

THE UNIVERSITY OF CALGARY

An Exploratory Analysis of the Student At-Risk  
for High School Dropout Profile on a Sample  
of Canadian Ninth Graders

by

Joseph R. Greene

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES  
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR  
THE DEGREE OF MASTER OF SCIENCE

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

CALGARY, ALBERTA

DECEMBER, 1992

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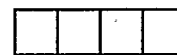
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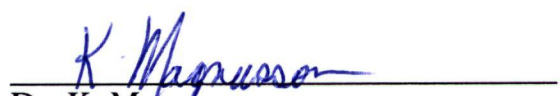
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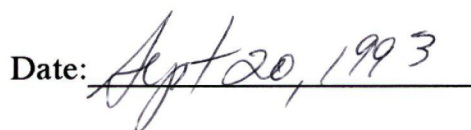
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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "An Exploratory Analysis of the Student At-Risk for High School Dropout Profile on a Sample of Canadian Ninth Graders," submitted by Joseph R. Greene in partial fulfillment of the requirements for the degree of Master of Science.

  
Dr. S. Mendaglio, Supervisor,  
Department of Educational Psychology

  
Dr. K. Magnusson,  
Department of Educational Psychology

  
Dr. M. A. Rothery,  
Faculty of Social Work

Date:   
Sept 20, 1993

## ABSTRACT

An exploratory analysis was conducted into what has commonly been referred to in modern U.S. dropout literature as an at-risk profile for high school dropouts. The purpose of this study was to assess the applicability of several of these at-risk factors in a Canadian sample retrospectively by studying 82 ninth grade students who eventually dropped out. Twenty-two variables were drawn for this sample by using a local school board database and staff interviews. Reasons for dropout and school board standardized test scores were also studied using the database. Further, these factors were studied for their interrelatedness as a composite "profile" and individually correlated to the sample of dropouts. The data analyses reveals very few significant or reliable predictors for dropout and few variables seemed to reveal an interrelated profile. Indeed, several contradictory findings emerged as were some significant results. Recommendations for future research and limitations of school board database research are also reviewed.

## ACKNOWLEDGEMENTS

The completion of this Thesis  
and the Master of Science is dedicated  
to the memory of my parents

Greeta Elizabeth

and

Joseph McDowell Greene

I gratefully thank my wife, Jane Rousseau, and both our families for their support, as well as Ms. Debra Isaac, Dr. Hal Altmann, and the rest of the administrative staff in the Department of Educational Psychology. I would also like to thank the academic staff of the Counselling Psychology Department, my thesis committee, and my supervisor, Dr. Sal Mendaglio.

However, very special gratitude must be extended to Mrs. Gladie Lys for her undying friendship, support and energy which she has given me and countless others on our trek through this program. Finally, I would like to thank my mentor, Dr. Kris Magnusson, who helped me understand the importance, process and meaning of higher education.

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## CHAPTER ONE

### INTRODUCTION

#### Statement of the Problem

Modern dropout research has increasingly focused on combinations of characteristics which help identify students who are more likely not to complete high school. Smaller studies (such as Mueller, 1990) have revealed as little as four research variables (such as being male, having poor reading skills, achieving poor grades or living in a poorer community), which predictably characterize what has commonly become known as a profile for students at-risk for dropout. Indeed, larger studies (such as Martin, 1981) have revealed over 40 such factors which may predictably identify dropouts more differentially from their stay-in-school peers.

However, drawing conclusions from these studies may be difficult. For example, there appear to be very few journal or research studies on the topic outside of school board or government literature. Further, there are very few published Canadian studies of students at-risk for dropping out. Dropout studies overall have also been criticized for containing few longitudinal or retrospective analyses, despite the fact that more efficient and advanced school board database systems have improved recording practices and are increasingly available (Barrington & Hendricks, 1989; Rumberger, 1987).

## Overview

Though educational and psychological studies of dropouts appear not to be theory driven per se, there has been some interest and concern with the causes of dropout since the late 1940's. What has appeared in the literature until recently appears to be somewhat of a systems perspective, i.e., there are several attempts to find personal, familial, interpersonal and societal correlates with students who leave school.

According to a recent study by Statistics Canada for Employment and Immigration Canada (1991), more than 30% of Canada's youth drop out. A dropout is generally defined as any student who leaves junior or senior high school before finishing the twelfth (or thirteenth) grade and receiving a high school diploma (Greckol, 1991; Rumberger, 1987). Further, government, schoolboard and parents' concern for the economic, social and individual ramifications of higher dropout rates are increasingly reported by the local media, (for example, Dinning concedes, 1991; Johnson, 1991; Korchinski, 1991).

Most researchers generally describe a bleak future for individuals and society if students fail to complete their education (Rumberger, 1987; Wehlage & Rutter, 1986; Zamanzadeh & Prince, 1978). Society may generally suffer from increased unemployment and lost tax revenue while individual dropouts may endure poorer social, academic and employment opportunities and skills (Alexander, Natriello, & Pallas, 1985). Further, dropouts may suffer lower

lifelong wage potential and higher rates of mental illness, suicide and earlier mortality (Rumberger, 1983).

Recent literature suggests specific characteristics are associated with identifying at-risk students, i.e students who are more likely not to graduate from high school (Egginton-Everett, 1990; Gastright & Ahmad, 1988; Mueller, 1990; Reddick & Peach, 1990; Rumberger, 1987; Wittenberg, 1988). These characteristics are often described as a profile of a student at-risk for dropping out. For example, at-risk students are often described as coming from single parent homes and from lower socioeconomic backgrounds. They also may be described as being typically bored with their studies, having trouble with school or outside authorities, wanting to be paid for their work, failing to pass an earlier grade, having low academic achievement, having few extracurricular school activities, and having poor reading or math skills. Often included in the profile are students who are pregnant or who are minorities. Again, this profile is largely based on U.S. literature and primarily from government and school board studies.

Combining personal and environmental causal factors into at-risk profiles is an increasingly common procedure found in the literature (Egeland, Erickson, Butcher, & Ben-Porath, 1991; Huba & Zachary, 1986; Korkman & Peltomaa, 1991; Vega, Zimmerman, Warheit, & Apospori, 1993). Such research often attempts to standardize characteristics which help front-line counsellors identify more clearly and efficiently individuals who require a specific kind of assistance. If many elements are found to relate to a certain profile then identification and

proactive rather than reactive intervention may become the focus of service delivery. For example, one useful profile for child welfare workers is children at-risk for maltreatment. These children may be physically and/or mentally disabled, female when the parents wanted a male child (or opposite), have a physical illness that requires frequent attention, living with single parents, premature infants, etc. (Tower, 1989). A child who has several of these characteristics is at increased risk of being maltreated.

### Purpose

The purpose of this study is to assess the practical application and potential significance of several individual variables reported primarily in U.S. literature as being relevant to identifying local students (or former students) labelled as dropouts. Further, if significance exists, are these factors related in some way that would identify an at-risk dropout profile (as it has been reviewed in the literature) on a Canadian student population?

Specifically, the study will focus on an exploratory retrospective analysis of the predictive value of the existence of several factors in ninth grade students on subsequent school dropout. Is database research therefore useful for developing profiles for ready use by counsellors and for enhancing further study into the subject of at-risk students for dropout? Twenty-two variables considered to be dropout factors were examined for this study and are listed as follows:



Variable List

## Demographic factors

1. Sex
2. Age of dropout
3. Last grade student attended
4. Number of times student changed residences
5. Number of schools student attended
6. Parental status

## School and personal factors

7. Recorded reason for student withdrawal
8. Recorded reason for students' next withdrawal
9. Students' stated reason for withdrawal
10. Student attendance record
11. Student disciplinary record
12. Number of times student dropped out
13. Student attendance in work experience program

## School administered standardized test scores

14. Grade six reading comprehension skills (CBTS)
15. Grade six language skills (CBTS)
16. Grade eight reading comprehension skills (CBTS)
17. Grade eight language skills (CBTS)
18. Grade ten learning ability aptitude (OLSAT)

19. Junior high school math (Calgary Board of Education)
20. Junior high school verbal ability (CCAT)
21. Junior high school quantitative ability (CCAT)
22. Overall junior high school cognitive ability (CCAT)

## CHAPTER TWO

### LITERATURE REVIEW

#### Theory of Dropout

Though writings, research and media overviews of the dropout "phenomenon" have saturated library shelves since the late 1940's there is scant evidence of a "theory" of dropout. In a popular book for its time called Preventing Student Dropouts, Greene (1966) explains that earlier interest in dropout was primarily economic and vocational. For example, there were fears after World War Two that a population explosion would flood job markets and cause mass unemployment. Greene writes that having several dropouts prior to the 1940's caused little concern because anyone who wanted a job could obtain one. This would appear to be confirmed by early studies of dropout by Cook (1956), Gragg (1949), and the large national study by The Canadian Research Committee on Practical Education (1950), which primarily focus their reviews, research and recommendations around the employment consequences of dropping out.

Sociological and educational influence on dropout theory may have emerged more strongly in the 1960's and 1970's when concern over dropout unemployment was combined with fear of increasing delinquency (Greene, 1966; Jones, 1977; Mackey, 1977). Many of these fears appeared to have stemmed from the belief that uneducated people could not be fully absorbed into a society growing rapidly with advances in science and technology. As one noted dropout researcher wrote

during the 1960's: "There are two armies of youth which have recently sprung up in our society. One is the army of the Peace Corps. The other is the army of the Dropouts" (Cervantes, 1965, p. 5).

Psychological theory. If there is one common thread through earlier literature on dropouts it would be the concept of youth alienation and rebellion (Cervantes, 1965; Greene, 1966; Jones, 1977; Mackey, 1977). Sociologically or social psychologically, a dropout was apparently seen as an adolescent who began feeling some form of personal inadequacy (the feeling that one does not have the ability or skills needed to succeed), leading to guidelessness (the rejection of conventional rules which seem to have failed him/her) and ending with cultural estrangement (or a lack of commitment to norms such as the value of education). The result may be a failing student who resents school administrators and family members while finding acceptance among other disenfranchised peers. Many of the authors mentioned, called this final stage a "dropout youth culture" or counterculture. This was believed to result in increases with some behaviours such as drug use, sexual activity and violence.

Much of this research appears reminiscent of cognitive social learning theory. For example, poor problem-solving skills may lead to the phenomena of learned helplessness which may in turn lead to the need to gain new personal constructs by modelling others (Mischel, 1981). However, a review of the literature indicates most readily available studies emerging into the 1970's and beyond fail to discuss or test a dropout theory in favour of generally describing

definitions, models, personal and environmental correlates, resulting problems and possible interventions for students who intend to leave school or who drop out.

### The Current Interest In Dropouts

An increasing interest in high school dropouts in Canada has emerged in recent years and is presently evidenced locally by an ongoing proliferation of stories on the issue in the local media (Beauchesne, 1992; Braungart & Walker, 1991; Dinning concedes, 1991; Frank, 1992; Jeffs, 1992; Johnson, 1991; Korchinski, 1991; Ruttan, 1992). In an attempt to understand and control the perceived problem, educators and policymakers have responded to public concern with extensive local school board studies such as those led by Greckol (1991) for the Calgary Board of Education (CBE), or by Quiroulette, Saint-Denis and Huot (1990) for the Ontario Ministry of Education.

This appears to follow a similar trend in the United States in the early 1980's when several school boards began studying reasons for their increasing student dropout rates. For example, there were large studies initiated by the Austin Independent School District (AISD) (Curtis et al., 1983); Kentucky State Department of Education (KSDE), (Martin, 1981); and the Pasco School District (PSD) (1981). School districts in Canada and the United States primarily used student records obtained from school board databases to gather demographic and personal information on students who dropped out of their schools in an attempt to develop a better process for detecting what has commonly been referred to as "at-risk" students for dropping out. Later, at-risk students were identified and

analyzed to see if they were indeed struggling with school and/or thinking of dropping out. Several school board studies reviewed in the literature combined these analyses with recommendations to help improve these students' personal performance and their environments in some way to reduce the possibility of their dropping out.

However, a review of the literature reveals that published journal studies on the issue of dropouts have not kept pace with school board studies - which admittedly have more of a personal stake in the topic. The combination of environmental and personal factors leading to what is often called a profile of an at-risk student for dropout, has not been the focus of extensive attention since its peak during the late 1950's and 1960's (for example, Bledsoe, 1959; Cook, 1956; Thomas, 1954; Voss, 1966). Past or present, there are few Canadian studies (for example, Pawlovich, 1985; The Canadian Research Committee on Practical Education, 1950; Zamanzadeh & Prince, 1978).

#### Dropout - Search for a Definition

Despite continual efforts, a definition encompassing the meaning of "school dropout" eludes researchers (Hahn, 1987; Rumberger, 1987). For example, a student may leave school and receive a diploma through correspondence courses. Further, a student may not have voluntarily quit or been required to withdraw from school despite not having fulfilled the daily expectations of the learning environment (such as not completing assignments, attending classes, etc.). Other students may have simply transferred schools without notifying school

administrators. There are also ethical considerations (Kortering, Haring, & Klockers, 1992). For example, a student referred to as "a dropout" by his educators or peers potentially carries a stigma. Other negative connotations prompt some researchers to use the term, "early school leaver." However, the term "dropout" is intended to be value free and convenient for research purposes, identifying only one of many characteristics of a student's status.

Canadian researchers like Zamanzadeh and Prince (1978) define a dropout as a student who leaves school before receiving a graduation diploma. Rumberger (1987) defines a dropout as a residual status identifying someone who is not currently studying for or who has not yet received a regular high school diploma. Various school boards have their own policy regulations outlining the meaning of "dropout" but this study uses the local Calgary Board of Education (CBE) definition from which the sample was drawn.

CBE Definition of Dropout. The local public school board definition of a high school dropout is a student: "(a) who has withdrawn from school at any time during the 12 month period which precedes October of each year; (b) who has withdrawn without meeting the requirements of a senior high school diploma or of a school-leaving certificate; and (c) who has not been enrolled in a Special Education program, or completed a verified transfer to another school or institution, or reached the age of 20" (Greckol, 1991, p. 2).

### Incidence of Dropout

In North America there is little evidence that the dropout rate has increased over the years (Hahn, 1987; Rumberger, 1987). These authors reveal that there is no known agreed upon dropout rate in the United States. Part of the difficulty pinpointing dropout rates is disagreement over the term dropout. For example, statistics reported federally and locally often follow different criteria and guidelines for measuring dropout trends. Further, Hahn believes that conflicting media reports are partially responsible for misleading the public into believing that the United States is experiencing record high dropout rates. In fact, The United States Bureau of Census (1985) reveals that in 1940 more than 60% of the population between the ages of 25 to 29 had failed to complete high school, whereas by 1980 that proportion had dropped to less than 16%. Hahn argues that findings like these are very positive considering the increased universal acceptance and subsequent enrolment in high school education over the past several decades. However, there are also rising concerns over the quality of public education, reduced qualifications for graduating and the overall basic skills acquired by students at every grade. In Canada, historical trends in dropout rates have not been recorded by Statistics Canada, though recent findings in their School Leavers Survey prepared for Employment and Immigration Canada (1991) report that more than 30% of students nationwide dropout of school. However, the statistical method and type of sampling used by Statistics Canada is not yet available. Though concerns over dropouts (and increasing dropout rates) appear



evident, it is difficult to determine the extent of the problem from currently available estimates.

Interestingly, Alberta dropout rates of students attending high school initially seemed to decrease during the collapse of the oil industry in the early 1980's from an estimated 12.4% in the 1978/79 school year to 9.4% in the 1986/87 school year (Alberta Education, 1988). However, these estimates include students who enrolled and left during those years before graduation. Overall estimates of students followed-up after enrolling in grade nine after five years and who did not receive a diploma are more roughly estimated at 30 to 33%. It should be noted that approximately 40% of students classified as dropouts in Alberta return to the education system and 30% of dropouts eventually receive a high school diploma or equivalency in their adult years. This may indicate a more accurate loss of approximately 21%, although any estimated rate appears very speculative. Further, until detailed procedures are released from Statistics Canada's dropout rate study, comparisons with Alberta government estimates may be difficult.

#### Consequences of Dropping Out

Though society generally considers dropping out of high school as negative for both the student and society this may not actually be the case (Rumberger, 1987; Wehlage & Rutter, 1986; Zamanzadeh, 1978). In fact, dropping out may benefit both the school and the student. For example, some students may not be willing or able to get anything from school or may choose other more rewarding alternatives (such as entering a successful family business). Some students may be

too disruptive for others to learn. Indeed, Wehlage & Rutter found that some dropouts actually have increased self-esteem and self control. Further, Zamanzadeh questions whether students with low academic skills who leave school having reached their potential should even be called a dropout. Besides, Rumberger writes that staying in school may not be a measure of success anyway. For example, he reports a Chicago school study which found that while 47% of students enrolled in ninth grade graduated by 1984 only 15% could read at or above the national average. However, these same authors generally describe a bleak outlook for individuals and society if students fail to complete their education. Society generally may suffer from increased unemployment, lost tax revenue and poorer ability to compete with countries with better education. Individually, dropouts may suffer with poorer social and academic skills (Alexander, Natriello, & Pallas, 1985), higher unemployment and lower lifelong wage potential or underemployment (United States Bureau of Census, 1983), higher social unrest among minorities (Rumberger, 1983), and higher rates of mental illness, suicide, and early mortality (Rumberger, 1987).

In Canada it is estimated that each dropout over a lifetime minimally costs \$200,000 in lost tax revenue not to mention federal subsidies such as health and welfare (CBE, 1989). In the background looms increased educational requirements for employment, increased academic requirements in high school to meet the needs of post-secondary institutions, and rising unemployment in Alberta among youth 15 to 19 years of age - which has risen from 10.4% in 1978

to 17.3% in 1988 (Alberta Education, 1988). The School Leavers Survey by Employment and Immigration Canada (1991) reveals that almost half the students who dropped out of school were unhappy with their decision. Further, more than 20% of those who quit school were either still looking (or had recently given up looking) for employment compared with 7% of high school graduates.

### The Characteristics of a Dropout

Rumberger (1983), who is often cited as a leading dropout researcher, identifies a wide range of factors associated with dropouts and divides these into six major categories: demographic, family-related, peer, school-related, economic, and individual. Within these categories are a large number of well known and well researched factors while others are not as extensively studied (Rumberger, 1987). "Some of these factors can be manipulated through policy interventions within and outside of the schools; others cannot" (p. 109). His extensive review of the literature reveals that dropout rates are higher for racial, ethnic and language minorities, for men and for students from lower socioeconomic levels. "Numerous studies have found that dropout rates are higher for students of lower socioeconomic status, no matter what particular factors are used to measure socioeconomic status" (p. 110).

The influence of peers is not well researched but there is evidence that dropouts have friends that are also dropouts just as students seeking higher education often have friends who are in academic streams (Rumberger, 1987). School related factors have received a lot of research attention - especially by

governments and school boards - because these factors can be manipulated by educators and policymakers. Rumberger reports that there are several research studies indicating that poor academic achievement (as measured by grades and standardized test scores), poor grade retention, absenteeism, truancy and disciplinary problems, are associated with dropping out. However, little research attention appears to have been paid specifically to the role of school organizations (which may have poor facilities) and how administrators, teachers and staff (who, for example, may have inadequate training) are involved in the student's decision to drop out.

Rumberger (1987) also reports that economic factors (such as students who either wanted or felt they had to seek employment to help their families) influence dropout rates. Further, students may leave school because of poor self-esteem, lowered sense of control over their environment, poor attitudes towards the school and low academic or occupational aspirations. Finally, many students may leave school to marry or because they are pregnant.

Wittenberg's (1988) extensive review of the literature reports that only recently has an identifiable profile of a child at-risk for dropping out emerged in the literature. "One of the problems with identifying youth-at-risk before they drop out is the lack of a uniform set of descriptors of dropouts" (p. 4). She admits this problem is parallel to the problem of defining the term "dropout" or assessing dropout rates uniformly at the federal, state and academic levels.

Wittenberg reports several studies indicating the number one characteristic for

dropping out is poor academic achievement. Students are likely to have failed at least one grade, receive "C" grades or below, are in remedial or low academic high school tracks, have poor sense of self-esteem and have poor math scores. The second best indicator of a potential dropout is a student who makes several trips to the principal's office. Dropouts also tend to have a long history of poor student behavior, such as rebelliousness and delinquency.

Students also seem to have parents with low academic skills, who are also dropouts, or who have low educational motivation for their children (Wittenberg, 1988). Further, potential dropouts are likely to have come from disrupted homes such as with recently divorced parents or where there has been some form of abuse. Similarly, potential dropouts are likely have parents who are unemployed or of lower socioeconomic status.

Potential dropouts tend to either lack interest or dislike school, have high rates of absenteeism and do not participate in extracurricular activities (Wittenberg, 1988). Students also tend to dropout at 16 or 17 years of age (and are generally older than their peers), though level of grade dropped varies. Finally, Wittenburg reports that youth-at-risk generally exhibit lower reading scores and may have poorer cognitive ability.

#### Research Addressing At-Risk Characteristics

As mentioned above, there was a surge of research in the early 1950's and 1960's which investigated factors related to dropouts. For example, Cook (1956) and Gragg (1949) were among the very first researchers in the literature to use a

survey method to compare "a group of (high school) withdrawals to a group of non-withdrawals" (Cook, 1956, p. 191). Cook's work appeared to foreshadow a battery of similar studies linking sex, age, family composition, student "retardation," grades, absenteeism, number of courses failing, and stated reason for withdrawal, to students who drop out. His descriptive analysis (mostly comparing the mean group scores between stayers and leavers) revealed similar results to more recent research. For example, dropouts mainly tended to be male, and when compared to non-dropouts, they also tended to be students who transferred more frequently between schools, who have poorer grades, lower "intelligence," problems at home and more personal health problems.

Though useful in identifying several different factors related to dropping out, this earlier research has been criticized as being primarily correlational in nature showing only some "bivariate relationships between dropping out and a host of antecedents or outcomes" (Rumberger, 1987). Further, despite the availability and modernization of school databases there is still very few retrospective or longitudinal studies in the literature (Barrington & Hendricks, 1989; Rumberger, 1987; Wittenberg, 1988).

As mentioned earlier, a proliferation of studies (primarily accomplished by school boards and governments) in the United States directly attempted to find several descriptors of students who share certain characteristics indicative of a potential dropout for the purposes of earlier identification by educators.

For example, Martin (1981) derived 51 characteristics believed to identify dropouts and examined these in relation to 536 dropouts and 536 randomly sampled persisters from Kentucky who were matched with each dropout by school and grade. A descriptive analysis was used to develop profiles for dropouts which then underwent a regression analysis derived to predict which students would dropout. Data was gathered from questionnaires with the result that 37 of the 51 characteristics were found to have a significant correlative relationship to a student dropping out of school - factors analogous to findings reported in the above literature reviews. Five regression equations were developed where between 59 and 71.8% of the variance in the dropout/non-dropout variable was predictable for a particular set of independent variables. The regression equations (which have a reported significance at the .0001 level) were designed to help educators feed in various characteristics of at-risk students to determine if they would persist or drop out of school. Depending on the amount of variance accounted for within each of the five equations (which are male, female, rural, urban, and an overall equation) data may be selected to help calculate a predictor score for dropout. Necessary data required include the subject's number of days absent in grades 1, 6 and 8, age, overall I.Q., reading achievement score, number of failed grades, overall number of disciplinary actions in junior high, number of grades the student drove a car and the number of hours worked in a non-farm job. The author does not specifically describe if educators can obtain this data

and a detailed results chapter (or table) is absent to review the significance of variables.

Subsequent studies made greater use of school board databases for retrospective and longitudinal studies (Barrington & Hendricks, 1989; Curtis, Doss, McDonald, & Davis, 1983; Ekstrom, Goertz, Pollack, & Rock, 1986; Gabriel & Anderson, 1987). It appears this research targeted early identification and prevention when concern for dropouts increased. For example, while doing research for the Austin Independent School District, Curtis et al. (1983) attempted to identify practical factors related to dropouts that schools (especially teachers) could readily obtain from their databases without having to seek additional information from time-consuming interviews with parents or peers. This was a longitudinal study encompassing four years of study, involving every student in Texas (excluding those in special education) enrolled in the ninth grade in the 1978-79 school year. Over four years, 4,752 students were divided into nonleavers, transfers, dropouts and unknowns, and were compared along five factors (gathered for each student until 1983) believed to identify students at-risk for dropping out: grade point average, grade enrolled, sex, ethnicity and number of serious discipline problems. A stepwise discriminant analysis revealed that all five factors were related (overall canonical correlation = .51) to dropout. While this accounts for just 26% of the variance, it was found that grade point averages of dropouts were considerably lower than non-dropouts and they have five times the number of disciplinary actions.



Attempts at using database information for longitudinal studies may have reached its peak with the massive High School and Beyond study sponsored by the National Centre for Educational Statistics in the United States. This study, called Who Drops out of High School and Why. Findings from a National Study used a random sample of 30,000 sophomores who attended about 1,000 private and public high schools across the United States (Ekstrom et al., 1986).

Descriptive analysis of this sample, comparing students who stayed in school with those who left, was conducted for seven dimensions believed to be salient characteristics of dropouts. Data was collected from dropout follow-up surveys, school board data and standardized test scores, which revealed that dropouts tended to be older, to be male, and to attend larger urban and public schools. They also tend to do less homework than stayers, get poorer grades, attain lower achievement scores (especially in math and science) and report having more disciplinary problems. This study also went beyond a list of reasons for dropouts leaving school by attempting to find causal factors. A path analysis comparing factors (such as ethnicity, home support systems, parental status, socioeconomic status, etc.), revealed that white students were less likely to dropout if their parents were married. White children with low grades were also more likely to dropout than African-American children with poor grades, especially with respect to low scores in math. Though African-American children from southern regions were more likely to dropout than white children, both are equally at-risk if they are of lower socioeconomic status.

A large scale study by Gabriel and Anderson (1987), entitled Identifying At-Risk Youth in the Northwest States: A Regional Database attempted to compile data indicative of potential dropouts from several American states for use by local districts and schools. General regional data was collected from each state which resulted in the gathering of over 12 at-risk characteristics to be compared across six northwestern states. "The purpose in presenting these analyses is to illustrate one important way a database can be used to aid state level decision-makers in identifying the prevalence and distribution of students at risk" (p. 5). For example, several states have different dropout rates in rural and urban areas of similar size - and some have higher dropout trends in rural areas than in the large cities. Further, there was a correlation between unemployed youth and risk of dropout across all states.

Consistency of the at-risk profile. It may appear from the studies described above that a "stable" list of factors compile the at-risk profile. This is not the case. For example, a review of the literature by Rumberger (1987) and Ekstrom et al. (1986) reveal that socioeconomic status is the number one indicator for dropping out. However, Wittenberg (1988) and Hahn's (1987) review of the literature reveals poor academic performance by students as the number one indicator for dropping out. Further, Martin's (1981) study found students from broken homes were much more likely to drop out of school while Barrington and Hendricks (1989) found that broken homes bore little relevance to dropping out. However, it may be important to note that several researchers were able to

combine their evidence for an at-risk profile as a statistically significant model for predicting dropout (Barrington & Hendricks, 1989; Curtis et al., 1983; Martin, 1981; Mueller, 1990). Further, most of the studies reviewed do identify similar predictors of at-risk students with some consistency - at least in the United States. Some of these dropout predictors include gender, absenteeism, lower standardized math, reading and I.Q. scores, repeating grades, lower socioeconomic status, disciplinary action, lower grades, age, ethnicity and region (such as attending a large urban school).

Models of at-risk variables used to prevent dropout. It may be useful to conduct further studies into predictive models which identify at-risk youth. In fact, two recent studies have shown promise for the objective early identification of dropouts from among several characteristics indicative of a student at-risk for dropout (Barrington & Hendricks, 1989; Mueller, 1990). Barrington and Hendricks used a database containing high school student records from 1981 to retrospectively study graduates, non-graduates (students returning for a fourth and fifth year) and dropouts. The authors recorded absenteeism, standardized test scores, grade point averages, teachers' comments in elementary school, parental occupational and residential status, number of schools attended, gender, and number of school disciplinary actions. Data was collected from as far back as the first grade in some instances and every year to the twelfth grade. As with other researchers they experienced diminishing numbers of students and school record data which eventually resulted in an inability to perform previously

planned MANOVA's and in some cases ANOVA's. One major complication was that students transferring from different districts and states provided different test data and information. A lot of data also seemed to be missing from students records and many students moved away. Subsequently, nominal variables were gathered so chi-square tests could be used to contrast groups. Eventually, the authors were able to use a "cutting score" on frequency distributions (to give approximately equal levels of false negatives and false positives) to attain discriminability between graduates, nongraduates and dropouts. Variables included absences, the Iowa Basic Skills Test, Achievement/Intelligence ratio, number of failed grades, grade point average and negative comments by teachers. As a result, they were able to differentiate the dropouts in their sample with 66% accuracy in the third grade and with 85% accuracy by the ninth. This may have implications for educators because this data is "typically available in school records" (p. 318).

Mueller (1990) uses a simple technique for identifying potential dropouts for early intervention. Using the chi square test she determined which general dropout factors were indicative of higher risk by comparing students who terminated school because of graduation or because of dropout. Results showed that being male, having poor reading skills, repeating the ninth grade, and participating in a comprehensive (non-alternative) school were the best indicators for dropping out. To test this assumption a student who had one of these risk factors was assigned a "1." If not, they were assigned a "0." Using a simple

summation technique, dropouts with a risk factor score of two or more (about 45% of the sample) were found to have a significant risk of dropping out. In fact, dropout was the terminating event of over 80% of the students with a risk score of four. Again, "data needed for the computation of the students risk score is immediately available in almost all schools" (p. 8).

Canadian studies of at-risk students. As mentioned earlier, there are few available published Canadian journal studies on dropouts but Pawlovich's (1985) review of Canadian research literature and school board studies indicates a similar pattern among dropouts between Canada and the United States. However, the lack of published Canadian journal citations in Pawlovich's review is emphasized by the near total dominance of U.S. citations.

Dissatisfaction or lack of interest in school is a factor which appears to be cited more often as a primary reason for students who leave school in Canada (Archer, 1978; Cipywnyk, Pawlovich, & Randhawa, 1983; Greckol, 1991; Quiroulette et al., 1990; The Canadian Research Committee on Practical Education, 1950; Zamanzadeh & Prince, 1978). These studies also indicate that the Canadian dropout is typically male, has lower academic standing, poor reading and math skills, repeated one grade, is living in a non-traditional family setting, tends to move from school to school and be of lower socioeconomic status. Interestingly, race does not regularly appear as a factor in these studies (as is common in the U.S. literature) though it appears that the lack of minority subjects reported in these studies may be one contributing factor. However,

Greckol (1991) studied many ethnically diverse communities in his CBE study and notes that most dropout subjects were Canadian born. Overall, there does not appear to be any predictive models in the Canadian literature but this may result from a lack of uniform descriptors for at-risk profiles which may yet need to be established.

Statistical methodology. Descriptive analysis of at-risk factors for dropout research appears to be the preferred statistical method found in the North American literature since the early 1950's (Cook, 1956; Gragg, 1949; The Canadian Research Committee on Practical Education, 1950). Indeed, a review of modern studies of at-risk profiles reveals that detailed descriptive analysis is still commonly used (For example, Ekstrom et al., 1986; Mueller, 1990). Recently, more advanced statistical methods have evolved and are used to predict correlational and causal relationships between at-risk factors and subjects (Curtis et al., 1983; Martin, 1981). As mentioned above, Martin used regression analysis to identify 37 factors which significantly correlated with their dropout sample. Curtis et al. (1983) used stepwise discriminant analysis to find five factors that correlated with their subjects who dropped out. However, large sample sizes are often required for these analyses (Kerlinger, 1986; Mason & Bramble, 1989). Indeed, Martin had 1072 subjects for his survey research and Curtis et al. had 4,752 in their sample. Ekstrom et al. were able to use path analysis in their study, but their sample contained over twenty-two thousand subjects. However, no studies were found which used multivariate (MANOVA) methods.

A review of studies with sample sizes under one-thousand subjects reveal frequent use (depending on type of data collected) of chi square tests (for example, Mueller, 1990; Zamanzadeh & Prince, 1978). Some studies of at-risk variables, such as a retrospective study by Barrington and Hendricks (1989), also make use of ANOVA's. These authors claim that more sophisticated procedures (such as MANOVA's) often are not possible because of diminishing sample sizes (such as when subjects move without notice) and lack of usable data (such as subjects who arrived to the school being studied without comparable standardized test data, etc.). Indeed, when studies designed for advanced statistics are not possible Barrington and Hendricks substituted with chi-square tests where possible. However, while it appears that Canadian school board studies such as those by the CBE (Greckol, 1991) and the Ontario Ministry of Education (Quiroulette et al., 1990) have access to large sample sizes they appear to prefer descriptive analysis. In fact, there appears to a lack of varied research and statistical methodology which has not been explained in their studies.

Research methodology. The most common form of research methodology on at-risk factors for dropout may be the survey method which is used in whole or in part in several studies (for example, Ekstrom et al., 1987; Gabriel & Anderson, 1987; Martin, 1981; Quiroulette et al., 1990; Zamanzadeh & Prince, 1978). Though survey methods offer only a short term measurement of at-risk profiles (and often rely on self-report questionnaires) they are useful for studying large sample sizes (Conrad & Maul, 1981). However, the advancement of school board

databases and increased dropout information recording by school staff seems to have led to a small but growing number of retrospective or archival methods (such as Barrington & Hendricks, 1989; Mueller, 1990) and longitudinal studies (such as Curtis et al., 1983). Barrington and Hendricks and dropout specialists like Rumberger (1987) and Hahn (1987) believe the use of such methods are still rare despite the growing use of computer technology in schools.

### Summary

Sporadic interest in early school leavers has re-emerged in North America as Canadian school boards follow their U.S. counterparts in launching several studies on what is commonly known as the at-risk profile for dropouts. Spurred by school officials and concerned citizens through the popular media, this surging interest in dropouts follows on the heels of what is perceived as increased dropout rates in North America. However, modernized theories, journal studies and articles on dropouts have not kept pace with school board studies, especially in Canada.

Studies of dropout have been hampered by difficulties defining the phenomenon, measuring its rate and determining the consequences of the perceived problem. Initially, characteristics of dropouts were studied so that students still attending school could be identified as at-risk and possible interventions taken. Today, more interest is being focused on the at-risk factors' overall effect on early school leavers. These factors appear mainly to be centered around the following: personal characteristics, demographics, family and peer



relationships, and school and economic conditions. These factors are often composited to hypothetically outline (among other things) a dropout who is a male with poor reading, math or cognitive skills. He also may move frequently, live in a lower socioeconomic urban home within a single parent family, and have several disciplinary problems. Anywhere from four to 37 such factors have been linked and/or included in at-risk profiles which resemble findings from over 40 years ago. However, though these factors may be statistically valid indicators for dropout there are few studies that show how or if dropout factors are interrelated into a causal profile. There is some encouraging recent evidence that predictive models could be developed for use by school administrators. The primary goal of modern studies appears to be early identification and prevention. Further, recommendations for intervening with at-risk youth proliferate in the literature.

Criticisms have emerged that at-risk for dropout research must switch from that of finding correlates between factors and dropouts and make use of school board databases containing student records (which have growing popularity in many schools) to conduct retrospective and longitudinal studies. In fact, several studies reveal the utility of using databases for at-risk for dropout research that could eventually lead to predictive (and causal) models for ready access by school staff. Unfortunately, there are very few Canadian dropout studies. However, data available appear to parallel U.S. research with respect to many findings on personal and environmental at-risk for dropout factors. Lack of interest in school by students appears more highlighted in Canadian studies.

Descriptive research and use of the chi square statistic is prevalent in virtually all at-risk for dropout studies, but there is evidence of the use of more advanced statistics such as regression analysis, ANOVA, discriminant analysis and path analyses. Much of the difficulty for researchers desiring to use advanced statistical methods appear to result from degrading sample sizes and data. Ironically, Canadian school board studies were found to use descriptive analysis despite access to large sample sizes. Lastly, though the survey research method is most popular in at-risk for dropout studies, there are increasing signs of longitudinal and retrospective designs in the literature, especially with respect to use of databases.

Overall, it is difficult to determine if studies of profiles have been very useful or if further studies are warranted. Many of the variables studied are assumed to exist within databases but they are often inconsistent between student records. It is often difficult to determine why certain at-risk factors are chosen for study because of the wide diversity of variables comprising the at-risk profile, and there appears to be a lack of conformity between their use and replication in similar studies. Partly, this results from different recording methods between school boards and regions but researcher critique between studies and recommendations for the future direction of the issue often appear vague. Therefore it is difficult to determine if clear progress is being made toward the issue and direction of at-risk profiles for dropouts. For example, explanations for differentiating economic influences, such as family socioeconomic status, the

students' personal finances, and the socioeconomic level of the neighbourhood where the school is located, are not clear. It may also be argued that seeking individual at-risk profiles and "factors" for dropout is taking an illness approach to the problem. Indeed, it may seem that symptoms are being sought to detect and treat sick students. It is true that voices airing "what's wrong with our students and what's wrong with our schools" appear to loom behind available dropout literature and rarely are positive variables evident. For example, research on programs that have worked for at-risk students who decided not to drop out seem rare. Positive (or treatment) profiles such as at-risk students who persist are rarely compared to dropouts, and factors such as extent of support systems (such as peer and family backing), community involvement, teacher contact, etc., seem to appear less frequently as variables in at-risk research. In fact, Qualitative analysis of an individual or small group of persisters, at-risk students and dropouts may yield "a profile" more relevant to a certain area, such as an inner-city neighbourhood or native reserve.

### Conclusion

Interest in dropouts - especially with at-risk factors - appears to be re-emerging in North America but there are many questions. For example, is there a need again to scrutinize dropout characteristics with modern research methods or should the popularized phenomena be studied in a different way? Should individual indicators of dropouts be studied as extensively in Canada as they are in the U.S.? If so, what are the most relevant variables to be studied

and are there interrelationships that can be identified so that better predictor models can be developed for front-line counsellors for ready use with at-risk students? Would this eventually lead to follow-up studies where more effective interventions and programs could be developed to help students complete their education?

A review of the literature may indicate a need for a study that utilizes retrospective analyses and other advanced statistical procedures to verify comparisons between U.S. and Canadian profiles. Using current research as a guideline, database information may be gathered from as many sources available to evaluate the effectiveness of using local database information for future studies. This may be assisted if the most relevant variables are narrowed that identify a Canadian profile. There is evidence that practical profiles for use by educators are beginning to emerge in the U.S. but whether available data and existing profiles exist for this research may still need investigating for Canadian use.

## CHAPTER THREE

### METHOD

#### Subjects

Subjects of this study were 82 dropouts, 39 males and 43 females, ranging from 16 to 20-years-old. This includes all the dropouts who attended ninth grade over the past three years in a large Calgary Board of Education (CBE) community junior high school. The dropout rate of this school is roughly estimated at 6.1% (including September-no-shows) from a yearly grade nine population of approximately 168. These subjects were identified and selected via dropout identification codes recorded in the student record files of the CBE database. These codes (made-up of one number and two letters) identify a student who has withdrawn at anytime while attending school at the CBE and translates into a specific recorded reason for doing so.

Selection. All subjects graduated, periodically attended, or were currently attending ninth grade at this community school during the 1988/89, 1989/90, and 1990/91 school years, and subsequently withdrew from junior or senior high school. All of the 429 junior high school students who attend this school are described as coming primarily from families of lower to middle socioeconomic status.

Definition of community school. According to brochures obtained by the CBE, an Alberta community school is similar to any other school but is additionally intended to have more orientation to the community it serves. For

example, these schools provide their facilities to interested students and community members after school hours. Parents and community members participate actively within the school and students (through practical employment opportunity classes) are often encouraged to work for businesses in their neighbourhood. Further, the school interacts with other agencies and professionals (such as counsellors, researchers and clubs) to provide additional education and support for students. The vice-principal of the school under study explains that these schools are not intended to be "special" schools for troubled neighbourhoods but are generally established in areas that lack recreational facilities such as pools, skating rinks, etc.

Access to school records. Only records of students who attended this school were studied and treatment and confidentiality were in accordance with the ethical standards of the APA (American Psychological Association, 1981). The school under study was given permission to access the CBE's main database following a grant obtained by the vice-principal from Canada Employment and Immigration to study what he believed was a high dropout rate among the students at his school and/or later in high school. This school apparently was unusual with its cooperation as research permission may take several months to obtain by school board reviewers. As a result, only this school was accessed for study because of their limited timeline with respect to accessing the main CBE database for research. The vice-principal's goal was to gather several outside researchers to investigate possible clues about the causes of student dropout at his

school so earlier prevention programs could be developed to curb the problem.

Two students from the University of Calgary and a researcher hired by the school operated independently (with the assistance of school's staff) and shared access to the database.

Passwords were obtained by the community school to access various levels of personal or confidential student records of the subjects' entire secondary school career. It was agreed that research results would be shared with local and national school boards. Research enquiries and passwords to access the database fell under the supervision and discretion of the school's vice-principal and, as with several other researchers, the author obtained and was granted permission to access this database from the vice-principal.

### Measures

Several factors considered to contribute to a profile for a student at-risk for dropout were identified in the literature. Several of these factors were gathered and recorded from the sample, including, demographic factors, school and personal related factors and standardized test scores.

These factors (to be described later in this chapter) were matched and gathered as archival data for each subject using the CBE database. The vice-principal and school counsellor also provided additional historical data at the junior high level from the school's written student records and from their own personal contacts with parents and subjects.

Twenty-two variables (or potential dropout factors) for each subject were gathered from this research at the junior and senior high level. At the high school level, (unless the subject failed to go beyond grade nine), the following variables were categorized for study: gender, last grade the student attended, year of birth, number of times a subject dropped from school, the number of junior and senior high schools the subject attended, the CBE's recorded reason for the subject's first and (if applicable) second dropout, the subject's reason (if different from the school's assigned reason) for dropping out and the subject's summary score on a tenth grade aptitude test called the Otis-Lennon School Ability Test (OLSAT). These variables were obtained by using the database only.

At the junior high level, the following variables were obtained for study by the vice-principal, counsellor through school records and personal interviews: attendance, school disciplinary record and parental status. Variables obtained by the database at the junior high level were: transiency (how many times the subject changed residence during school), whether the subject attended a practical work experience class called an Integrated Occupational Program (IOP), and the subject's performance on CBE standardized math, reading and cognitive ability tests administered by the school.

Demographic factors. As a result of the exploratory design of this study all factors were treated experimentally as potential contributors to an at-risk for dropout profile. Therefore, demographic characteristics are considered variables and are not treated differently from other data.



Variables considered demographic (APA, 1981) that were obtained by the database were the subjects' gender, year of birth and last grade attended. The number of times the subject changed residences during junior high school (called transiency) was provided by the vice-principal and counsellor who obtained the information from student files, prior parent-teacher interviews or other personal contacts. For the purposes of this study, transiency was recorded affirmatively if a subject moved more than twice with their family during junior high school. This variable does not include a category for subjects who change residences between divorced or separated parents for reasons such as custody agreements. Further, the number of different junior high and high schools attended by the subject (another potential measure of transiency) was recorded from the database. Information on parental status was also provided by the vice-principal and counsellor. Subjects living with a single mother or single father, birth parent and step parent (blended), or both birth parents (intact), were recorded following interviews with the vice-principal.

School and personal factors. In recent years, the CBE designed increasingly detailed recording practices to help trace and understand the reasons that students leave school. Currently, there are 22 categories that are recorded by either senior secretaries, the school counsellor, the vice-principal or principal, during the period a student leaves school or decides to dropout. Students discuss their reasons for dropping out with one of these school staff who then decides which category is recorded on the student's school record in the CBE database.

The CBE recorded reasons for dropout are September no-show (the student fails to be enrolled as expected during the following September), behavior related problems, lack of attendance, lack of achievement (failing), lack of interest, work or to seek employment, runaway, pregnancy, marriage, moving overseas, immature year one student (student starts elementary school too early or who is considered socially immature for the grade they currently attend), health (other than pregnancy), disappearance of student or family, poor finances, and student attends corrective institute. Dropout categories are combined with other reasons for leaving school which are: graduation, attending other post-secondary schools, attending university, moving away, death, reason unknown (student who leaves school unexpectedly and without giving a reason), and reason not listed (a reason was not recorded for reasons such as confidentiality).

These reasons were recorded for each subject using the database and a second recorded reason for dropout was recorded (if the subject dropped out of school twice), but this study does not include a category for subjects who have dropped out three times. However, to help increase the scope of this study an "alternative reason for dropout" variable was added by the author. During follow-up interviews with these subjects (by other researchers conducting dropout studies on the same sample from the school under study here) other reasons for their dropout sometimes emerged. During these interviews subjects often gave more specific, enhanced or different reasons for dropout than they did during their separation interviews with school board staff. The results of these interviews

(which were with the same subjects in this study) were provided to the author upon request and one part (the reason the student gave for leaving school) was included in this study as part of the data collection. Therefore, if the reasons given by a subject for dropping out conflicted with the recorded reasons by school staff, this information was additionally recorded using the same classification code for withdrawal categories used by the CBE.

Other at-risk factors gathered from the database as variables in this study were the number of times each subject dropped out and whether the subject attended an IOP practical work study class mentioned above. Any junior high student at the community school may attend this class but students whom school staff believe will benefit from this program are often approached and given priority. The vice-principal said the IOP program is very popular and enrolment usually exceeds class space. Teachers in this class provide a minimum of class time so students may gain real work experiences either at the school or in the community. For example, students may learn the money handling and safety skills needed to work at a gas station, retail business or restaurant.

Finally, the vice-principal and counsellor provided information on the subjects' attendance (recorded as excellent, good, poor or unknown) and whether school disciplinary action (recorded as either yes or no) was taken against the subject while they attended the community school. The reason for this was that student files on attendance and disciplinary action were not available from the

database or past written files because this information is discarded after the student leaves the junior high school.

CBE standardized test scores. Standardized test scores were obtained from the CBE database and included measured abilities in math, reading comprehension and verbal skills, and general cognitive aptitudes. Every test score was recorded as percentiles for each subject where available.

The Canadian Test of Basic Skills (CTBS). The CTBS is usually given to students in grade three, six and eight, though only grade six and eight scores are included in this study. The CTBS is actually a battery of tests (with Canadian content and standardization) which potentially measures a student's basic development of skills in reading, vocabulary, language, work-study skills and mathematics (Gallivan, 1985). However, only the reading comprehension and language skills test of the battery are used and recorded in a CBE junior high school.

The reading comprehension score assesses picture interpretation, sentence and story comprehension skills. The language skills test is made up of four components including; spelling, capitalization, punctuation and usage (where students must recognize grammatical errors in sentences). From the language skills component, the CBE records one overall verbal score. One test book contains all the multiple choice paper and pencil batteries which are generally machine scored. In all, the CTBS is designed to assess generalized educational achievement rather than content achievement. Both sixth and eighth grade

reading comprehension and verbal scores were obtained for study from the CBE database.

The test was actually developed at the University of Calgary in the early 1960's (as an adaption of the Iowa Tests of Basic Skills) and is used across Canada. Internal consistency is considered moderate to high (ranging from .64 to .93) while predictive validity was estimated to range from .53 to .76 between CTBS scores and year-end course grades in the Cardston, Alberta School District (Gallivan, 1985).

The Canadian Cognitive Abilities Test (CCAT). The CCAT is given in grades four, seven and periodically in grade ten, though only grade seven scores were included in this study. The overall goal of the CCAT is to assess the student's development of generalized thinking skills considered relevant and important in varying school courses (McInnis, 1986). For example, the test measures the ability to name and classify objects, describe the relationships between objects and subjects, complete sentences, complete unfinished pictures and geometric objects, etc. The test has been divided into three batteries; verbal, (vocabulary knowledge, sentence completion, pairing related words, analogies, etc.); quantitative, (number series completion, judgement as to relative size of objects, etc.); and non-verbal, (figure completion, picture classifying, etc.). The test is usually group administered (with each battery given on a different day) by a test administrator or trained teacher who both gives out directions and receives answer sheets upon completion. This is not a timed test and it can either be hand

or machine marked. In this study, seventh grade verbal, quantitative and non-verbal scores were obtained for subjects from the CBE database.

Estimates of reliability (using correlation of sums) for the verbal test were about .92; for the quantitative test, estimates were about .89; and for the non-verbal test, about .87 (McInnis, 1986). However, though internal consistency appears quite high, correlations between battery scores are considered moderate to high, ranging from .54 to .71 (with over 85% of the values above .60).

Estimates of validity are presented only as criterion-related by comparing this test with the CTBS mentioned above (Constantino, 1989). Correlations between the Standard Age Scores on the CCAT and the Grade-Equivalent Scores on the CTBS are: .85 for the verbal battery; .75 for the quantitative battery; and .63 for the non-verbal battery.

The Otis-Lennon School Abilities Test (OLSAT). The OLSAT "is a paper-and-pencil multiple choice test designed to measure abstract thinking and reasoning ability" (Williams, 1984, p. 499). The CBE often gives this test only in the tenth grade where it is used to help predict success in cognitive skills related to school activities by measuring responses to verbal, pictorial and quantitative stimuli. The OLSAT is actually a battery of subtests which were designed to assess mental ability or intelligence. A single score - called the School Ability Index (SAI) - is recorded by the CBE on the student's record as a measure of learning ability and can be obtained through the database. It was this overall score which was recorded for subjects in this study.

An alternate forms reliability estimate for students above grade 10 range from .91 to .95, while test-retest reliability coefficients range from .84 to .92. Concurrent and predictive validity were established by correlating scores from the OLSAT with scores from the Metropolitan Achievement Test (MAV) and the Stanford Achievement Test (SAT). Although validity coefficients appear low (ranging from .40 to .60.), Williams (1984) contends validity "values of this magnitude are typical of well-made psychological tests" (p. 503).

CBE Standardized Junior High Math Test. The Calgary Board of Education has a standardized math test which they give in junior high school to assess math competence. The test has been in use for several years but the CBE could not provide technical aspects for reliability or validity.

#### Procedure

As mentioned above, subjects' files were studied after permission was obtained to access the CBE database which contains (among other things) records of every student who has attended a CBE school. School board staff subsequently trained the author in the use and function of the database so that various levels of personal information regarding subjects could be obtained. If passwords for some functions were confidential, school staff often accessed various files for the author and retrieved information that was specifically requested.

Codes that identified any student who left school before graduation from 1988 to 1991 were identified first. The codes were then translated so the subjects' reasons for withdrawal could be determined. If the code fit within the guidelines

of the school board definition of dropout the subject was included in this study. Several variables drawn from the literature which allegedly claim to identify students as at-risk for dropout were used as guidelines to gather more information regarding these subjects using various files in the database. Database records were very useful for tracing information from subjects as they progressed to high school. As mentioned, several written files were also obtained from the school under study and several interviews with school board staff were conducted to enhance data gathering at the junior high level. This was accomplished with the intent of increasing the scope of the exploratory study.

Demographic, school and personal factors, and CBE standardized test scores were studied retrospectively over several weeks by gathering archival data on the above variables from all grade nine students who attended the school in the 1988/89, 1989/90 and 1990/91 school years, until the point where they officially dropped out. As long as subjects remained in the CBE system they could be traced to any high school for data gathering. As mentioned, this analysis includes dropout subjects who returned to school and then withdrew again.

This study has attempted to study several variables that potentially can be gathered locally not only to assess the existence of a profile but to narrow down the most important and relevant factors. These variables were then related using procedures which have found acceptance in other studies in an attempt to find a profile within a sample of dropouts. An attempt was also made to use the more powerful statistical methods which (according to the literature) are less frequently



utilized. The purpose for this is to help future researchers focus on more relevant variables knowing the limitations of local data gathering. Further research should also employ a comparative sample so differences between local dropouts or at-risk stayers may be more differentiated from normative samples. All 22 variables from the above three categories mentioned were coded for each subject for entry into a database located at the University of Calgary (Multics - GEduc program) for data analysis. Subject's names were converted to numbers for data analysis and were not made available to persons within or outside the CBE. Appropriate statistical methods (to be discussed) were then chosen to analyze the data.

### Research Questions

This study attempts to explore the possibility of comparing at-risk profile data found primarily in U.S. studies to a recent Canadian sample. Further, if researched at-risk factors do relate to a local sample of dropouts, do the variables themselves relate to each other to reveal a composite profile as hypothesized in the literature? For example, there may be a relationship among individual variables and dropouts, but is there a relationship between the variables as well? If certain patterns or relationships emerge in this study would renewed research efforts into at-risk profiles in Canada be useful? A comparative sample was not used in this exploratory study so specific hypotheses were not generated.

### Data Analysis

As common for archival methods, traditional descriptive techniques were used to determine the relevance of each variable as a factor for dropout (Conrad & Maul, 1981). Such analyses are useful for verifying results obtained by other research methods (Elligstad & Heimstra, 1974) as well as a basis for further exploratory theorizing (Plutchic, 1974). Indeed, as mentioned earlier, detailed descriptive analysis is still commonly used to assess dropout data (for example, Eckstrom et al., 1986).

The chi square statistic was used between relevant discrete nominal and ordinal variables to determine if factors are independent of "a profile" for dropout. (These are listed in Results: Table 2). This procedure was used in an attempt to identify which variables were significant to each other in terms of a dropout profile. The technique was also chosen because it is more commonly used for categorical data (which are prevalent in this study) and because most of the variables cannot be correlated using techniques like the Spearman-Brown formula or the Pearson product-moment coefficient (Kerlinger, 1986; Mason & Bramble, 1989). Similarly, regression analysis could not be used because interval data required for such analysis was either absent or minimal and the sample size was too small. However, future research could utilize log linear regression to assess causal factors. The chi square statistic is commonly used by dropout researchers like Mueller (1990).

Level of significance was set at  $p < .10$  because of the exploratory nature of this study and to reduce the probability of making a type II error - or to falsely reject a profile for a student at-risk for dropout in this study (Mason & Bramble, 1989). When researchers want to be very sure about conclusive results, or when important decisions are being made from a study (such as with the introduction of a new medication),  $p < .01$  level of significance may be used. Although the  $p < .05$  level is often used as the standard level of significance, research procedures that are exploratory often use  $p < .10$ . This will result in coincidental results in one out of ten occurrences, so significant variables should be reviewed in a replication study to eliminate chance findings.

The central limit theorem was used to determine the dispersion of percentile scores (which are continuous and interval data) obtained by the subjects on the CBE standardized test scores to compare their relative performance with non-dropouts, a procedure described in Mason and Bramble (1989). Percentile scores were not available for the CCAT so the mean percentage scores of the subjects on each subtest were compared to the overall mean percentage scores of the entire CBE student population on each test over the past three years (corresponding to the years the sample was collected). These scores were recorded, compared and plotted on an interval scale to explore trends between groups (rather than conclusive relationships) as described in Conrad and Maul (1981). Use of percentiles for data analysis are common in dropout studies where

databases are used but scores are presented as converted rather than raw scores (for example, Gabriel & Anderson, 1987).

An analysis of variance (ANOVA) was used to compare discrete (or nominal) variables as independent factors with continuous (or interval) variables as dependent factors, as described by (Kerlinger, 1986; Mason & Bramble, 1989). The following were treated in the data analyses as categorical independent factors: gender, last grade attended, the number of times subjects dropped out of school and the number of junior and senior high schools that the subjects attended. These were compared with the subjects' CBE standardized test scores which were treated as dependent factors. An example of extensive use of ANOVA's with standardized test scores in dropout research can be found in a study by Barrington and Hendricks (1989). Although using repeated ANOVA's increases the risk of making a type I error (especially with small sample sizes) the procedure may be used in exploratory studies to research trends rather than causal factors. Future use of a MANOVA with a larger sample size and comparison group will reduce the possibility of making a type one error and increase the likelihood of finding causal factors.

## CHAPTER FOUR

## RESULTS

Descriptive Analysis

Over three years there were 82 dropouts - of which 39 were males and 43 were females. Of these, 4.9% of the subjects last dropped out in the ninth grade, 29.3% dropped from the tenth grade, 47.6% dropped from the eleventh grade and 18.3% dropped from the twelfth grade (see Table 1a). About 6.2% dropped out at 20 years of age (according to birth year), 14.8% dropped out at 19 years of age, 38.3% dropped out at 18 years of age, 30.9% dropped out at 17 years of age, and 9.9% dropped out at 16 years of age (see Table 1a). The birth year of one subject was not known. Further, 57.3% of the subjects dropped out of school only once, while 32.9% of subjects dropped out of school twice and 9.8% subjects dropped from school three times.

Table 1a

Sample Breakdown (Adjusted Frequencies) of Age And Last Grade Attended When Dropout Occurred

Age	%	Last Grade Attended	%
16	9.9	9	4.9
17	30.9	10	29.3
18	38.3	11	47.6
19	14.8	12	18.3
20	6.2		

### CBE Recorded Reasons for Dropout

The most common CBE recorded reason for subjects' first dropout was September-no-show (see Table 1b) which accounts for 20.7% of the sample, followed by lack of attendance (19.5%), lack of student interest (14.6%), work or to seek employment (13.4%) reason unknown (13.4%), reason not listed (6.1%), lack of achievement (3.7%), behaviour related problems (2.4%), immature year 1 student (2.4%), health reasons other than pregnancy (2.4%) and pregnancy (1.2%).

Several categories were removed from Table 1b because they were not indicated CBE reasons for withdrawal. These included: runaway, disappearance of student or family, poor finances, corrective institute, moving overseas, attend university or other post-secondary schools, and death.

The most common CBE recorded reason for subjects' second dropout (see Table 1b) was lack of student interest (11%), followed by reason unknown (9.8%), September-no-show (7.3%), lack of attendance (6.1%), reason not listed (2.4%), work or to seek employment (2.4%), health reasons (2.4%), and lack of achievement (1.2%).

The most common alternative reason for dropout (Table 1b) were behavior related problems (14.6%), pregnancy (6.1%), lack of achievement (4.9%), work or to seek employment (2.4%), marriage (2.4%), health reasons (2.4%), and lack of student interest (1.2%).

Table 1b

CBE Recorded Reasons for Subjects' Dropout In Adjusted Frequencies (%)

CBE Checklist for Student Withdrawal	Occurrence of Dropout (%)		
	First Dropout	Second Dropout	Alternative Reason
01-September no show	20.7	7.3	0.0
02-Reason unknown	13.4	9.8	0.0
03-Reason not listed	6.1	2.4	0.0
04-Behaviour related problems	2.4	0.0	24.6
05-Lack of attendance	19.5	6.1	0.0
06-Lack of achievement (failing)	3.7	1.2	4.9
07-Work/To seek employment	13.4	2.4	2.4
08-Pregnancy	1.2	0.0	6.1
09-Marriage	0.0	0.0	2.4
10-Lack of student interest	14.6	11.0	1.2
11-Immature year 1 student	2.4	0.0	0.0
12-Health (other than pregnancy)	2.4	2.4	2.4
13-Graduation	N/A	N/A	N/A
14-Not applicable	N/A	57.3	64.6
TOTAL	100.0	100.0	100.0
	N=82	N=35	N=29

As there appears to be a steady increase in the number of missing cases these results should be viewed with caution. Further, a replication of this study should be performed before concluding that a relationship or profile exists within the sample. This study reveals that many of the September-no-shows, reasons unknown and reason not listed categories may seriously reduce sample size and potentially illustrates that little is known about what happens to students who withdraw from school.

Further analysis of the school board data can be summarized as follows:

- There were 22 subjects found to have excellent attendance, 12 had good attendance, and 10 had poor attendance. However, the attendance of 38 subjects (or 46.3% of the sample) was not known.

- There were 12 subjects found to have received disciplinary action from the school and 16 who did not. However, disciplinary status of 54 subjects (or 65.8% of the sample) was not known.

- There were 8 subjects found to have changed residences with their parents twice while in junior high school and 8 who did not move. The resident transiency of 66 (or 80.5% of the sample) of the subjects was not known.

- There were 41 subjects found who did not participate in the work experience program (IOP) compared to 1 who did. The class was not available to 40 (48.8%) of the subjects.



- There were 16 subjects found who lived with a single mother, 4 who came from blended homes and 16 who came from intact families. The parental status of 46 subjects (or 56.1% of the sample) was not known.

- Finally, 42 subjects attended only one junior and/ or high school, 28 attended two junior and/or senior high schools, 8 of the subjects attended three, and 1 attended six, with 3 subjects (or 3.7% of the sample) unknown.

These results would have to be verified because of the large amount of missing data. This may be traced to incomplete sets of school files and/or lack of subjective information known about subjects by school staff.

#### Chi Square Analysis

Of the 38 relevant two-way variable categories studied using chi square analysis, 26 could not be compared because the N was too small or because there were less than the minimum two frequencies per cell recommended by statistic experts like Steger (1971). Though five frequencies per cell is more favorable for making definitive statements regarding relationships between variables a minimum of two frequencies per cell may be used for exploratory research. All possible two-way combinations of categorical variables were compared against each other. Of the 12 remaining variable combinations tested (see observed frequencies in Table 2), 9 were found to be insignificant at the  $p < .10$  level. However, three cases were found significant at the  $p < .10$  level as follows: there appears to be a potential relationship in this study between gender and attendance, the number

Table 2

Chi Square Analysis of Variables

Variables	$\chi^2$	d.f.	p < .10
Sex and last grade attended	1.77	3	> .10
Sex and # of times student dropped	2.33	2	> .10
Sex and attendance	7.44	3	< .10
Sex and school disciplinary action	4.43	2	> .10
Sex and transiency	2.78	2	> .10
Sex and parental status	0.84	3	> .10
Sex and # of junior and senior schools attended	3.84	2	> .10
# of times student dropped and attendance	5.94	3	> .10
# of times student dropped and school disciplinary action	3.89	2	> .10
# of times student dropped and # of junior and senior schools attended	144.60	1	< .10
Attendance and school disciplinary status	20.90	6	< .10
School disciplinary status and transiency	8.93	6	> .10

of times a student dropped from school and the number of junior and senior high schools they attended, and student attendance and school disciplinary status.

With respect to the first finding, there appears to be a trend that males appear more in the excellent attendance category (M=15, F=7), while females appear more in the good (F=9, M=3) and poor (F=7, M=3) attendance categories. With respect to the second finding, subjects who dropped out tend not to go back to the same school but may attend another school where they

dropout again. Another tentative interpretation may be that subjects who dropped out once appear less likely to dropout a second time if they return to the same school (see Table 3). However, if they dropout and return to another school they are likely to dropout again. With respect to the third finding, there appears to be more students with excellent attendance in the no disciplinary action category.

Table 3

Frequency of Dropout Versus Number of Different Junior/Senior High Schools Attended

---

		Number of Different schools attended	
		1	2
Number of Times Subjects dropped out	1	41	2
	2	1	26
N=70			

---

Few variables were found related to a dropout profile but this may be more the result of missing data and small sample size. Again, variables found to be significant must be replicated before their relevance to a potential local profile can be determined. This procedure also may reflect the limit of database information, student file data and staff knowledge of students.

### Distribution of Standardized Test Scores

Means and Standard deviations were calculated for the CBE standardized math test, the Canadian Test of Basic Skills (CTBS), and the Otis-Lennon School Abilities Test (OLSAT) (see Table 4). Using the central limit theorem, 68% of the subjects appear to have obtained percentile scores over a widespread distribution and appear for the most part to have obtained average scores on most of the standardized tests studied. However, the standardized math score appears below average for the sample - i.e. 68% of subjects falling below the 50th percentile (see Table 4). Raw data was not available for these tests to determine how many responses on each test were made by guessing. Actual test data may not be obtainable for reasons such as confidentiality but converted scores were obtainable. If raw data is not obtainable in future studies MANOVA may be used to draw more specific comparisons and results by comparing dropouts, at-risk for dropping out and stayers.

Percentile distribution. Of the 34 obtained CBE standardized math test scores, 11.7% scored at or above the 50th percentile overall while 88.2% scored below the 50th percentile (see Table 5). However, 48 subjects did not receive or take the test.

Of the 51 obtained verbal scores on the sixth grade CTBS 37.2% of the sample scored at or above the 50th percentile overall while 62.8% of the sample scored below the 50th percentile. However, 31 subjects did not take or receive the test.

Table 4

Descriptive Analysis of Standardized Test Scores

	$\bar{X}$	S	$\bar{X} \pm 1S$
Math	28.5	20.1	8 to 48
CTBS Grade Six Verbal	42.3	22.8	20 to 64
CTBS Grade Eight Verbal	40.0	22.7	18 to 62
CTBS Grade Six Reading Comp.	41.1	25.9	15 to 67
CTBS Grade Eight Reading Comp.	42.2	27.7	14 to 70
OLSAT Aptitude Test	34.0	22.2	12 to 56

Of the 39 obtained verbal scores on the eighth grade CTBS 25.8% of the sample scored at or above the 50th percentile overall while 74.4% scored below the 50th percentile, but 43 subjects did not take or receive the test.

Of the 39 obtained verbal scores on the eighth grade CTBS 25.8% of the sample scored at or above the 50th percentile overall while 74.4% scored below the 50th percentile, but 43 subjects did not take or receive the test.

Of the 52 obtained reading scores on the sixth grade CTBS 36.4% of the sample scored at or above the 50th percentile while 63.3% scored below the 50th percentile. However, 30 subjects did not take or receive the test.

Of the 37 obtained reading scores on the eighth grade CTBS 37.8% of the sample scored at or above the 50th percentile while 62.1% of the sample scored below the 50th percentile, but 45 subjects did not take or receive the test (see Table 5) (N=37).

Finally, of 37 obtained overall aptitude scores on the OLSAT 21.6% of sample scored above the 50th percentile while 78.3% scored below the 50th percentile, while 45 subjects did not take or receive the test.

These results may be significantly biased because of the lack of test scores available for each subject. While it is tempting to say dropouts have poorer scores on these standardized tests (and are therefore potential at-risk factors) only the mean percentile score for math falls outside one standard deviation. Further research using these variables should be repeated before concluding whether students have average or below average skills on standardized test scores. In fact, these continuous variables are easily found within the CBE database so both large and comparative samples could be drawn upon for comparative and causal research.

Subjects' mean scores on the CCAT were compared with the overall CBE student average on the CCAT. This revealed possible significant differences on verbal, non-verbal and overall average scores (see Table 6).

Table 5

Percentile Breakdown of Subjects' Performance on Standardized Tests

Subject Rank by Score	Quartiles	Adjusted Frequencies (%)
CBE Math Test	0 - 25	58.8
	26 - 50	29.4
	51 - 75	11.7
	76 - 100	0.0
CTBS Grade Six Reading Test		
- Verbal	0 - 25	27.5
	26 - 50	35.3
	51 - 75	29.5
	76 - 100	7.9
- Reading Comp.	0 - 25	36.4
	26 - 50	26.9
	51 - 75	24.9
	76 - 100	11.5
CTBS Grade Eight Reading Test		
- Verbal	0 - 25	35.9
	26 - 50	38.5
	51 - 70	15.5
	71 - 100	10.3
- Reading Comp.	0 - 25	35.1
	26 - 50	27.0
	51 - 70	24.3
	71 - 100	13.5
OLSAT High School Aptitude	0 - 25	40.5
	26 - 50	37.8
	51 - 75	21.6
	76 - 100	0.0

Table 6

Mean Percentage Scores by CCAT Subtest Categories From 1988-91

	Subjects Averages (N = 191)	Overall CBE Student Averages
Verbal	40.4	55.7
Quantitative	37.5	41.5
Non-verbal	40.2	59.4
Overall Score	39.7	52.2

However, there appears to be little difference between subjects and all CBE students with respect to the quantitative scores on the CCAT. Figure 1 illustrates these inferences graphically.

Analysis of Variance (ANOVA)

Of 36 possible and relevant analyses of variance (ANOVA) between variables the N was too small to compare 23 relationships. From the 13 possible combinations using ANOVA, only one relationship significant at the  $p < .10$  level appeared in this study - the subjects' gender and the Canadian Test of Basic Skills (CTBS) eighth grade reading comprehension scores (see Table 7). Further analysis of the cell means revealed that female subjects may score significantly higher on this test than male subjects. In all, few variables related to a profile for dropout were found using the ANOVA but this may result from lack of data and low sample size. Future research may determine whether this one significant variable should be included in an at-risk profile.



**Figure 1. Average CCAT Scores from 1989-1991 for Subjects Compared to Overall CBE Student Scores from 1989-1991**

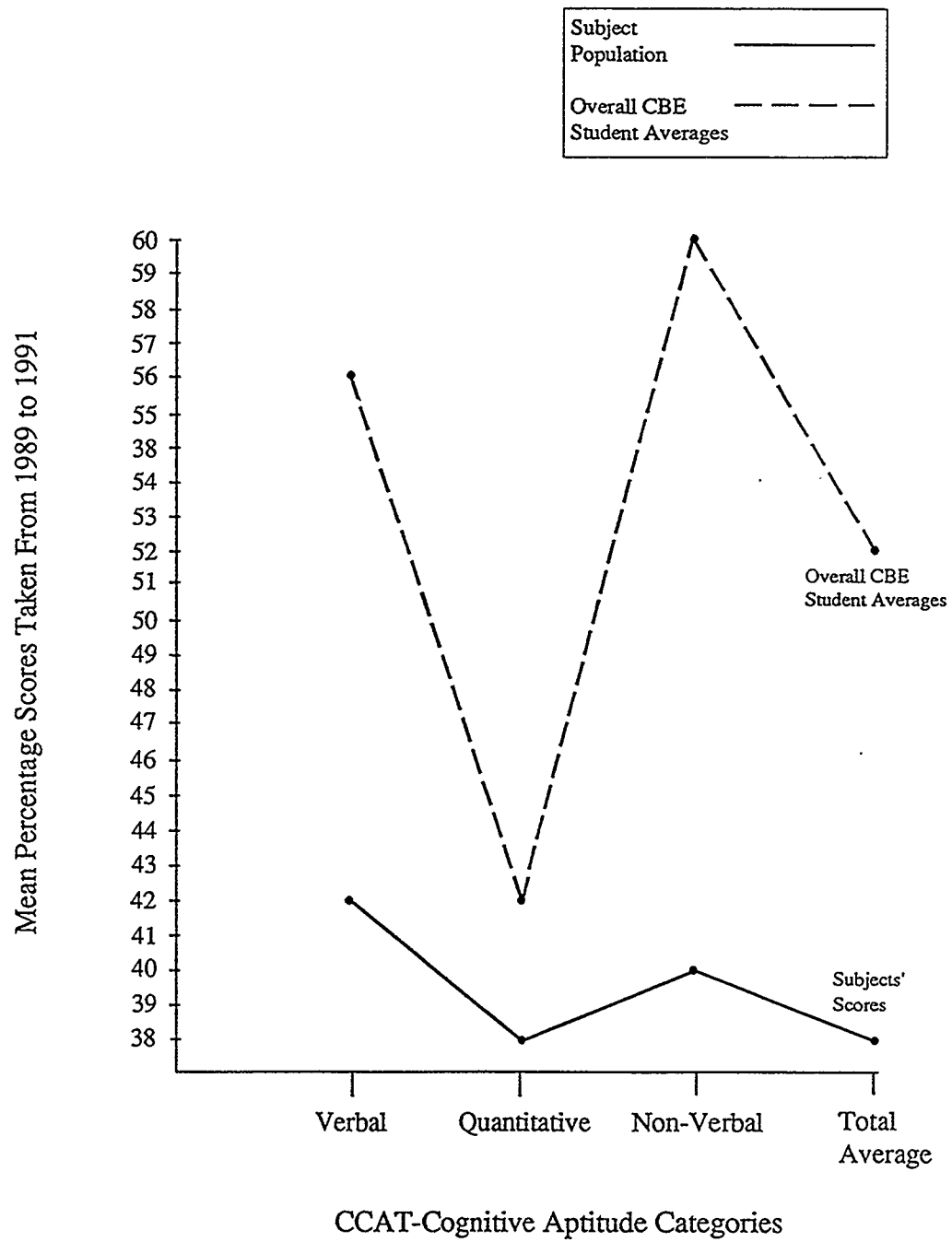


Table 7

Analysis-of-Variance for Sex and CTBS Eighth Grade Reading Comp. Scores

	SS	df	MS	F	Sig. of F (p < .10)
Sex	3134.38	1	3134.38	5.40	.0340
Within	9289.23	16	580.58		
Total	12423.61	17	730.80		

## CHAPTER FIVE

### DISCUSSION

#### Introduction

The purpose of this study was to assess the applicability of primarily U.S. based literature outlining at-risk profiles to a recent Canadian sample. Further, the goal of this study was to go beyond comparing the relevance of individual factors to dropouts by comparing the factors themselves in an attempt to find some evidence for an interrelated at-risk profile. For the most part, this study may be an early tentative step in the thorough examination of this phenomena as (or if) the issue continues to grow with interest from the public, educators and researchers. The discussion of results (which offers a brief analysis of results in contrast to the literature) will be followed by limitations of the study, implications for further research and professional applications.

#### Discussion of Results

Introductory statement. Some of the 22 variables in this study bare some resemblance to U.S. and Canadian literature into at-risk profiles and a few variables seem to show significant interrelationships. Of note, however, is that a dropout profile does not clearly emerge at this junior high school. Indeed, many of the results (to be discussed) reveal contradictory findings with the literature and within the study itself. One serious limitation of the study was the large degree of missing data and small sample size. Further, the reliability of this data emerges as both a serious limitation as well as an important observation for

discussion. As a result, several tentative conclusions and recommendations for further research emerge from this study which could potentially build on current knowledge.

Interpretation of results. Firstly, it may be noted that the estimated dropout rate of 6.1% may not be a particularly high dropout rate when compared to Alberta estimates (Alberta Education, 1988; CBE, 1989). This tentative observation may be of further interest since the student body at this school is primarily of lower to middle socio-economic status. It may be interesting to investigate whether this is a chance occurrence or the result of the advanced nature of community school organization (mentioned earlier). Perhaps the lack of a broader range of students attending this school (such as having more recent non-English speaking immigrants in the sample for example) potentially affects the dropout rate.

In this study, there were more females than males who dropped out. Though this may not be a statistically significant difference it may indicate that more male dropouts (or differentiation by sex) may not necessarily be a consistent determinant of the at-risk profile as suggested by the majority of the North American literature (Cook, 1956; Curtis et al., 1983; Ekstrom et al., 1986; Hahn, 1987; Martin, 1981; Mueller, 1990; Reddick & Peach, 1990; Zamanzadeh & Prince, 1978). No studies were found where female dropouts significantly outnumber male dropouts, though some suggest that there is little or no gender differences in the at-risk profile (Barrington & Hendricks, 1989; Pasco School

District, 1981). The local CBE study (Greckol, 1991), which shares the same definition for dropout as this study, found that male dropouts in Calgary outnumber their female counterparts by two to one.

However, the last grade attended (or grade when student dropped out) in this study appears somewhat consistent with the literature - and nearly parallels the Ekstrom et al. (1986) study - indicating that more dropouts may leave in the eleventh grade. Subjects may also show a tendency to be older students when compared to the grade most commonly dropped, perhaps showing some consistency within the literature (Cook, 1956; Curtis et al., 1986; Hahn, 1987; Pawlovich, 1985).

However, it should be noted that results of this study do not closely resemble the CBE study (Greckol, 1991). Greckol's study gathered dropout statistics from two large Calgary high schools and three "feeder" junior high schools. Though it is not clear how the statistical data was gathered (students were also interviewed) the report was admittedly brief and tentative. However, data gathered from these schools (with some considered "high need" schools) reveal dropout rates (including September-no-shows) from 11% to 30% - which is nearly two to five times more estimated dropouts than in this study. Further, there were more twelfth grade withdrawals (26%) than eleventh grade withdrawals (24%), with more withdrawals occurring at the tenth grade (35%). This study more closely resembles the literature with more dropouts at the eleventh grade (47.6%) than either the tenth (29%) or twelfth (18.3%) grades.

The CBE study reveals "age of dropout" results which more closely resemble the literature with the majority of older students leaving at ages 16 (27%) and 17 (32%). The results of this study may indicate a heavier concentration of dropouts at the age of 17 (30.9%) and 18 (38.3%). Further, this study may hint at a slightly older student when compared with the CBE study with the former having more 19-year-old dropouts (14.3%) than the latter (3%).

More than half (57.3%) of the sample in this study dropped out of school once, as compared to 32.9% who dropped out twice (i.e., dropped out once before the sample was drawn) and 9.8% who dropped out three times. These results were determined by counting the number of dropout codes from the database for each subject. Therefore, comparisons with the literature are difficult because many studies include the number of grades retained and higher age of student - not the number of times student dropped -as an at-risk characteristic (Curtis et al., 1983; Greckol, 1991; Martin, 1981; Mueller, 1990). For example, it is tempting to report that there are fewer school repeaters in this study when compared to the literature but it may be difficult to compare dropouts with grade repeaters. Regardless, no study reviewed seemed to address the number of times a dropout quits school as a specific at-risk characteristic. The findings of this study may indicate that dropouts tend to be prior dropouts and tentatively suggests that this result may be studied further for inclusion as a primary at-risk indicator for dropout.

CBE recorded reasons for subject dropout. The CBE recorded reason for the subject's first dropout probably reveals more unknowns than answers regarding a predictable profile for the at-risk student. For example, the majority of the subjects dropped out once - but the number of September-no-shows or not knowing what happened to the students (20.7%), the number of unknown and not listed reasons for dropout (13.4% and 6.1% respectively), probably diminishes by about 40.2% of what is specifically known to have happened to the sample of dropouts. This may not only deflect the possible prediction of a database profile of at-risk characteristics but may also illustrate the difficulty of determining precise withdrawal rates - and reasons why students dropout - from Calgary school board databases. As mentioned earlier, this is a chronic problem with dropout research.

With respect to other variables from the first dropout category, lack of attendance (19.5%), lack of interest (14.6%) and going to work or seeking employment (13.4%), emerge as primary reasons for dropout listed by the CBE for this sample.

Interestingly, while many authors reviewed in the literature list poor attendance as an indicator for dropout, few list this variable as a major characteristic for an at-risk for dropout profile, with major exceptions being Barrington and Hendricks (1989) and Gabriel and Anderson (1987). Canadian authors may consider absenteeism more often in their studies and reviews (Pawlovich, 1985; Zamanzadeh & Prince, 1978) than their American counterparts.

Similarly, Greckol (1991) found during interviews for his study that poor attendance was the number one reason a sample of Calgary high school students said resulted in their decision to leave school. Lack of attendance is not only the number one CBE recorded reason for students dropping out of school, it is also listed as a distant second in this study (6.1%) for the second CBE recorded reason for dropout. However, the reliability of this finding may be erroneous when one considers that poor attendance in school may also be because of lack of student interest.

As mentioned earlier, Canadian studies of dropouts reveal that lack of interest or dislike of school are primary characteristics for the child at-risk profile (Pawlovich, 1985; Zamanzadeh & Prince, 1978). This study may show support for these findings, except that the local CBE study (Greckol, 1991) did not conclude that "lack of interest" is a major characteristic for a local profile of a dropout. Overall, lack of interest in school is shown in many studies to be a major reason that dropouts give for leaving school (Ekstrom et al., 1986; Rumberger, 1981; Wittenberg, 1988). This may be further supported by the fact that in this study the "lack of interest in school" at-risk factor is also the number one reason for the second dropout (11%). Again, lack of interest may be too broad to be a strict category.

Third among CBE reasons for the first dropout by subjects in this study was to seek employment (13.4%). This factor was found to contribute highly to several profiles of dropouts in several studies (Ekstrom et al., 1986; Greckol,



1991; Hahn, 1987; Pasco School District, 1991; Reddick & Peach, 1990; Rumberger, 1987). This variable also appears in other studies as leaving school because someone offered a student a job, because the student is experiencing poor finances or because the student must support their family. In the CBE dropout checklist, there is no category for the latter. However, poor finances was not listed for any subject in this study by the CBE as a reason for dropping out of school. By contrast, Greckol found that financial difficulties ranked second as the most common reason given by students for leaving school. This latter finding appears to concur with Pawlovich's (1985) review of earlier Canadian Studies. This may be an indicator that what students self-report during interviews in studies like Greckol's may be recorded differently on dropout interviews with school staff before the results are recorded on the CBE database. Similarly, students may not have recorded this reason before leaving. Further, unlike other factors reviewed by this study (which show a consistent ranking from first to second recorded reasons for dropping out) it appears that few subjects dropped out of school listed "to seek a job" with the CBE when they dropped from school a second time (2.4%). In other words, it appears that subjects reasons for dropping out a second time are similar to the first reason they gave when they dropped out the first time, except with respect to seeking a job. Though sample size is too small to make any specific conclusions one might examine the possibility that students return to school to improve their employment options when they find poor job prospects after dropout.

Though lack of achievement as a reason for leaving school has a very high profile in both Canadian and U.S. literature it makes up only 3.7% of the CBE recorded reason for subjects' first dropout in this study. This falls to 1.2% for subjects' CBE recorded reason for their second dropout. In Canada, lack of achievement is broadly defined as failing, students' poor handling of school work and difficulty understanding courses or teachers. Regardless, all these factors also play a major part comprising a student at-risk for dropout profile in Canada (Greckol, 1991; Pawlovich, 1985; Quiroulette et al., 1990; Zamanzadeh & Prince, 1978). In this study, in the alternative reason for dropout category, students listed lack of achievement third amongst their primary reasons for dropping out (4.9%). This may tentatively suggest that students may come to admit later that they really had academic difficulty or that CBE staff did not accurately record these problems earlier. Unintentionally, staff doing dropout interviews for coding may not want to believe that students dropped out because they could not learn in their schools or the subjective nature of record keeping may simply require more study. For example, consensus on a recording can be made using more staff members before dropout codes are officially recorded. Of course, the opposite may be true whereby students do not want to admit personal difficulties may impede learning ability. In all, these conclusions are highly speculative (and not statistically valid) especially considering the small response rate in the alternative category.

Interestingly, this latter statement may reflect on other factors. For example, though behavior related problems, pregnancy and marriage are not reported frequently as CBE recorded reasons in this study for either the first or second dropout, students followed up by interviews listed these as main reasons for dropping out (see alternative reason category). These factors have emerged in the dropout literature since the early 1950's, such as Cook (1956), and may be found increasingly in recent studies (Greckol, 1991; Sullivan, 1988; Wittenberg, 1988). The reasons why these problems do not appear on the database earlier is subject to further speculation and may require further research.

Other at-risk factors. As above, much of this data analyses is tentative, especially since most of what happened to the sample is unknown. Further, the following data paints only a brief sketch of the subjects' junior high school career rather than their experience in later high school years.

From what is known from the community school's attendance records, approximately half the subjects had excellent attendance and more had good attendance than poor attendance. While this may contradict the findings mentioned above, it may also reflect stricter attendance policies in junior high school than senior high school. However, more than half the subjects also received no disciplinary action. Therefore, this finding also is not consistent with above findings (as behavior problems were listed number one by subjects in the alternative reason for dropout category). This variable may likely need further studying as disciplinary and behavior problems are consistently found to be high

factors for children at risk for dropout (Cook, 1956; Curtis et al., 1983; Ekstrom et al., 1986; Wittenberg, 1988). Indeed, future research may reveal these contradictory findings result from the differences in student behaviors with maturity or administration practices between junior and senior high school.

Roughly half the subjects came from intact homes compared to half who lived with a single mother. According to Statistics Canada (1991) approximately 12% of Alberta families live in homes headed by single parent families. This finding is very inconclusive (especially without a comparative norm) but it may show tentative evidence that further study may be needed to determine if a higher number of dropouts live in single parent homes. Recent reviews of Canadian and U.S. literature indicates a greater interest in relating this factor (and other factors related to family "breakdown") to high student dropout (Reddick & Peach, 1990; Rumberger, 1987; Zamanzadeh & Prince, 1978). Indeed, Greckol (1991) found that only 28% of his sample came from intact families. However, few subjects in this study came from blended families and none lived with a single father.

Though the effect of attending work experience classes like the CBE's Integrated Occupational Program (IOP) is more of a subject for dropout intervention literature, it appears to have been a useful database factor to include for study. This may potentially add to the argument that positive support factors should be included in profiles for at-risk students who do not dropout. For example, though this new program was available for the last two years from which the sample was drawn only one subject attended IOP classes. This is particularly

interesting because (as mentioned earlier) students experiencing trouble in school are given top priority for this popular program, which is usually full to overflowing with students. Although, it is difficult to draw specific conclusions from this observation, there is a growing number of studies in the U.S. which conclude that career training is helping students stay in high school (Catterall & Stern, 1986; Coyle-Williams, 1989; Smith & Ament, 1990). Interestingly, attending alternative programs (like career oriented or non-academic tracks) is also considered a factor which identifies many dropouts' reasons for leaving high school (Mueller, 1990; Wittenberg, 1988). However, there are few published journal studies on the effects of work experience programs in the earlier school years. This study may lend support to the idea that positive interventions like this should be further studied, especially with regard to Canadian schools and junior or elementary programs. One may need to address why students who leave school avoid these programs or, conversely, if at-risk students who attend these programs are effectively swayed from dropping out. Though alternative programs may actually be indicators for dropout, U.S. career-related courses may be inferior to Canadian programs. Lastly, one may study the presence of stigma when at-risk students attend "special" classes.

Approximately half the subjects moved more than once with their parents while attending junior high school. Further the database analysis of transiency revealed that about half the subjects attended more than one junior and/or senior high school. Although research literature relating transiency to dropout can be

found since the 1950's (Cook, 1956), they are not frequently found in recent studies. Therefore, drawing comparisons are difficult. However, Greckol (1991) found in his CBE study that although roughly half his subjects attended more than one junior high school more than two-thirds attended only one high school. These results are not conclusive but suggest that the relationship between dropout and transiency in Canada may warrant further study. For example, is transiency during junior high school more damaging or risky for potential dropouts than during high school? In this study, transiency appears consistent from junior to senior high for this sample indicating, perhaps, that transiency warrants further study as an at-risk for dropout factor.

Standardized test scores. As mentioned earlier, the debate over the link between low reading and math standardized test scores and dropout is extensive, with most studies and reviews siding with a positive connection (Barrington & Hendricks, 1989; Cook, 1956; Martin, 1981; Mueller, 1990; Pasco School District 1991). Also mentioned earlier, some noted authors such as Rumberger (1987) and Hahn (1987) cast doubt on some of this research as problematic because it is correlational rather than causal. Canadian studies are also inconclusive. Zamanzadeh and Prince (1978) found that most of their dropout subjects had average I.Q's, with more having higher I.Q's than lower I.Q's. Locally however, Greckol (1991) found that his dropout subjects were quite deficient readers.

Subjects in this study were found to have scored statistically within the average range of reading comprehension and language skills as measured by the

CTBS and with abstract thinking and reasoning ability skills as measured by the OLSAT. However, subjects did appear to score statistically lower than the norm in math. Overall, a review of the percentile breakdown of the sample's percentile scores on all tests reveals that subjects seem more often to fall below the 50th percentile. However, these extremes appear more prevalent in math and language skills and overall learning ability scores (as measured by the OLSAT) than actual reading comprehension. CBE database research in this area may be the most valuable finding of this study as scores are available for all Calgary based schools and may also be available in other Alberta schools. Further studies may draw more specific conclusions between several variables using comparison samples.

Complicating these findings are those found from subjects' scores on cognitive ability assessments (CCAT). Comparison of means appear to reveal that subjects' in this study score lower than their school board peers in verbal and non-verbal tasks. Yet, in contrast to the above finding on lower math scores, subjects seem average with respect to their peers' performance on quantitative tasks. Though specific conclusions are speculative, certain questions may emerge concerning students' under (or over) -achievement or perhaps waning interest in subjects as they near dropping out. The statistical analysis of these findings should be viewed with caution until further research confirms these findings or seeks more causal factors using comparative samples which could be studied using

procedures like a MANOVA. This may help more clearly identify the relationship between measured abilities and dropping out.

Relationships among variables. Finding relationships among individual at-risk factors was complicated by lack of information available for the sample. However, of 12 possible variable combinations using the chi-square statistic, only three were found significant at .10 level of significance. This finding may complicate conclusions that a composite dropout profile can be predictably drawn unless further research on broader and larger sample sizes are done. Perhaps more interesting is the finding in this study that males not only seem to not drop out more than females but they are also more likely to have excellent attendance in junior high school. Females may also be more likely to have poor attendance. This too may challenge some dropout findings which more typically point to problems with male behavior which may be clarified with further study. For example, the finding (which on its own is not surprising) that students with excellent attendance have fewer known disciplinary actions against them tentatively suggests that male dropouts in this study may be better behaved and show-up for their classes. Therefore, future research may address the influence of gender differences and dropout. One hypothesis may be that males and females have different socio-emotional or other problems in junior high school which change as they progress to high school.

With regard to future research into the relationship between dropouts and transiency, it may be interesting to note that subjects in this study who dropped



out may tend not to go back to the same school. However, they may go to another school where they drop out again. Another speculative interpretation may be that subjects are more likely to dropout a second time if they returned to the same school. Further, subjects who dropped out once and then attended another school appear more likely to dropout again. Again, these findings are speculative and future studies may clarify these findings. Similar findings could not be found in the at-risk profile literature to debate this finding. It may be necessary to study how different kinds of transiency relate to dropout. One interesting hypothesis may be that transiency effects the development of peer relationships and peer supports of students who later leave school.

The ANOVA was not successful with respect to finding relationships between factors as a dropout profile. Of 13 possible variables analyzed only one relationship was found at .10 level of significance. In contrast to the samples' generalized standardized tests results reported above, female subjects may have a statistical advantage with respect to reading comprehension in the eighth grade. From what has already emerged in this study, it may be very tentatively suggested that male subjects may have more difficulty with earlier development of reading skills leading to dropout than with other reasons (such as attendance, or behaviour). This study may also be suggesting that factors other than female subjects' reading skills (such as attendance and behavior) should be studied further as contributing to their dropout. However, this study may have simply stumbled over another debate relating gender differences in reading skills in

junior high school. Larger sample sizes and comparative norm groups may help determine the usefulness of the ANOVA but conclusions in this study must be treated highly speculatively and subject to verification through repeat studies.

Overall, this study may be similar to at-risk profiles drawn from the U.S. literature. For example, this study appears to tentatively indicate that a local dropout tends to be older and leave school at the eleventh grade. There is also scant evidence that this study compares with older Canadian literature which more often points to issues such as transiency and lack of student interest by dropouts. However, more research would be required to assess the applicability of regional dropout rate, student achievement performance on standardized math, reading and cognitive scores, financial difficulties, behavior problems, attendance and being male as at-risk indicators in this sample. Findings which were not predicted also present themselves for future research, such as number of times a student drops out being considered as an at-risk factor, conditions surrounding dropouts and transiency, attendance in work experience programs (IOP), and sex differences.

### Limitations of Study

Though the cooperation of a large CBE community school for research was welcomed, the sample size was found not to be large enough in size for a study of this magnitude. Indeed, some of the variables could not be studied with more sophisticated statistical measures for this reason. This was further complicated by the high number of student records which could not be tracked,

and the inherent limitations of recorded information on the CBE school board database. For example, there does not appear to be an agreed upon set of guidelines that would make recording students' reasons for dropout consistent between or among staff and across schools. A commonly cited limitation of dropout research (including those of a grand scale) and shared by this study is that statistical analysis was severely limited as the ongoing availability of data diminished while the sample was studied beyond junior to senior high school. Further, because of the lack (or loss of) some student records at the junior high level, much information was obtained subjectively because it relied on the memory of the vice-principal and school counsellor. The use of such data therefore has limited reliability.

Above all, this study lacks a comparison or control group. An additional researcher may have been obtained to make use of the short time allotted to gather a randomly selected norm from the school which may have greatly increased the accuracy and usefulness of this study. Further, this study is just one school in one region of the city so generalizing results with other schools across the province is limited. Lastly, the relationship between minorities and dropping out could not be analyzed with any accuracy as (is commonly known among area residents and the CBE) few minorities live near the community school studied.

In hindsight, more attention may have been spent learning how to use the CBE database so further information could be gathered. For example, information regarding the subjects' elementary school records or participation in

extracurricular activities may have been obtained. Further, it would have been very useful to gather the test records of an equal sample of school "stayers" so that a more powerful comparative statistical analysis (such as a MANOVA) could be used.

### Implications of Study

Like many similar studies in the literature, this one demonstrates the difficulty of studying several factors (and combinations of factors) compiling an at-risk for dropout profile. Large samples quickly become small samples because subjects are very difficult to track. Even studies with very large samples may not have enough subjects after a period of research to form accurate or detailed results. Cooperation between school boards and researchers across the province would be needed for larger sample sizes to compare and contrast dropout subjects and their experiences. This may be accomplished simply by sharing database information or comparing school records. Research like this may require reliability and validity of staff database recordings of students' reasons for dropout to be studied and perhaps, one day, similar guidelines could be shared between school boards across Canada so that the dropout phenomena could be more accurately researched. This may be done by using more than one staff member to record dropout codes to arrive at consensus. If the database and school records are used for at-risk research in a useful way, more accurate and long term information must be collected. School researchers also have access to large sample sizes but often only use descriptive analysis. Some form of expert

research advice may be exchanged if school boards would allow access to their schools for subjects.

Though the CBE has made early innovative attempts to gather more detailed information from dropouts, upon termination this data may not necessarily be accurate recordings of why students leave for the following reasons:

1) The recorders do not know what happened to most "dropouts" after the summer break; 2) The recorder does not list or does not know why a student dropped out; 3) There may be poor consistency between dropout codes because there does not appear to be any standard criteria, recorder training or set of guidelines for recording students' reasons for leaving school. These observations are not criticisms because these problems seem to plague other studies and may be difficult to overcome. However, further research may want to address these limitations through the tracking of students by calling them over the summer break to verify if they are dropping out or simply moving away without notice. With regard to CBE recorded reasons for dropout, students' reasons for leaving may be more accurate if they were allowed to record their own dropout codes on a computer sheet at their leisure, without the presence of staff. A study could be done to correlate the accuracy of staff recordings and students' self-reports for reasons for dropping out. In all, errors may emerge either from the student or staff, and though a daunting task, more consistent or accurate guidelines for staff recordings may have to be established.

Sample sizes of future studies must also be more varied. For example, this study was conducted on the premise that a large dropout rate existed across the province and country. However, this does not appear to be the case. For example, different results may have been obtained from a school on a native reservation in northern Alberta. In future, it may be more beneficial to combine a study like this one with that of a school in a rural township, another on a large native reserve, and one in a higher socioeconomic area, etc. This may clarify the results of individual studies as well as provide a large sample size for more sophisticated comparative statistical analysis. Such attempts have already been made in the United States (Gabriel & Anderson, 1987). More longitudinal and retrospective studies which included entire elementary, junior high and high school, populations could also be initiated, (the importance of which is being demonstrated in U.S. studies). Indeed, this study almost completely relies on standardized test scores (with the exception of one elementary CTBS and high school OLSAT) at the junior high school level. Access to these scores at all levels would be facilitated by using school board databases to determine if early indicators of at-risk indicators emerge as students progress with grade and age.

Clarifying variables which comprise the at-risk for dropout profile is one clearly emerging theme from this study. For example, the six major categories for dropout identified by Rumberger (1983) (demographic, peer, school-related, economic and individual) represent wide ranging fields of study and philosophies. Though this study attempts to approach the topic from an educational psychology

point of view there are also economic, sociological, political, administrative, experimental psychology and educational factors crowding and complicating this empirical study. Indeed, each one of these specialties could probably develop and study at-risk profiles for dropouts using variables related to each field. It appears that many researchers combine these variables for profile studies without explanation, resulting in what appears to be a poor theory base for each academic discipline. Much of the literature suggests strategies for intervening with students displaying an at-risk for dropout profile revealing, perhaps, a sense of urgency to find solutions to what appears to be a growing problem. However, it may be necessary to break down at-risk profiles into "subprofiles" with research expanding from a specific economic, psychological, educational, etc., theory base. Indeed, the CBE recorded reasons for dropout may be too general. As mentioned before it may be difficult to determine if lack of attendance is really a lack of interest, etc.

Overall, there may not be just a profile of at-risk factors for dropouts that professionals can readily access. There is also a danger that students may carry labels if such profiles become popularized and too heavily relied upon. For example, a student displaying many of these factors may be isolated by teachers and staff as a "pre-dropout." This in turn may result in a student who gives-up before given a chance thereby fulfilling the profile prophecy. Dropout profiles may one day be a useful tool, but they should be used as just one of many approaches to understand a difficult phenomenon.

Directions for future research. As mentioned above, the CBE database listed reasons for student dropout may be of limited use for researchers until recording practices are improved. However, the vast quantities of student information contained within the system may provide some interesting starting points for future dropout research. For example, the relationship between standardized test results to dropout could readily be studied using the database to identify the scores of dropouts and then comparing these with a control group. Such a study could easily encompass the entire city and would thus open itself to advanced methodology and statistical procedures for analysis. For example, one may test whether dropouts and stayers in this community school have similar standardized test scores. One may hypothesize that dropouts have the same basic skills as stayers. These scores may also be compared to a school in another lower socioeconomic school to see if there are differences in performance between these students. One may hypothesize that dropouts in community schools have higher scores and dropout less frequently than the similar sample from a regular school. Gender differences may also be tested by comparing all male and female dropouts' standardized test scores within the CBE to a normative sample. Similarly, the CBE database could be used to gather data on the transiency of dropouts on the entire city. One could clarify the results of this study's findings on transiency very quickly by comparing the number of times a student drops out to the number of times he/she changes residences during junior and senior high. More importantly, interval data such as standardized test scores, transiency, the



number of times a student drops out, the number IOP classes attended, etc., could be readily contrasted statistically as predictive (causal) factors for at-risk profiles in a retrospective study. The advantage of a study using this procedure would be the access to a large sample base which may even be compared with school districts across the province. It may even be possible to gather elementary, junior and senior high data for comparative analysis.

If continuous and interval data are being considered for more powerful statistical procedures, longitudinal data may be necessary to compliment database information. For example, this study was often limited to categorical data such as "excellent" versus "poor" attendance. A longitudinal study may facilitate the specific recordings of numerical data such as 0, 10 or 100 missed days or classes per year. This procedure would also help grapple with the number of disciplinary actions taken against the student as an at-risk variable. Undoubtedly, a longitudinal study may confirm that age of dropouts may be steadily increasing locally as twelfth grade students continue to return to school (usually the twelfth grade) to upgrade their marks for university.

The survey method may be better used to assess the reasons students leave school. Questionnaires or interviews may help differentiate and clarify variables such as leaving school to seek employment versus leaving school because of poor finances or lack of interest versus lack of attendance. This analysis, which may have a qualitative component, may also help clarify the effect of socioeconomic status on dropout, i.e., is socioeconomic status a cultural, demographic or a

situational factor for at-risk students? Further, a survey component for both stayers and dropouts from community schools and regular schools may be compared to assess the advantages/disadvantages of both systems. A study like this may also compare numerical and categorical data (such as the number of male and female dropouts) resulting from each school system to see if community schools are more successful at preventing dropout as this study may potentially indicate. This may further reveal how school administrations and staffs affect dropout behaviour. Survey research may also help examine why students gave alternate reasons (such as pregnancy, marriage and behavior related problems) to administrators (or if administrators did not accurately record reasons) during separation interviews which later became recorded in the CBE database.

Larger sample sizes and control groups may help assess the interrelatedness of at-risk variables which this study suggests may be very revealing. For example, this study reveals gender differences between dropouts which could potentially clarify at-risk factors. It may not be sufficient to say that there are more male dropouts and that dropouts tend to be absent more, etc., leading to the erroneous conclusion that there are several male truants who become dropouts. Perhaps males do drop out more but female dropouts may have more absences. Therefore, it may be necessary to look at how variables relate to the dropout phenomena rather than just taking them individually. Retrospective studies would lend themselves well to this kind of analysis and may be able to differentiate dropouts from non-dropouts from the early elementary

years to senior high. This would be accomplished similarly to this study over a larger sample by interviewing school administrators and gathering database information retrospectively.

Eventually, psychological studies may again have to look at the underlying causes of dropping out which like those commonly used in the 1960's. For example, tests which measure locus of control, levels of stress or depression among students, may be necessary to help understand the dropout. Genograms and ecomaps may help assess support systems which in-turn could increase our understanding of the effect of single parent families on students who dropout. For example, this study found dropouts primarily among female headed families. A study may find that this links to other at-risk factors, such as poor finances, etc. This could also be done retrospectively to determine if these factors change as the students progress from elementary school to senior high. For example, self-esteem for a potential dropout may have starting signs before they enter junior high school. What are the effects of having parents separate or become unemployed while a student attends elementary school compared with students who experience the same incident during the twelfth grade?

As mentioned earlier, measuring factors for at-risk students may be confounded by a lack of proper definitions and different recording methods for studying dropouts (Morrow, 1986; Rumberger, 1987). As yet, there is no academic research base regarding school dropouts that is firmly established. In fact, the vast array of sources for data collection and analysis regarding dropouts

often creates problems of consistency. "Differences in defining the target population (dropouts), computing a summary statistic (dropout rate), and collecting and coding primary data create research results and school reports that are incompatible if not misleading" (Morrow, 1986, p. 342).

Rumberger (1987), reports that empirical research is still lacking and has primarily focused only on a few factors identifying at-risk students. Further, he points to the fact that many factors are simply structures relating to dropout rather than underlying causes. For example, does coming from a lower socioeconomic status home mean fewer supplies for children, less nutrition, different parenting style or less parental contact? Further, few studies explore how factors are interrelated - a process that could turn dropout research from correlational to causal. For example, do females who dropout because of pregnancy feel less control over their destiny (external locus of control). "Much recent research on dropouts has simply replicated the descriptive nature of earlier studies with more recent data" (p. 119).

There is every indication that dropping out is being looked at more as a process of disengagement that may begin, for example, with poor social situations that result in poor academic reasons, eventually leading to the final act of leaving (Hahn 1987; Rumberger, 1987). Future research may require more personal interviews and direct involvement with students, parents, teachers and administrators. The emergence of this trend is visible in qualitative studies like

Fine's (1986) in the United States and the Qualitative Research on School Leavers report by Statistics Canada (1990).

### Implications for Counselling Practice

This study tentatively suggests that counsellors (especially within the school system) look beyond popularized at-risk information when assessing students until more Canadian research is completed. Though such information may initially identify troubled students, personal assessment and counselling may at present reveal more about the potential dropout than simply compiling risk factors. This study suggests such signs may be frequent moving by students, a previous record of dropping out, and students who lack interest either by being absent from school frequently or who have interest in early employment. However, encouragement to attend an IOP program may be tentatively suggested. Stereotyping males as frequent at-risk for dropout candidates may be unfair and more underlying problems may better differentiate the sexes with future research. The potential dropout also appears likely to be older and one who strongly considers leaving the eleventh grade. He/she may also come from a single parent home in junior high. Again, these recommendations are highly speculative considering the exploratory nature of this study but may help the counsellor identify a potential school leaver.

### Summary

This study found that several identified risk factors (popularized primarily in U.S. studies) do not necessarily relate to Canadian dropouts. Nor does an

interrelated profile appear to emerge in this study. Limitations of the sample and design of this research may have affected the result but some individual findings (many of which seem to contradict the literature) may spur future efforts. Even though the school studied fit the environmental profile as being high risk (being a large, primarily lower to middle socio-economic level and urban) there did not appear to be a high dropout rate. This suggests that other schools may need further study as their dropout rates could be significantly higher to average out the higher provincial and national dropout estimates. Also, low dropout rates may result from the effectiveness of a community school program.

This study may reveal gender differences (both in dropout rate and behaviourally) not commonly found in the literature. There also appears to be age differences (suggesting a slightly older subject) at risk for dropout though grade level dropped may not be different from other studies. This study also reveals that many dropouts appear to leave school more than once.

Overall there was very limited data available from the CBE recorded reason for dropout file in the database but the most common reported reasons included subjects' lack of attendance, lack of interest and leaving to work or to seek employment. These findings appear to correspond to Canadian literature for both the first and second reason for dropping out with the exception of a student leaving to work or seek employment. However, follow-up interviews of subjects reveal that many of their reasons for dropping out conflict with the CBE recordings for their dropout. These include factors rarely reported early on by

the CBE but which correspond well to the literature, including: behavior related problems, pregnancy and marriage. These contradictions may signal again the need to study sex differences in relation to dropout which do not appear to conform with the literature.

There were several contradictions between junior high and high school findings, but these differences may result from administrative practices. Further study may reveal that dropout factors may change as the student matures. One tentative finding of this study was that many dropouts seem to live with a single mother (rather than with a single father, blended or intact family). Subjects of this study also do not appear to attend integrated occupational programs (IOP) even though they tend to be popular among students. More studies of career related programs may be needed in Canada to determine their popularity and effectiveness.

Few variables seemed to be related to each other statistically, but some significant gender differences worth further study emerge again with regard to females potentially having poorer attendance than their male counterparts. However, males may have poorer reading skills at an earlier age than females but this speculative finding would require further study. Further analysis also revealed transiency as an interesting factor for future research. In this study it was found that subjects who dropped out once were less likely to dropout a second time if they returned to the same school. However, subjects who dropped out once and then attended another school were more likely to dropout again.

With regard to several standardized test measures, subjects - with the exception of math skills - scored within the normal statistical range. No support for the literature regarding poorer general reading scores among dropouts were found in this study. Ironically, cognitive measures reveal subjects to score below average on verbal and non-verbal tasks but average with respect to quantitative tasks. Reasons for these findings may require further study with larger, regionally varied sample sizes and a control group.

### Conclusion

Overall, this exploratory study has revealed many of the problems and contradictions faced by similar studies from decades past to present. However, some consistencies were found with the literature as were some unexpected and novel findings.

With the recent rise of interest in dropouts - especially with dropout indicators flagging prevention strategies - Canadian research in this area may re-emerge. School boards seem to feel a need to start their own studies but while they have access to a tremendous source of data, assistance by outside researchers with technical expertise may be desirable. Undoubtedly, the emergence of databases and improved recording practices by staff for students leaving school could potentially lead to a better understanding of dropouts and eventually evolve into reliable preventative models. While more sophisticated at-risk profiles and models are developing (hopefully by use for schools), different academic fields may approach research on dropouts from personal, family, societal, political or



other perspectives to better determine the future direction of the problem. This may result in research processes that are both quantitative and qualitative and which examine the issue from the viewpoint of students, parents, teachers, counsellors, the public and researchers.

While the existence of a serious "dropout crisis" is debatable the issue may grow with importance as students face harsher requirements for high school leading to post-secondary education under the shadow of declining education budgets and highly specialized but reduced job markets. Indeed, a wave of despair may be communicated to struggling junior high and high school students who continually witness that higher education is not necessarily a ticket to steady employment. Hopefully, this will not result in steadily increasing anxiety and stress among students who simply feel that academic struggle is hopeless, and not worth the effort.

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