, Mark
1985 "Where Are We Now in the Economics of Education?" Economics of Education Review 4: 17-28.
- Blau, Francine D. and Ferber, Marianne A.
1986 The Economics of Women, Men, and Work. Englewood Cliffs, New Jersey: Prentice-Hall.
- Bluestone, Barry
1977 "Economic Theory and the Fate of the Poor," in Power and Ideology in Education, edited by Jerome Karabel and A.H. Halseg. New York: Oxford University Press. 335-340.
- Bowles, Samuel and Gintis, Herbert
1976 Schooling in Capitalist America. New York: Basic Books.
- Bowles, Samuel and Gintis, Herbert
1977 "The Marxian theory of value and heterogenous labour: a critique and reformulation," Cambridge Journal of Economics 1: 173-192.
- Braverman, Harry
1974 Labor and Monopoly Capital: the Degradation of Work in the Twentieth Century. New York: Monthly Review Press.
- Buchele, Robert
1976 "Jobs and Workers: A Labour Market Segmentation Perspective on the Work Experience of Middle-Aged Men," Unpublished paper submitted to the Secretary

of Labor's Conference on the National Longitudinal Survey of the Pre-Retirement Years. cited by Edwards (1979).

Buchele, Robert

1981 "Sex discrimination and labour market segmentation," in *The Dynamics of Labour Market Segmentation*, Frank Wilkinson ed. London: Academic Press. 211-227.

Cain, Glen G.

1975 "The challenge of dual and radical theories of the labour market to orthodox theory," *American Economic Review Papers and Proceedings* 65: 16-22.

Canadian Federation of Independent Business

1983 A study of job creation 1975 to 1982 and forecasts to 1990. Canada: Canadian Federation of Independent Business.

Carnoy, Martin

1976 "The role of Education in a Strategy for Social Change," in Martin Carnoy and Henry M. Levin eds. *The Limits of Educational Reform*. 269-290.

Carnoy, Martin and Levin, Henry M.

1985 *Schooling and Work in the Democratic State*. Stanford: Stanford University Press.

Carnoy, Martin and Rumberger, Russell W.

1976 *Segmented labor markets: some empirical forays*. Stanford California: Center for Economic Studies. ERIC document ED 157 811.

Carter, Michael A.

1976 "Contradiction and Correspondence: Analysis of the Relation of Schooling to Work," in *The Limits of Educational Reform*. Martin Carnoy and Henry M. Levin eds. New York: David McKay Company, Inc. 52-82.

Carter, Michael A. and Carnoy, Martin

1974 *Theories of Labor Markets and Worker Productivity*. Discussion Paper. Palo Alto: Center for Economic Studies. cited by Wilcox (1982).

Chicago Board of Education

1887 33rd Annual Report. cited by Hogan (1985).

City Club of Chicago

1912 A report on Vocation Training in Chicago and in Other Cities. cited by Hogan (1985).

- Clark, Burton R.
1962 Educating the Expert Society. San Francisco:
Chandler. cited by Jacob (1981).
- Collins, Randall
1971 "Functional and Conflict Theories of Educational
Stratification, " American Sociological Review
36: 1002-1019.
- Collins, Randall
1979 The Credential Society: an historical sociology of
education and stratification. New York: Academic
Press.
- Coombs, H.C.
1979 "Science and technology for what end and for whom?"
Current Affairs Bulletin 56: 4-15. cited by Watkins
(1985).
- Coons, J., Clune, W. and Sugarman, Stephen
1970 Private Wealth and Public Education, Cambridge,
Massachusetts: Belknap. cited by Carnoy and Levin
(1985).
- CUP
1985 "Graduating students are neanderthals, Suzuki
declares," The Gauntlet, October 24, 1985: 5.
- Cummings, William K.
1982 "The Egalitarian Transformation of Postwar Japanese
Education," Comparative Education Review 26: 16-35.
- Davis, Bob
1983 "Sifted, Sorted, Slotted, and Streamed," School
Guidance Worker 84: 39-48.
- Dexter, Edwin Grant
1904 A History of Education in the United States. New
York: The Macmillan Company.
- DiCesare, Constance Bough
1975 "Changes in the Occupational Structure of U.S. Jobs,"
Monthly Labor Review 98: 24-34.
- Duncan, B.
1964 "Dropouts and the unemployed," Journal of Political
Economy 73: 121-134.
- The Economist
1985 "When will Britain learn to love the chip?"
February 2: 73.

Edwards, Richard

- 1976 "Individual Traits and Organizational Incentives:
What Makes a 'Good Worker'?" Journal of Human
Resources 11: 51-68.

Edwards, Richard

- 1979 Contested Terrain. New York: Basic Books, Inc.,
Publishers.

Findley, Warren and Bryan, Miriam

- 1975 The Pros and Cons of Ability Grouping. Bloomington,
Indiana: The Phi Delta Kappa Educational Foundation.

Frith, S.

- 1979 "Education and Industry," Radical Education Dossier
8: 8-11. cited by Watkins (1985).

Form, William and McMillen, David Byron

- 1983 "Women, Men and Machines," Work and Occupations 10:
147-178.

Galambos, Eva C.

- 1984 "A High-Tech" or Service Economy Future?," Phi Kappa
Phi Journal 64: 38-39.

Gintis, Herbert

- 1971 "Education, Technology and the Characteristics of
Worker Productivity," American Economic Review 61:
266-279.

Gisi, Lynn G.

- 1983 "Education's Dilemma: Responding to an Information
Society," USA Today 112: 44-46.

Glenn, E.N. and Feldberg, R.L.

- 1977 "Degraded and deskilled: The proletarianization of
clerical work," Social Problems 25: 52-64.

Goldberg, Miriam and Passow, Harry A.

- 1966 "The Effects of Ability Grouping," in Grouping in the
Elementary School, Anne Morgenstern ed., New York:
Pitman Publishing Corporation.

Goodlad, John I.

- 1983 "Access to Knowledge," Teachers College Record 84:
787-800.

Goodlad, John I.

- 1984 A Place Called School: Prospects for the Future. New
York: McGraw-Hill Book Company.

- Gorz, A.
1972 "Technical intelligence and the capitalist division of labor," *Telos* 15: 27-41. cited by Watkins (1985).
- Gove, Walter
1972 "The Relationship Between Sex Roles, Mental Illness, and Marital Status," *Social Forces* 51: 34-44.
- Government Task Force on Microelectronics and Employment
1983 Effects of new technologies. *Social and Labour Bulletin* 9: 3-21.
- Grubb, W.N. and Lazerson, M.
1974 *American Education and Vocationalism*. New York: Teachers College Press.
- Grubb, W.N. and Lazerson, M.
1982 "Education and the Labor Market: Recycling the Youth Problem," in H. Kanter and D.B. Tyack eds. *Work, Youth and Schooling*. Stanford: Stanford University Press.
- Guillet, Edwin
1960 *In the Cause of Education: Centennial History of the Ontario Educational Association, 1861-1961*. Toronto: University of Toronto Press.
- Hall, Oswald and Carlton, Richard
1977 *Basic Skills at School and Work: The Study of Albertown an Ontario Community*. Toronto: Ontario Economic Council.
- Halsey, A.H.
1984 "Schools for democracy?" in John J. Prunty ed. *A critical reformulation of educational policy analysis*. Victoria: Deakin University. 87-106.
- Hamrin, Robert D.
1981 "The Information Revolution: Changing Employment Trends In the Information Society," *Adherent* 8: 14-22.
- Hamrin, Robert D.
1981 "The Information Economy, Exploiting an Infinite Resource," *The Futurist* 15: 25-30.
- Harris, Candee S.
1984 "High Technology Development In Metropolitan Areas," *Economic Status Program* The Brookings Institute.
- Henderson, Robert P.
1983 "Meeting the Needs for a High-Technology America," *USA Today* 112: 47-49.

- Hersh, Richard
1983 "Are American schools turning out Technopeasants?,"
Instructor 92: 26-29.
- Hobson vs Hansen
1967 269F. Supp. 401. Washington, D.C.: Government
printing office. cited by Schafer and Olexa (1971).
- Hodson, Randy
1978 "Labor in the monopoly, competitive and
state sectors of production," Politics and
Society 8: 429-480.
- Hoffman, J.
1979 "A deceptive innocence: Professor Williams
interviewed," Education News 16: 8-15. cited
by Watkins (1985).
- Hogan, David John
1985 Class and Reform. Philadelphia: University of
Philadelphia Press.
- Hollifield, John H.
1983 In Reality, High Tech Means Low Skills, Poor Pay.
Educational R&D Report 6: 2-5. ERIC document
ED 241 816.
- Howard, R.
1981 "Second class in silicon valley," Working Papers
8: 21-31. cited by Watkins (1985).
- Jacob, Jeffrey C.
1981 "Theories of Social and Educational Inequality:
from dichotomy to typology," British Journal of
Sociology of Education 2: 71-89.
- Jenkins, Clive and Sherman, Barrie
1979 The Collapse of Work. London: Eyre Methuen Ltd.
- Kalleberg, Arne L. and Sorensen, Aage B.
1973 "The Measurement of the Effects of Overtraining on
Job Attitudes," Sociological Methods in Research
2: 215-238.
- Kalleberg, Arne L. and Sorensen, Aage B.
1979 "The Sociology of Labour Markets," Annual Review of
Sociology 5: 351-379.
- Kohn, Melvin
1967 Class and Conformity: A Study in Values. Homewood,
IL: the Dorsey Press.

- Levin, Henry M.
 1984 Education and Jobs in a Technological World.
 Washington D.C.: Office of Vocational and Adult
 Education. ERIC document ED 240 383.
- Levin, Henry M. and Rumberger, Russel W.
 1983 "The low-skill future of high tech," Technology
 Review 56: 18-21.
- Levitan, Sar A., Mangum, Garth L. and Marshall, Ray
 1981 Human Resources and Labour Markets. third edition.
 New York: Harper and Row Publishers.
- Lewis, Arthur J.
 1983 "Education for the 21st Century," Education Leader-
 ship 41: 9-10.
- Light, Richard J. and Pillemer, David B.
 1984 Summing Up. Cambridge, Massachusetts: Harvard
 University Press.
- Marglin, Stephen A.
 1982 "What do the bosses do?: The origins and functions
 of hierarchy in capitalist production," in Classes,
 Power, and Conflict: Classical and Contemporary
 Debates. Anthony Giddens and David Held eds.
 Berkeley: University of California Press. 285-298.
- Marshall, Ray
 1974 "The Economics of Racial Discrimination: A Survey,"
 Journal of Economic Literature 12:849-871.
- Menzies, Heather
 1981 Women and the Chip: Case Studies of the Effects of
 Informatics on Employment in Canada. Montreal: The
 Institute for Research on Public Policy.
- Moore, Robert
 1984 "Schooling and the World of Work," in Schooling for
 the Dole. Philip Cohen and Angela McRobbie eds.
 Macmillen Publishers Ltd.
- Morgan, Nicole S.
 1981 Nowhere To Go? Montreal: The Institutes for Research
 on Public Policy.
- Morgenstern, Anne
 1966 "Historical Survey of Grouping Practices in the
 Elementary School," in Grouping in the Elementary
 School, Anne Morgenstern ed., New York: Pitman
 Publishing Corporation.

- Oakes, Jeannie
 1983 "Limiting Opportunity: Student Race and Curriculum Differences in Secondary Vocational Education," American Journal of Education 91: 328-355.
- Oakes, Jeannie
 1983 "Tracking and Ability Grouping in American Schools: Some Constitutional Questions," Teachers College Record 84: 801-819.
- Oakes, Jeannie
 1985 Keeping Track: How Schools Structure Inequality. New Haven: Yale University Press.
- Osterman, Paul
 1975 "An empirical study of labor market segmentation," Industrial and Labor Relations Review 28: 508-523.
- O'Toole, J.
 1975 "The reserve army of the underemployed: 1 The world of work," Change 7: 26-63.
- Owen, John D.
 1972 "The Distribution of Educational Resources in Large American Cities," Journal of Human Resources 7: 26-38.
- Oxford International Dictionary of the English Language
 1958 Oxford International Dictionary of the English Language. C.T. Onions ed. Toronto: Leland Publishing Company, Ltd.
- Pearl, Arthur
 1967 "Slim and None -- the Poor's Two Chances," in Daniel Schreiber, ed., Profile of the School Dropout. New York: Vintage Books. 313-327. cited by Schafer and Olexa (1971).
- Pearl, Arthur
 1965 "Youth in Lower Class Settings," in Muzafer Sherif and Carolyn W. Sherif, eds., Problems of Youth. Chicago: Aldine. 89-109. cited in Schafer and Olexa (1971).
- Peitchinis, Stephen G.
 1983 Computer Technology and Employment. London: The Macmillan Press Ltd.
- Perkinson, Henry J.
 1976 Two Hundred Years of American Educational Thought. New York: David McKay Company.

- Peters, Thomas J. and Waterman, Jr., Robert H.
1982 In Search of Excellence. New York: Warner Books.
- Phillips, Paul and Phillips, Erin
1983 Women and Work. Toronto: James Lorimer and Company, Publishers.
- Picot, W.G.
1983 University Graduates and Jobs: Changes during the 1970s. Ottawa: Minister of Supply and Services Canada.
- Piore, Michael J.
1975 "Notes for a theory of labor market stratification," in R. Edwards, M. Reich and D. Gordon eds. Labor Market Segmentation. Lexington, Mass: D.C. Heath. 125-150.
- Plunkett, M.
1960 "School and early work experience of youth, 1952-1957," Occupational Outlook Quarterly 4:22-27.
- Porter, John, Porter, Marion, and Blishen, Barnard R.
1982 Stations and Callings. Toronto: Metheun Publications.
- Quinn, Robert P. and DeMandilovitch, Martha S. Baldi
1975 "Education and Job Satisfaction: a Questionable Payoff," Ann Arbor, Michigan: University of Michigan Survey Research Centre. cited by Rumberger (1984) and Carnoy and Levin (1985).
- Radloff, Lenora
1975 "Sex differences in Depression," Sex Roles: A Journal of Research 1: 249-266.
- Reich, Michael, Gordon, David M. and Edwards, Richard C.
1973 "Dual labor markets a theory of labor market segmentation," American Economic Review Papers and Proceedings 63: 359-365
- Rosenberg, Samuel
1975 "The dual labor market: its existence and consequences," Ph. D. dissertation, University of California, Berkeley, 1975. Abstract appears in Dissertations Abstracts International 37: 475-A.
- Rumberger, Russel W.
1980 Overeducation in the U.S. Labor Market. New York: Praeger.
- Rumberger, Russel W. and Levin, Henry M.
1984 "Forecasting the impact of new technologies on the

future job market," Project Repors no. 84-A4, Institute for Research on Educational Finance and Governance, School of Education. Stanford University, California. Cited by Watkins (1985).

Rumberger, Russel W.

1984 "The Growing Imbalance Between Education and Work," Phi Delta Kappan 65: 342-346.

Rumberger, Russel W.

1984 High Technology and Job Loss. Washington D.C.: National Institute of Education. ERIC document ED 246 534.

Runte, Robert

1985 "The Emergence of the Manpower and Consumerism Models of Higher Education in Alberta," unpublished paper presented at the Alberta Educational Foundations Conference, University of Calgary.

Rytina, Nancy F.

1982 "Occupational changes and tenure, 1981," Monthly Labor Review 105: 29-33.

Sanyal, Bikas C.

1982 "IIEP Research on Higher Education and Employment: A Response," Comparative Education Review 26: 442-448.

Schafer, Walter E. and Olexa, Carol

1971 Tracking and Opportunity. Scranton: Chandler Publishing Company.

Schaffer, Kay F.

1980 Sex-Role Issues in Mental Health. Reading, Massachusetts: Addison-Wesley Publishing Company.

Schill, William J.

1985 "Popular Assumptions about Vocational Education: An Empirical Test of the Viability of these Assumptions," Canadian Vocational Journal 20: 66-70.

Science Council of Canada

1982 Planning Now for an Information Society, Tomorrow is Too Later. Science Council of Canada Report 33. Ottawa: Minister of Supply and Services. ERIC document ED 231 397.

Science Council of Canada

1981 "Who Turns the Wheel?" prepared by Janet Ferguson, Ottawa: Minister of Supply and Services.

Siegel, L.

- 1979 "Microelectronics does little for the Third World,"
Pacific Research 10: 15-20.

Selleck, Laura

- 1983 The Labour Market Impacts of High Technology:
Implications for the Universities. Toronto: Council
of Ontario Universities. ERIC document ED 238 328.

Sewell, William and Hauser, Robert

- 1975 Education, Occupation and Earnings: Achievement in
Early Careers. New York: Academic Press. cited by
Hurn (1978).

Silvestri, George, T., Lukasiewicz, John M. and Einstein,
Marcus E.

- 1983 "Occupational employment projections through 1995,"
Monthly Labor Review U.S. Department of Labour
Bureau of Labour Statistics 106: 37-39.

Sloan, Harold S. and Zurcher, Arnold J.

- 1970 Dictionary of Economics; Fifth Edition. New York:
Barnes and Noble, Inc.

Smith, Charles E.

- 1984 "Education, the Workplace, and High Technology,"
Phi Kappa Phi Journal 64: 44-46.

Sorensen, Aage B. and Kalleberg, Arne L.

- 1981 "An outline of a theory of the matching of persons
to jobs," in Sociological Perspectives on Labor
Markets. Ivar Berg ed. New York: Academic Press.
49-74.

Spring, Joel

- 1972 Education and the Rise of the Corporate State.
Boston: Beacon. cited by Carnoy and Levin (1985).

Statistics Canada

- 1984 Labour force annual averages 1975-1983. Ottawa:
Minister of Supply and Services.

Stromberg, Ann H. and Harkess, Shirley

- 1978 Women Working. Palo Alto: Mayfield Publishing
Company.

Sweet, R.

- 1980 "Employer demands on schooling: A labour market
perspective on the "basic standards" debate,"
in Watkins (1985) Technology, The Economy and
Education. 90-98.

Tinto, Vincent

- 1981 "Higher Education and Occupational Attainment in Segmented Labor Markets: Recent Evidence from the United States," Higher Education 10: 499-516.

Thomas, R. Murray and Thomas, Shirley M.

- 1965 Individual Differences in the Classroom. New York: David McKay.

Thurow, Lester C.

- 1975 Generating Inequality: mechanisms of distribution in the U.S. economy. New York: Basic Books.

Thurow, Lester C.

- 1977 "Education and economic equality," in Jerome Karabel and A.H. Halsey eds. Power and Ideology in Education. New York: Oxford University Press. 325-335.

Tolbert, Charles M.

- 1982 "Industrial segmentation and men's career mobility," American Sociological Review 47: 457-488.

Trow, Martin

- 1961 "The second transformation of American secondary education," International Journal of Comparative Study 2: 144-166. cited by Jacob (1981).

U.S. Bureau of the Census

- 1984 Statistical Abstract of the United States 1985. 105th edition. Washington D.C.: U.S. Bureau of the Census.

U.S. Bureau of the Census

- 1982 Statistical Abstract of the United States 1982-83. 103rd edition. Washington D.C.: U.S. Bureau of the Census.

Wachter, Michael L.

- 1974 "Primary and secondary labor markets: a critique of the dual approach", Brookings Papers on Economic Activity 3: 637-693.

Wanner, Richard A. and Lewis, Lionel S.

- 1983 "Economic segmentation and the course of the occupational career," Work and Occupations 10: 307-324.

Watkins, Peter

- 1985 Technology, the Economy and Education. Victoria: Deakin University Press.

Whitworth, Fred E.

1977 Education and much More. Ottawa: The Canadian
School Board Studies Trust.

Wickham, Ann

1983 "Gender, Schooling and Work," Journal of Education
165: 273-282.

Wilcox, Kathleen

1982 "Differential Socialization in the Classroom:
Implications for Equal Opportunity." in George
Spindler ed. Doing the Ethnography of Schooling:
Educational Anthropology in Action. New York: Holt,
Rinehart and Winston. 268-309.

Willis, Paul E.

1977 Learning to Labour. Westmead, England: Saxon House.

Woloch, Nancy

1984 Women and the American Experience. New York: Alfred
A. Knopf, Inc.

Zsigmond, Z., Picot, G., Clark, W. and Devereaux, M.S.

1978 Out of School -- Into the Labour Force. Ottawa:
Statistics Canada (published by authority of the
Minister of Industry, Trade and Commerce).