

THE UNIVERSITY OF CALGARY

Validation of Teacher Designation of Risk to Dropping Out
and Causal Paths of Risk Factors and Values for Junior High
Students

by

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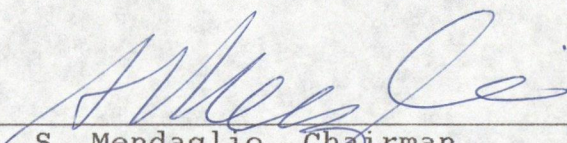
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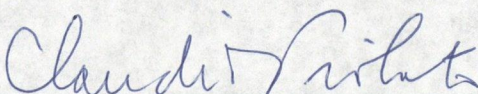
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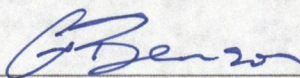
The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Validation of Teacher Designation of Risk to Dropping Out and Causal Paths of Risk Factors and Values for Junior High Students" submitted by Jean Elizabeth Young in partial fulfillment of the requirements for the degree of Master of Science.



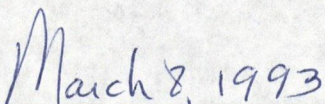
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ABSTRACT

A study was conducted with junior high students to differentiate those at-risk from those not at-risk of dropping out. A path model for dropping out was also tested.

It was found that students designated at-risk differ from those not at-risk in the following ways: the amount of time the student spends not attending (i.e. absences, suspensions, temporarily dropping out); the level of parental concern and family stability; the level of parental, student, and peer educational expectations; the type of classroom behaviour; and the number of grades repeated.

Important influences emerged from testing the path model. They were: parental concern; parent, student, and peer educational expectations; and student's sense of control over his/her destiny. The findings of this study suggest that when students, their parents, and their peers believe in values and behaviours that stress educational achievement; they will be less likely to dropout.

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CHAPTER 1

INTRODUCTION

Statement of Problem

Our society is beginning to recognize a serious problem of estrangement of our youth, with its most obvious manifestation being increased rates of crime, suicide, and dropping out of school. An examination of the alienation process is imperative, if we are not to lose the talents of large numbers of our young people. Often, the first manifestation of disaffection is when the young person drops out of school. This is therefore a fruitful place to explore the issues around alienation and rejection of societal values and norms.

Dropouts are and have been a major problem for society, with unemployment rates twice as high for high school dropouts as for high school graduates. The monetary cost to society comes in lost earning and foregone taxes, plus

welfare dependency. Leaders in business and industry are increasingly vocal in their concern about the effect of dropouts on the national economy in general, and the implications for the quality and cost of training the labour pool, in particular (West, 1991). It is becoming more difficult for employers to find workers capable of performing the work for which they are hired. For the dropout, the minimum consequence is unemployment or underemployment. The severest consequences become cynicism, loss of self-respect, hostility, violent behaviour, incarceration and/or consignment to a status of permanent underclass. Personal and social costs of dropping out are fundamentally unacceptable and are not seen as tolerable in a democratic society. .

Defining and assessing the dropout personality have been the focus of research with dropouts (e.g. Cairns, Cairns & Nickerman, 1989; Desnayers & Pauker, 1988; Ekstrom, Goertz, Pollack & Rock, 1986; Gadwa & Griggs, 1985; Rumberger, 1983; Wehlage & Rutter, 1986). Factors significantly correlated to dropping out, generated by these and other research are used to create checklists that predict the degree to which a student may be at-risk of dropping out of school (e.g. DeJung, 1988, Kagan, 1988).

This type of research has been helpful in the identification of a student at-risk of dropping out of school. Further research shows that teachers with the use of

checklists can successfully identify most at-risk students (O'Sullivan, 1990; Kagan, 1988). There is, however, variation in what factors an ideal checklist should contain. Gastright (1989) compared a local and nation wide (United States) study and found dropout characteristics differ from community to community and that comparisons of local dropout characteristics with a national sample studies do not necessarily apply. Further, dropping out has been shown not to be a single event in the life of a student, but the culmination of a process of increasing disengagement from school (Miller, Leinhardt, & Zigmond, 1988); and students' perceptions and attitudes are important factors in the decision to either stay or leave (Wehlage & Rutter, 1986). Examining the perceptions and attitudes of students long before they decide to drop out, would clarify the mechanics of the dropout process, considerably.

The underlying causes of dropping out (which then lead to potential solutions) poses a difficult question. Recently a number of educators and researchers have suggested that educational attitudes and values of students, their parents, and their peers play an extremely important role in the educational achievement process (Ekstrom, Goertz, Pollack & Rock, 1986; Hanson & Ginsburg, 1988). Hanson & Ginsburg (1988) tested a path model with causal sequencing using family background, values, and school outcome variables. The path results show that values have both direct and indirect

effects on the school outcome of dropping out.

This study will use the path model proposed by Hanson and Ginsburg (1988). Their model will be applied to data from a sample of junior high students, with teacher designation of risk, as an outcome variable. This thesis will go beyond previous research in two ways: a) by looking at a broader range of value variables, and b) by considering more specific mechanisms of influence for values variables in the path model.

Also, teacher designation of risk to dropping out for the sample will be examined. The criteria for teachers' choices will be assessed against other risk factors.

Purpose of Study

It was decided to conduct an exploratory study with junior high students. With this population little work had been conducted with educational values in general, and no work has been done to test a path model with values, in particular. Two issues will be examined: (a) a validation of teacher designation of risk, and (b) the extent of causal influence of family background, family values, student and peer values, and school behaviours on the dropout process. A better understanding of teacher designation of risk and causal influences to dropping out, may contribute to more appropriate intervention programs.

CHAPTER 2

REVIEW OF LITERATURE

In this chapter an examination of the literature salient to the research issues will be presented. First, a survey of the literature demonstrating dropout related factors, (including values) will be outlined. Then, studies that show the presence of some of these factors at the junior high level will be reviewed.

Next, several studies will be discussed: (a) studies that have validated designation of risk, and (b) the Hanson and Ginsburg (1988) study, - including the theoretical model and statistical procedures.

Characteristics of Students Who Dropout

Definition of Dropout

Radwanski (1987) defines a dropout as any student who leaves school before having obtained his or her graduation diploma. Because a graduation diploma is considered to be

the norm expected by society, the student is still a dropout even if he\she goes on to other programs. The definition, used by the Calgary Board of Education (Alberta Education, 1988), is more generous in that students who complete other school programs are not considered to be dropouts.

The definition used will affect the rates cited. Gary Zatko, Director, Planning and Policy Secretariat (Alberta Education, 1988) reported that Alberta's dropout rate at 30-33%. This figure is based on the number of Grade 9 registrants who leave school within 4 or 5 years without a high school diploma or its equivalent.

No matter how a dropout is defined, the implication in this definition, is that it designates a easily recognizable situation, with a clearly defined reason, which occurs when a student performs the act of dropping out of school. The act, or more appropriately, the process of dropping out is not so uncomplicated.

Dropping out is not a single event in the life of a student (Miller, Leinhardt, & Zigmond, 1988). Students are thinking about dropping out long before they actually do so. Dropping out is not a one time "make a choice and act" event, but a behaviour that is a result of a culmination of a process influenced by characteristics and events in a student's life.

Definition of "At-Risk"

"At-risk" is a key term in many dropout related studies. West (1991) notes in a review of the literature that there are many labels for students who are at-risk. Some of those are: underachiever, disadvantaged, dropout prone, alienated, marginal, low-performing, culturally deprived, nonachiever, low ability, slow learner, less able, low socioeconomic status, language impaired, disenfranchised, impoverished, underprivileged, and remedial. The term "at-risk" has replaced these earlier terms, because it is blameless and suggests that it just happens that some students are in danger of dropping out and that no one is responsible for the problem. The term "at-risk" suggests that the problems are individual ones, while the old terms suggest systemic problems affecting entire groups (West, 1991).

"At-risk" is borrowed from the medical model that looks at correlates or common characteristics associated with people who have succumbed to various illnesses. From what is known about a group with a particular ailment, predisposing factors that place an individual in a high risk group are identified (O'Sullivan, 1990). Predisposing factors have been used in the identification of students at-risk of dropping out. These factors are what make up the dropout profile.

The Dropout Profile

What reasons do students give for dropping out? Three answers often given are: (a) lack of success and interest in school and a preference for marriage and/or the world of work; (b) inability to remain at school for reasons related to the student's individual circumstances, e.g. pregnancy, financial hardship and family dysfunction; and (b) inability to remain at school for reasons associated with the student's behaviour (e.g. suspension) or with school policy (e.g. restrictions on the registration because of age) (Alberta Education, 1988).

Although these reasons are given by dropouts for their decision, the underlying causes are more difficult to determine. There are many studies showing correlates between influence factors (i.e. risk factors) and dropping out of school. The identification of these and other correlates has been part of a process of defining and assessing the dropout profile. Although some of the results from these studies are discrepant, several categories of variables are found to recur with noticeable persistence. The categories are: individual characteristics, family background, parents' values, student and peer values, student out-of-school behaviours, and student in-school behaviour and achievement outcomes. An overview of the risk factors in each of these categories will now be presented. Studies that show conflicting evidence will also be cited.

Individual Characteristics

Low reading ability and low intelligence have been shown to be factors in the process of discouragement (Morris, Ehren, Lenz, 1991; Mueller, 1988; Wehlage & Rutter, 1986; Yudin, Ring, Nowakiwska, Heinemann, 1973). Other individual characteristic cited are: being male (Yudin et al., 1973), low self-esteem, low personal efficacy, and low need for self-development (Romanik & Blazer, 1990; Yudin et al., 1973).

Family Background

In family background category, the literature mentions: family characteristics, family stability issues, and family educational tradition.

Family characteristics often related to dropping out are socioeconomic status (SES) and race/ethnicity (Ekstrom, Goertz, & Rock, 1988; Peng, 1983; Rumberger, 1983; Sewell, Palmo & Manni, 1981). However, when other factors were accounted for, SES and race are not factors (Wehlage and Rutter 1986; Romanik & Blazer, 1990).

Family stability issues included: single parent household (Ekstrom et al., 1988; Morris, Ehren & Lenz, 1987), number of elementary schools attended (Yudin et al., 1973; Morris et al., 1987), number of residential changes (Yudin et al., 1973), and mother's working outside of the home (Ekstrom et al., 1988).

Educational tradition of low educational attainment of

parent, and older siblings dropping out were found to be dropout related factors (Ekstrom et al., 1988).

Family Values

Values, in this context, include a set of variables that are indicators of the values that are likely to influence whether youths act responsibly with regard to their school achievement and behaviour. Home behaviours and attitudes representing poor family values towards education have been the focus studies by Ekstrom et al. (1986); Ekstrom et al. (1988); Hanson and Ginsburg (1988); and Loughrey & Harris (1990). They cited family behaviours of low level of encouragement, poor communication between home and school, lower educational expectations, and low level of concern. Although this research suggests that parents' educational expectations for the student to succeed in school reduces the chances of the child's dropping out of school; at least one study has concluded that parents' educational expectations do not have a significant impact on dropping out (Myers & Ellman, 1983).

Student and Peer Values

Adolescents who have low educational expectations (i.e. perceive themselves as not likely to obtain a high level of education) are more likely to dropout (Hanson & Ginsburg, 1988; Loughrey & Harris, 1990; Myers & Ellman, 1983; Rumberger, 1983; Wehlage & Rutter, 1986). Students who have high expectations for their future educational attainment

would be more likely to apply themselves at school and experience success (Baggaley & Dole, 1977).

The educational aspirations that friends hold both for the youth and themselves have also been found to be associated with dropping out, with higher aspirations reducing chances of dropping out (Ekstrom et al., 1988; Hanson & Ginsburg, 1988; Rumberger, 1983).

Research by Weiner (1973) showed that extra effort can overcome the handicap of low ability in achievement outcomes. Further research shows that attitudes reflecting strong work ethic (ambitious, industrious, responsible) and an internal locus of control reduce a student's chances of dropping out of high school (Rock, 1985; Rumberger, 1983).

Student Out-of-School Behaviours

Natriello (1984) found a link between dropping out and delinquency. Other out-of-school behaviours mentioned in the literature are: riding around and going on dates, working for pay, time watching TV, amount of reading (Keith, Reimers, Fehrman, Pottebaum, & Aubey, 1986), and time on homework, (Coleman, Hoffer, & Kilgore, 1982; Ekstrom et al., 1988; Rock, Goertz, Ekstrom, Pollack, & Hilton, 1984; and Walberg, 1984),

School Achievement and Behaviour Outcomes

Academic failure, as indicated by low grades and scores on standardized and classroom tests, are consistently related to dropping out (Ekstrom et al., 1988; Wehlage &

Rutter, 1986; Yudin et al., 1973). Several researchers (Hahn, 1987; Morris et al., 1991; Mueller, 1990; Romanik & Blazer, 1990) note that students whose age exceeds that of their classroom peers (i.e. grades repeated) are four times more likely than others to dropout.

Truancy and poor attendance (Loughrey & Harris, 1990; Natriello, 1984; Yudin et al., 1973); suspensions from school for behavioral problems, (Cairns, Cairns & Neckerman, 1989; Desneyers & Parker, 1988; Ekstrom et al., 1986; Gadwa & Griggs, 1985; Harris, 1980; Rumberger, 1983; Wehlage & Rutter, 1986) are all negatively correlated to dropping out.

This concludes a fairly comprehensive list of factors that the literature cites as being factors in the dropout process. Earlier studies seem to focus on background type variables (i.e. SES, race)(Peng, 1983, Rumberger, 1983). There are conflicting results about the importance of these variables in the dropout process. Later studies were concerned with the manipulable factors of values (Ekstrom et al., 1988; Hanson & Ginsburg, 1988) and behaviours (Keith et al., 1986). Next, studies of dropout factors that have been shown to be present at the junior high level will be examined.

Dropout Factors for Junior High Students

The junior high student (grades 7-9) was chosen for this study, in order to enhance the understanding of the dropout process. In junior high, teachers become concerned enough about potential dropouts to identify them; and on occasion begin interventions. Data from junior high samples suggests that factors that correlate to older students dropping out are already in place when the student is in junior high.

Barrington and Hendricks (1989) concluded from their study of school records of 651 students, that dropouts can be identified with 90% accuracy by the ninth grade. In the seventh grade, a pattern of failing grades in some courses and attendance problems are beginning. They did not find a relationship between dropping out and family status or SES variables. These students have parents who tend to have a lower educational level. Barrington and Hendricks (1989) speculated that the nongraduate may not have clear personal goals that require academic preparation. These students may have responded to teachers' interest and other social support with reasonable academic achievement in elementary school. But in the impersonal environment of the larger middle school (i.e. junior high), latent adjustment problems appeared. Attendance declines, failures occur as academic demands are not met, and school success is no longer

meaningful.

Cairns et al. (1989) in a longitudinal study with 475 junior high students, first seen in the seventh grade, found that the dropouts tend to be aggressive and selectively affiliate with peers who share their disposition towards dropping out. Socioeconomic status, race, and early parenthood were also associated with later dropping out.

Mueller (1990) in a longitudinal study of students followed through high school, examined factors of race, sex, reading achievement, promotion to next grade, and type of high school as risk factors, observable in grade nine. Predictive factors were being male, low reading level, repeating grade nine, and going to a traditional high school.

Romanik and Blazer (1990), using data from surveys of 2779 students, found that students who dropped out displayed academic and social signs in junior high. They had significantly lower academic achievement and self-esteem scores. Low SES did not seem to be a factor.

At least one of these studies confirms the importance of parental education and speculates about the influence of values (Barrington & Hendricks, 1989). Yet, there is no clear examination of the junior high students' educational values and the role they play. The remaining studies did confirm that factors that lead to dropping out are recognizable in the junior high grades.

Even though there is agreement that signs of dropping out exist early in a student's school career, the method of selecting these students has not yet been perfected. The selection process deserves some consideration as the consequences in time, money and effort are significant. The next section will examine studies that attempt to validate this procedure.

Validation of Teacher Designation of Students At-Risk

When a student has been designated as at-risk to dropping out, he or she has shown signs that teachers and others determine to be important factors in the dropout process. The criteria for the selection are not consistent from place to place; or, in some circumstances, from student to student. Studies that consider checklists and teacher selection biases will now be reviewed.

Use of Checklists

Checklists are often used to identify potential dropouts. Characteristics are gathered from research literature, dropout exit interviews, student records, and other sources. According to Wells, Bechard and Hamby (1989), checklists have weaknesses; students are often mislabelled, and local differences are not taken into account. West (1991) writes that it has been tempting to fall back on

stereotypical views of the at-risk student, particularly when faced with inadequate data for understanding the local dropout problem. It is therefore important for checklists to reflect the local situation. Also, it appears that there will always be a substantial group of potential dropouts who are difficult to identify because they do not meet the traditional profile. Despite the shortcoming of checklists, they can be useful as initial screening devices, especially if validated for use with a particular population.

Many studies support the predictive ability of checklists in determining risk (DeJung 1988; Mueller 1990; Peng, Takai, & Fетters 1983; Romanik & Blazer, 1990). The following variables have been used in no particular order of priority; poor attendance, low grade point average, low standardized test composite scores, grade retentions, high number of discipline referrals, low education level of parents, special program placements, high number of school moves, low reading and math scores, ethnic\gender distinctions, high number of suspensions, low interest in school, low participation in extracurricular activities, high number of counselling referrals, and family status (other than traditional). This list is not inconsistent with the dropout profile. Wells et al (1989) warn, however, that not all variables have the same degree of predictive power. These variables have been used in various combinations in selecting students at-risk. Several studies

have been undertaken to test the predictive validity of checklists.

Romanik & Blazer (1990) used a minimum of one factor on an 8 item profile to identify at-risk students: a major exceptionality, limited English proficiency, 18 or more absences, two or more years overage, reading stanine less than 4, attended more than 3 schools, 3 or more D and F grades, and suspended during the previous year. This method flagged 51.7% of the dropouts in the survey sample.

Walters and Kranzler (1970) developed prediction equations for a sample of 414 dropouts. The best equation determined that low reading achievement, in combination with low student IQ, high age, low SES, and low arithmetic achievement would accurately identify 91% of the dropouts.

Mueller's (1990) longitudinal study validated a checklist that teachers used to designate students at-risk. The risk factors used were: race (non-white), sex (male), low reading achievement, non-promotion to next grade, and type of high school (alternate school/program). 80% of those with the 4 risk factors dropped out of school, 90% of those with none of these finished high school.

Kortering, Haring and Klockers (1992) found that factors of school interruptions, number of schools attended, and family intactness discriminate the dropout from the persister with 73% accuracy. Ethnicity, reading ability, and SES were not found to be factors.

A checklist created by Morris et al., (1991), yielded classification accuracies of 73% to 88% for the dropout group. They found family status (non-traditional), repeats, number of schools, low achievement, and low reading scores to be important predictive variables.

There appears to be a variation in the results of studies that use a checklist for the use of identification of risk of dropping out. The percentage of predictive accuracy of checklists range from 52% to 88%. These results suggest that with easily observable variables (e.g. family status, grades repeated, achievement, number of schools attended), good to excellent predictions of future dropping out can be achieved. The variation in predictive factors from study to study demonstrate that the best predictors may vary from one population to another.

Teacher Identification

When teachers are asked to identify students at-risk, they do so either by intuition or by use of a checklist. As we have seen, there are concerns that checklists may not be validly applied to different populations. Is a teachers' intuitive sense of the student superior to a checklist? The research suggests that it is not.

Teachers who use intuition may overidentify at-risk children, especially on variables of class achievement, anxiety and social competence (Kagan, 1988; O'Sullivan,

1990). When O'Sullivan (1990) compared teachers predictions of academic failure with a rating method (grades, conduct, ratings, absences, disciplinary action), he found correlations between teacher designation and conduct were highest ($r=.62$). Teachers at-risk rating predicted 38% of failures, whereas the regression of factors predicted 57% of the variation in the number of failures. The results of this study suggests that a checklist may achieve a more reliable designation of students who later dropout, than teacher's intuition alone.

Now, that we have considered risk factors to dropping out, in general; and the possibility and means of designation of risk in junior high in particular; our attention turns to the specific role of values in the dropout process. A study designed by Hanson and Ginsburg (1988) considered this issue.

The Hanson & Ginsburg Study

Hanson and Ginsburg (1988) examined values and other risk factors, with a testable model. They suggested that values play an important role in achievement and school behaviour processes. Their research went beyond previous research in: (a) looking at a broader range of educational values, and (b) testing the causal sequencing of values with a path model.

Educational Values

The values examined included those measuring characteristics that were considered to be good indicators of an underlying value system that stresses responsibility and commitment to education. The values items were factor analyzed to label the latent variables and obtain the best set of indicators.

Hanson and Ginsburg's (1988) argument was that parents have considerable control over the child's behaviour and can guide children into behaviours that contribute to success at school. The importance that parents place on education will likely be reflected in their child's attitudes. Further, they contended that a good work ethic reflects the belief that one's actions and efforts, rather than fate or luck, determine one's successes. A belief in hard work and the effectiveness on one's actions should lead to greater success in school. Strong religious values would promote a sense of responsibility and obedience to authority on the part of youth that would in turn lead to higher school achievement. Finally, when an adolescent has friends who place a high value on education, it is expected that the adolescent would receive greater rewards and encouragement for success in school than would an adolescent whose peer network does not value education.

Path Model

In the Hanson and Ginsburg (1988) the general causal ordering (or path model) went from individual and family background characteristics to parents' values to adolescent and peer values to out-of-school behaviour to school outcomes. The general causal assumptions of the model are that (a) family background affects the values of the parents, (b) these values in turn affect the values of their adolescent children (and the types of friends their children have), and (c) the student's attitudes and values in turn affect high school outcomes both directly and indirectly, through their effect on adolescent behaviour (e.g. homework).

Placing values as intermediary variables between family background and educational achievement is supported by previous research (Alexander & Cook, 1982; Natriello & McDill, 1986; Sewell & Hauser, 1972). With regard to the causal placement of the behaviour variables in the model (between values and school outcomes), a number of researchers have suggested that values are potentially important determinants of students' behaviours (e.g. homework) (e.g. Keith et al., 1986).

Finally, Hanson and Ginsburg (1988) assumed that much of the value formation process has already occurred by high school for students (and their families and peers) and that their values are relatively stable. This rationale supports

a cross-sectional design for a valid assessment of the model.

Data came from a sample of 30,000 10th grade students in the High School and Beyond study. Sampling design involved a multistage, stratified cluster sample involving 1,100 schools. Response rates for the questionnaire was 84%. Those who had dropped out in the two years following the initial administration of the measures, made up the sample of dropouts.

Both measured and latent variables were used in the model. The following variables make up each category:

1. Family and Individual Characteristics: (a) parents education, (b) mother's work status, (c) single parent status, and (d) socioeconomic status.

2. Parent's Values: (a) parents' educational expectations, (b) parental level of concern

3. Student and Peer Values: (a) work ethic (belief in importance of hard work and control over destiny), (b) religious values (activities and attitudes) (c) student educational expectations and (d) peers' educational expectations.

4. Student behaviour: (a) work status, (b) homework, (c) time watching TV, and (d) amount of reading.

Causal sequencing was tested using path analysis; an observational technique, which studies existing variability among variables. It separates correlations among variables

into causal and noncausal components, by using multiple regressions in a very structured explicit manner. It requires an explicit assumption of independent (presumed cause) and dependent (presumed effect) variables. The model proposed by Hanson and Ginsburg (1988), justifies these presumptions.

Applying the technique to the data, significant direct effects to the outcome of dropping out was found for the following variables:

1. Family and Individual Characteristics: mother work part time, gender, parents' average education, family status, and number of siblings.
2. Parents' values: level of concern, and educational expectations.
3. Student and Peer values: religiosity, work ethic - work importance, educational expectations, and peer values.
4. Student out-of-school behaviour: time watching TV, amount of reading.

The Hanson & Ginsburg (1988) study is one of the few studies that addresses the role of values in the dropout process. It does this by examining some specific values that could influence how a student views the learning process. Further, the role of these values as causal influences is examined within a path model. Their results demonstrate a significant impact of family, student and peer values on the dropout process. The size of the sample and

level of response add weight to the importance of this study.

Summary and Conclusions

Summary

In a survey of the literature for dropout related correlates, an extensive list of risk factors were generated. These were categorized as: individual characteristics, family background, parents' values, adolescent and peer values, student out-of-school behaviours, and student behaviour and achievement outcomes. Values of parent and student have been shown to be related to dropping out, but with few measures and no proposed mechanisms.

Dropping out is not a single event in the life of a student, but the culmination of a process of increasing disengagement from school (Miller et al., 1988). Students show signs of risk early in their school career, but clearly in junior high (Barrington & Hendricks, 1989; Cairns et al., 1989; Mueller, 1990). The importance of family background and student behaviours (e.g. number of repeats, number of schools) has been demonstrated, but no effects of values.

At-risk designation becomes more predictive with the use of a checklist (O'Sullivan, 1991). Still, risk factors vary from population to population (Gastright, 1989); and

studies show varying results about what factors make the best predictors.

Hanson and Ginsburg (1988) designed a study that considered the role of values as causal influences within a path model. This study demonstrated a causal role for values, particularly parent, student and peer influences.

Conclusions

The junior high student at-risk could provide significant insight into the dropout process. Except for a few retrospective studies of observable behaviours (Barrington & Hendricks, 1989; Cairns et al., 1989; Mueller, 1990), very little is known about the perceptions of junior high students, who have been designated at-risk of dropping out.

Risk factors associated with dropping out have been demonstrated to exist early in a student's career, particularly in junior high. Since educational values have probably been formed by this time in a student's life, the junior high student may provide useful information about the role of values in the dropout process.

Junior high is a time when interventions for students at-risk begin in earnest and improvement of the selection of those in need of help would be beneficial. The checklist used to select these students should reflect a local condition, by containing the optimum predictors for the

population. Therefore the validation of an existing checklist and the creation of an optimum one could have practical application.

There seems to be general agreement that many factors, particularly student values; are significantly associated with student dropouts. Disagreement exists among researchers and writers with respect to their role and relative importance. Further exploration of the role of values in the dropout process has thus been indicated.

The questions posed in this thesis, then, are concerned with validating teacher designation of students risk in a local junior high, generating optimum predictors; and exploring possible causal effects of values on the dropout process.

Research Questions

This study was designed to examine the following research questions:

(1) What are the discernable differences between the two groups (designated at-risk and not designated at-risk) on variables of Risk factor Survey and Ulin Values Survey?

(2) Can the risk factors as measured by the Risk Factor Survey be used to predict group membership as designated by teachers?

(3) What additional predictor variables define the

risk group?

(4) What family background variables demonstrate causal influences on family values variables?

(5) What family values variables show evidence of causal influences on student and peer values variables?

(6) What student and peer values variables show evidence of causal influences on behaviour outcomes?

(7) What behaviour outcome variables show evidence of causal influences on risk status?

The first three questions are related to validation of teacher designation of risk. The last four question explore potential causal influences in a path model with values.

CHAPTER 3

METHODOLOGY

Setting

This study was conducted with male and female junior high students registered in a large community school in Calgary. Thirty per cent of students in this area have a dropout history. Of particular concern, was the 8% dropout rate among junior high students in that school (Hill, 1992).

Subjects

The subjects included students at the junior high level of a community school in a mixed socio-economic community. Of a total of 490 students in the junior high, 349 were sampled. Two classes were unavailable at the time of the survey; also students who were absent that day were not sampled.

Demographic Data

The sample consisted of male and female students from all junior high grades, ranging from ages 12 to 16. The majority of the sample was of Caucasian racial origin (see Table 1 for descriptive statistics of individual characteristics). Preliminary analysis was conducted to ascertain sex and grade differences, to determine if the two groups should be treated separately or pooled.

Table 1

Descriptive Statistics of Individual Characteristics (n=349)

Characteristic	Category	%of sample
Age	12	23
	13	26
	14	37
	15	16
	16	2
Gender	male	52
	female	48
Grade	seven	31
	eight	29
	nine	40
Race	caucasian	86
	other	14

At-Risk Designation

Three teachers scanned the student lists and identified those at-risk of dropping out. The vice-principal, the resource teacher, and the grade 7 social studies teacher, jointly decided on those to be included. The designation was based on an a checklist of factors deemed by the staff to be important signs in the community for risk to dropping out. Factors on the checklist were: low academic achievement (D's and F's on last report card), poor attendance (including suspensions and dropout time), family instability (non-traditional, and number of moves), classroom behaviour problems, and dysfunctional lifestyle (i.e. drugs and alcohol). Low academic achievement and at least one other factor were used to place the student in the risk category.

Instruments

Construction of Risk Factor Survey (RFS)

Selection of Items

Surveys and questionnaires have been used by many researchers as a way of obtaining information about potential dropouts (Hanson & Ginsburg, 1988; Romanik & Blazer, 1990; etc.). Reliability and Validity studies of questionnaire items have demonstrated moderate (.6) to excellent (.9) values, depending on the nature of the question. Conger, Conger, & Riccobono (1976) indicate that

contemporaneous, objective, factually oriented items are more reliable and valid than subjective, temporally remote, or ambiguous items.

Fetters, Stowe, and Owings (1984) validated background and parental values by surveying parents. Validity coefficients were found to be high for contemporaneous, factual information (e.g., .9 for father's educational attainment; .9 parent's educational desires for child). The quality of less factual information tends to be lower (e.g., .6 for peer school goals). Stability coefficients for attitudinal variables were somewhat lower: .4 for persons influencing post-high school plans; .3 for attitudes toward school; .5 for life values; and .5 for educational aspirations and plans.

Fetters et al. (1984) found that opinion variables were quite suitable for use in composites and suggested that analysts use composites in creating variable measures. Composite individual score and group means have much higher reliability coefficients than those for individual items or students. For example, if the reliability of a variable is .2 for an individual student, the reliability for the mean value of the variable for 36 randomly selected students would be about .9. Generation of latent variables by factor analysis improves reliability and validity even further (Crocker & Algina, 1986).

The Risk Factor Survey (RFS) was developed from the

literature. Risk factors that could be measured from student perceptions were formulated into questions with multiple choice answers. The values items were adapted from those used by Hanson and Ginsburg (1988).

Items were created for as many of the risk factors as possible. The following risk factors were measured with one or multiple items (see Figure 1 for item numbers organized by category):

(1) Individual Characteristics - age, gender, and grade.

(2) Family background - race, SES, guardianship, number of moves, level of trauma in family life, and parent's average education.

(3) Family values - parental level of concern, and parental educational expectations.

(4) Student and Peer Values - peers' educational values, students religious values, two aspects of the students' work ethic (internal locus of control and degree of importance attached to work), and students' educational expectations.

Figure 1

Risk Factor Survey ItemsIndividual Characteristics

AGE

GENDER #1.

GRADE #2.

Family background:

RACE #3.

SES #4. community

#5. perception of disposable income

GUARDIANSHIP #6

NUMBER OF MOVES #8. family

#24. number of elementary schools

#25. number of junior high schools

FAMILY STABILITY #7. counselling

#19. getting along with mother

#20. getting along with father

#21. getting along with siblings

#9. home atmosphere

PARENT'S AVERAGE EDUCATION #10 father's education

#11 mother's education

Family Values

EDUCATIONAL EXPECTATIONS #16

LEVEL OF CONCERN #17. knowledge of whereabouts

#18. communication with parents

#13. mother's involvement in school

#14. father's involvement in school

#15. source of encouragement

Student and Peer Values

PEER VALUES #33. peer goals

#34. peer dropouts

#35. peer attendance

#12. siblings dropout history

RELIGIOUS VALUES #36. attendance

#37. attitude

Figure 1 (cont.)

Risk factor Survey Items

WORK ETHIC - LOCUS OF CONTROL

- #38. control of life
- #39. plans work
- #40. luck vs work
- #41. locus of control
- #42. control - plans

WORK ETHIC - WORK IMPORTANCE

- #43. type of job
- #44. work at school
- #45. homework
- #46. television
- #47. video games
- #48. paid work

EDUCATIONAL EXPECTATIONS

- #49. level of completion
- #50. attitude towards good students
- #51. attitude towards school
- #52. thoughts of dropping out

School Achievement and Behaviour Outcomes

ACHIEVEMENT #22

GRADES REPEATED #23.

ATTENDANCE #26. attendance

- #27. suspensions #
- #28. dropout time

BEHAVIOUR PROBLEMS #29. level of classroom disruption

- #30. getting along with teachers
- #31. getting along with classmates
- #32. getting along with friends

Pilot Testing

The RFS was piloted with a class of 11 learning disabled students, in order to improve face validity. Some questions were reworded, omitted or added. This process was important, because many problems were not obvious until several students pointed out the same concern. The problems that surfaced included: wordy, confusing, or ambiguous questions; missing categories in the alternatives; categories that were not mutually exclusive; complex reading levels. Finally, the survey was read by two teachers and further changes to wording, sentence structure, and alternatives were made.

Description of Final Version

The final survey consists of 52 items (see Appendix A). Imprecise, but rank-orderable, quantifying words frequently were used to define the categories (e.g. often, sometimes, rarely, never). There were also dichotomous choices for some items. All measures were on a nominal or ordinal scale. Items were answered on a separate answer sheet. The two questions used to measure SES did not produce valid results (a sample of answers to those questions did not correlate with the teacher's knowledge of the student's SES). This variable was not used in the analysis.

Scoring

The answer sheets were computer scored. Before they were processed, however, each sheet was checked for invalid

responses. This was done by eliminating double and crossed out responses. Finally, any surveys that were obviously invalid, from the pattern of answers chosen (one student made the answers form a diamond pattern) were removed from the sample. It was determined after consulting with the vice-principal that the invalid surveys were often students at-risk, usually a poor reader. The remaining sample consisted of 333 subjects: 56 designated at-risk and 277 not designated at-risk.

The responses to ordinal questions were converted to a 2, 3 or 4 point scale. A score of 1 indicated a positive school achievement related value or characteristic. Higher scores signified a greater presence of risk.

Ulin Values Survey

In order to examine the values issue in more depth, a values measure was used. The Ulin Values Survey was selected to measure the educational value orientation of the subject. This measure was selected for two reasons: (a) the reading level is appropriate to the average junior high student and (b) it was designed to measure values that may influence achievement. This survey takes into account the hierarchal nature of choices of behaviour concerning achievement values. Individuals differ in the proportions of emphasis they assign to each of their several values. The person who puts a low premium on certain things must

correspondingly put a high premium on others. When an individual chooses a course of action, he/she necessarily, consciously or unconsciously, rejects other values. The relative strength of the individual's values is determined from how he/she responds to conflict situations.

Ulin (1975) created his values survey with this rationale in mind. The values he selected were a choice for or against the following:

1. Peer Group - Importance of friends; sense of loyalty and responsibility to one's friends (same sex); feeling of peer group solidarity; desire to have and hold friends; need to belong to and a reliance on a group of intimates.

2. Family Allegiance - Importance of family; sense of family solidarity; feeling of familial responsibility and obligation; importance of family cohesion and mutual support.

3. Athletics - Importance of athletics; prestige to be gained through physical prowess and athletic performance; need for actual or vicarious achievement in sport.

4. Dating - Importance of cross-sex relationships; concern with establishing and solidifying ties with the opposite sex; need for prestige with and obligations to the opposite sex.

5. Financial Security - Importance of financial security ; degree of economic anxiety; fear of deprivation; desire for job stability; need for monetary guarantees.

6. Urge for Upward Mobility - Importance of advancement, of upward movement in the social and economic areas; sense of need and obligation to exploit one's socio-economic potential; desire for self-fulfilment in the occupational sphere.

7. Respect for Academic Achievement - Importance of academic accomplishment, of scholastic competence; respect for intellectual attainment; consequence of formal education.

He found that the students who got better grades tend to put a higher premium on academic achievement, have a stronger urge to move up the socio-economic ladder, are less concerned with the opposite sex, and are less responsive to family ties than those who rate below them academically. He found a demonstrable and statistically significant relationship between the quality of students' scholastic performance and particular facets of their value choices.

The Ulin Value Survey was chosen for this research to further explore the role of values in the model presented by Hanson and Ginsburg (1988). The survey was reproduced with permission (see Appendix B).

Description

This survey takes about 10 minutes to administer. There are 21 "either-or" situations in which the subjects might actually be involved. Each situation poses a choice between two of seven values. Each value is matched against every

other value. The strength of an individual's preference to a given value is measured by the total number of times the value was chosen in the six situations in which it was involved. The pattern of choices reveals a hierarchy of values for the individual.

Scoring

Maximum potential adherence to a value is indicated by a score of six; minimum potential by a score of 0. This score is then divided by 6 to obtain a maximum score of one for each value orientation.

Reliability and Validity

The survey was modified to improve face validity. This was necessary for two reasons: (a) The survey was created for males only and the sample would be mixed, male and female. (b) The survey was created for American young people and some situations were not appropriate for Canadians. Changes were made to reflect more accurately situations subjects in this sample might encounter. Names in the situations were changed to allow an equal representation of males and females. Those situations in which females were involved were adapted to be more realistic. Some situational changes were made to reflect the Canadian lifestyle (e.g. Professional football was replaced by professional hockey, and being drafted into the army was replaced by needing to leave home to find a job) (see Appendix C for copy of adapted survey).

Ulin (1975) demonstrated validity related to the criterion of achievement. Results showed significant correlations between grades and the values of "academic achievement" ($r=.21$) and "urge for upward mobility" ($r=.14$). All other values showed a negative non-significant relationship to grades. Although these correlations are significant, they are not good. In spite of these results, the survey was used because it was the only instrument available that could measure values for this sample (i.e. appropriate reading level).

Because the scales had no available reliability measures, an internal consistency measure will be calculated for each of the scales. Cronbach alpha was used for this measure. Alpha is the lower bound of the proportion of variance in the test scores explained by common factors (Crocker & Algina, 1986, p.143). If the scale measures one value, there should be common underlying factors.

Procedure

Method of Data Collection

The vice-principal of the school obtained permission from three social studies teachers, one from each junior high grade, to administer the surveys (Risk Factors Survey and the Ulin Values Survey) in social studies class in one

school day.

The purpose and intent of the study was explained to each class of students with instructions to leave items blank if the subject was uncomfortable answering the question (see Appendix D for instructions read to all students). Each subject received the following:

1. A Risk Factors Survey
2. A modified Ulin Values Survey
3. A computer scoreable answer sheet
4. An HB pencil

After completion of the surveys, the items were collected. Completion of the surveys took about 45 min. The data was entered into data files after sheets were scanned by an optical scanner.

Design and Data Analysis

Overall Design

This exploratory study was correlational in nature. One sampling only was done. The study's target group consisted of all students from the sample designated at-risk of dropping out. The comparison group consisted of the remaining students in the sample, not designated at-risk.

Cases were omitted from the analysis that were deemed invalid. The final designated at-risk group consisted of 56 subjects. The not-designated at-risk group consisted of 277

subjects.

Preparation of Data

In this study, missing data is due primarily to item nonresponse rather than to sample nonresponse (sample response rates were about 98%). Three techniques are available for dealing with item nonresponse: listwise deletion, pairwise deletion, and imputation. It was concluded that a pairwise form of imputation to estimate missing values offers the fewest disadvantages for most analysis (Wise & McLaughlin, 1980). Imputation was used for two variables concerning parent's average education. This item had 45% item non-response (one of the choices was "I don't know"), and imputation prevented the loss of almost half the cases in the analysis.

When selecting statistical approaches for use with nonexperimental data, it is necessary to consider the underlying assumptions of the analysis. There is an ongoing debate about whether ordinal measurements of psychological tests are in fact, ordinal or interval. The argument has been proposed that parametric statistical methods are robust enough to consider ordinal and interval as one class of variable (Ferguson & Takane, 1989). Further, researchers in the field of dropouts and achievement have employed parametric statistics on ordinal data (e.g. Hanson & Ginsburg, 1988; Keith, 1988).

Another important issue with survey data is reliability

and validity of variables measured by items. The questionnaire/survey method of data collection has been widely used in dropout and at-risk studies (Ekstrom et al., 1988, Hanson & Ginsburg, 1988; Keith et al., 1986). The literature reviewed has made little use of instruments with reliability and validity data. This is especially true for values related variables. Most studies rely on questions created by the researcher to define the variable. If there are several available items that may measure a variable, one method of dealing with this problem, is to factor analyze the items, and use the factor scores as a more reliable, more valid measure of the construct (Keith, 1988). This method was used by Page & Keith (1981) to develop the ability variable, and by Hanson & Ginsburg (1988) for variables of control over destiny, religiosity, work importance, student educational expectations, peer educational expectations, parental educational expectations, and parental concern values. This procedure has been commonly used in predictive studies to narrow the number of variables to be considered, to establish a final best prediction model (Morris et al., 1991). Such variables are termed unmeasured or latent variables because they are inferred from the measured variables. With an appropriate rotation, a factor analytic process minimizes the correlation between factors.

Factor analysis will be used in this study to improve

the reliability and validity and decrease the amount of correlation between variables within a category. This method was used to provide composite variables in all categories. The factor technique used was principal components analysis with varimax rotation. Factor loadings of .3 or higher were considered significant, and factors with eigenvalues greater than one were examined. Items with a loading of less than .3 were eliminated (the same criteria used by Hanson & Ginsburg, 1988). Each measured variable was examined for ambiguity (i.e. poor measurement of the intended factor) based on low communality, splitting of factor loadings and item wording. Factors generated by this technique were used in this study as single variables. This created a new set of latent variables, smaller in number. The factor scores generated by the SPSS (1983) software were used in further analysis. The nature of the research question governed the type of analysis that was further required.

Analysis for Validation of Teacher Designation Questions

MANOVA. The first analysis for discernable differences between the two groups (designated at-risk and not designated at-risk) is a MANOVA. A MANOVA for the variables measured by the Risk Factor Survey was performed and the univariate results interpreted. A MANOVA could not be performed on the scales of the Ulin Values Survey. This was due to scale scores being calculated by linear combinations

of previous variables. In this case results of univariate analysis will be presented and interpreted. All interpretation of univariate results will make use of the Bonferoni adjusted alpha (SAS/STAT User's Guide). This will decrease the likelihood of Type I error in interpreting the results.

Discriminant Analysis. In order to determine whether risk factors, as measured by the Risk Factor Survey, can be used to predict group membership (as designated by teachers), a discriminant analysis was used. A discriminant analysis evaluates whether variables can, in combination, construct a linear function that can differentiate between two groups. The procedure can be summarized by the following formula: $D_i = b_1(Z_1) + b_2(Z_2) + b_3(Z_3) \dots$. In this formula D_i represents the score on the discriminant function, the b series are weighting coefficients (similar to beta weights in multiple regression), and the Z series are the standardized values of the variables. In a successful discriminant function, the discriminant scores are similar across members of the same group but yield respective group centroids that are sufficiently different. Similarly, individual scores on the discriminant function are sufficiently different to allow the equation to accurately distinguish, using the individual's discriminant scores, between the members of different groups. In other words, individual cases are assigned to the group that their

discriminant score most closely approximates, and it is hoped that this classification is accurate.

The present study employs the "backwards elimination technique", which simultaneously enters all of the variables, and removes them one by one until the best solution is reached. This method begins with all predictors and ascertains progressively what degree of prediction is lost when additional variables are dropped. This method has been shown to work better than other techniques (Ferguson & Takane, 1989).

In order to determine additional predictor variables to define the risk group, the discriminant function results will be examined. The additional predictors will be those that emerge from the function that were not used in the checklist.

Path Model Questions

Path Analysis. The analysis for the remaining questions involves the use of multiple regressions within a path model. This procedure is called path analysis (a.k.a. causal analysis, structural modelling or path modelling).

Recent researchers in school achievement research (e.g. Hanson & Ginsburg, 1988; Keith, 1988; Keith & Page, 1984) have used the technique to test causal models. It is a structured theory-driven approach to multiple regression analysis and provides the ideal tool for obtaining evidence to support models that have multiple endogenous and

exogenous variables, with causal inferencing.

While it is important to note that, although correlation does not imply causality, one can use correlation data to provide evidence of causation. It is accomplished by combining correlational data with explicit theory (Keith, 1988). A strong formal theory is not required; an informal theory will suffice (Asher, 1983).

When variables are intercorrelated, the correlation coefficient is interpreted as a summary measure of all the factors leading to an association between two variables: direct effect, indirect effect, spurious association due to joint dependence on prior variables, and association due to the correlation between predetermined variables (Finney, 1972). Direct and indirect effects can be seen as inferring causality.

In path analysis, arrows or paths are drawn between variables from presumed causes to presumed effects. The arrows do not imply that one variable directly causes another, but rather that if the two are causally related, the cause is in the direction of the arrow rather than the reverse (the arrows thus represent weak causal ordering). Two criteria are used to make decisions about the direction of the paths. The most important is that of prior time precedence; (causality does not happen backwards in time). The second is research logic found in formal and informal theories. The path model is a visual representation of the

researcher's theory of cause and effect. It is important to stress that it is not a method of discovering causes, but is instead a method to test a proposed causal model. There is little in a path analysis that indicates that the model is right or wrong, only whether the model fits the data.

The key to path analysis is in the solution of the path coefficient. Direct effects are obtained using the fundamental theorem of path analysis, which states that the correlation between two variables is $r_{jk} = \sum_i p_{ji} r_{ik}$, where r_{jk} is the correlation between variables j and k , p_{ji} is the direct effect of variable i on variable j , and r_{ik} is the correlation between variables i and k . The subscript i is an indexing notation referring to each variable directly causing j .

Multiple equations can be created from a set of variables. By using equation substitution the various p 's can be solved for. In practice, the paths can be obtained from the beta weights or standardized partial regression coefficients, from multiple regression analysis (Kenny, 1979). The path coefficients represent the change in SD units for the presumed effect for each SD change in the presumed cause.

A presumed cause variable can have an indirect effect on the presumed effect by influencing another presumed cause. The indirect effect can be determined by multiplying paths (Keith, 1988). The total effect is equal to the sum

of the direct and indirect effects.

Standardized column-wise multiple regression equation procedures are used to estimate path coefficients. At each step, each of the variables in one category (in this case, family background, family values, student and peer values, student behaviour outcomes, and at-risk designation) will be regressed on the set of all variables in the category to the left. This procedure will yield standardized path coefficients, reflecting the relative predictive power of each variable in comparison to all other variables (i.e. direct effects).

The work of Hanson and Ginsburg (1988) previously outlined in this thesis, gives theoretical support for a path model which includes values. To review, the path model that they proposed goes from family background to family values to student and peer values to behaviour outcomes to dropout status. In this study, the answer to the research questions, will reveal whether the data from this sample, support the model proposed by Hanson and Ginsburg (1988). The model has been adapted in three ways. (a) SES and mother's work status have not been included as a background variables. (b) Some of the behaviour outcomes (time watching TV, work status, and amount of reading) have not been included and others have been included (relating to peers, classroom behaviour, and suspensions and dropout time). (c) The outcome variable was risk of dropping out and

not actual dropping out.

Since the outcome variable of being at-risk is not an interval-level variable, it presents a potential problem in a regression context. A discriminant function will be created at this step.

Since this is an exploratory study, and not all variables from the original model have been included; only significant direct influences will be discussed. Indirect and total effects will not be calculated.

CHAPTER 4

RESULTS

This chapter presents the results of the issues examined in this exploratory study. The results of the factor analysis, reliability of the Ulin scales, and group differences by sex and grade will be presented before answering the research questions.

Results of Factor Analysis

After performing a separate factor analysis for each category of variables (i.e. family background, family values, student and peer values, student behaviour outcomes), the following questions were eliminated: 15, 51, 43, 48, 12, had split loadings on unrelated factors and were found to have ambiguous wording; and 7, 14, 40, 41, 35, 50, 44 had low communality and did not load well on any latent

factor. The remaining items were factor analyzed again by category and variables were created based on the latent factors that were generated. Means, standard deviations, communality, eigenvalues and proportion of variance explained by factor for relevant variables are shown in Tables 2, 3, 4, and 5 (see Appendix E for correlation matrixes and rotated factor matrixes).

The latent variables that emerged in each category were: (1) Family Background - Family Stability, Conflict in Family Life, and Parent's Average education.

(2) Family Values - Educational Expectations, and Parental Concern.

(3) Student and Peer values -Religious Values, Control Over Destiny, and Student and Peer Educational Expectations.

(4) Student Behaviour Outcomes -Classroom Behaviour, Suspension\Dropout Time, and Relating to Peers.

The latent variables in the first three categories are consistent with Hanson and Ginsburg's (1988) results. The only difference was that Student and Peer Educational Expectations were found in their study to be two separate factors, whereas in this study they were one. The items in the student behaviour outcomes category were not the same as those measured by Hanson and Ginsburg (1988).

In addition to the latent variables, three behaviour outcome variables were retained as measured variables. They did not load well on any of the factors, but were considered

important risk variables. They were: amount of homework completed in one week (11+hr = 1; 6-10 hr = 2; 3-5 hr = 3; 0-2 hr = 4); daily attendance (almost every day = 1; miss every 1 or 2 week=2; more than once a week or miss sporadically = 3); and grades repeated (none=1; at least one=2).

A total of 14 variables (11 latent and 3 measured) remained and were used in further analysis.

Table 2

Descriptive and Factor Information for Family Background Variables

Latent and Measured Variables	Mean	SD	Communality	Eigen/% variance in factor
FAMILY STABILITY				1.73/.19
#6 parenting status (traditional=1; other=2)	1.30	.33	.43	
#8. family moves (0=1;1=2; 2=3; more than 2=4)	1.70	.45	.67	
#24. number of elementary schools (1=1; 2=2; 3=3; more than 3=4)	2.01	1.0	.33	
#25. number of junior high schools (1=1; 2=2; 3=3; more than 3=4)	1.17	.47	.54	
CONFLICT IN FAMILY LIFE				2.12/.24
#19. getting along with mother (calm=1; minor disturbances=2; major disturbances=3; often disturbing=4)	1.59	.69	.61	
#20. getting along with father (calm=1; minor disturbances=2; major disturbances=3; often disturbing=4)	1.58	.71	.53	
#9. home atmosphere (calm=1; minor disturbances=2; major disturbances=3; often disturbing=4)	1.85	.73	.68	
PARENT'S AVERAGE EDUCATION				1.2/.14
#10 father's education (university=1; vocational=2; high school=3; elementary=4)	2.20	.96	.61	
#11 mother's education (university=1; vocational=2; high school=3; elementary=4)	2.12	.96	.59	

Table 3
Descriptive and Factor Information for Family Educational Values
Variables

Latent and Measured Variables	Mean	SD	Commun ality	Eigen/% variance in Factor
EDUCATIONAL EXPECTATIONS				1.0/.24
#16 expectations (university=1; high school or vocational=2; jr.high=3)	1.33	.50	.94	
PARENTAL CONCERN				1.6/.40
#17. parent knowledge of whereabouts (know=1; do not know=2)	1.16	.37	.49	
#18. communication with parents (often=1; sometimes=2; rarely=3; never=4)	2.63	.99	.49	
#13. mother's involvement in school (yes=1; no involvement=2)	1.21	.41	.48	

Table 4
Descriptive and Factor Information for Student and Peer Values
Variables

Latent and Measured Variables	Mean	SD	Commun ality	Eigen/% variance Factor
RELIGIOUS VALUES				1.2/.12
#36. attendance (more than once wk=1; once a wk=2; few times per year=3; never=4)	3.49	.85	.57	
#37. attitude (religious=1; not religious=2)	1.77	.42	.69	
CONTROL OVER DESTINY				1.6/.16
#38. Control of Life (control=1; no control=2)	1.20	.40	.38	
#39. Plans work (plans work=1; plans do not work=2)	1.14	.35	.75	
#42. Control over plans (plans turn out=1; plans do not out=2)	1.21	.40	.72	
STUDENT AND PEER EDUCATIONAL EXPECTATIONS				2.5/.25
#44. work at school (work hard at school=1; not work hard at school=2)	1.38	.48	.31	
#49. level of completion (university=1; high school or vocat=2; jr.high=3)	1.38	.54	.60	
#52. thoughts of dropping out (no =1; yes=2)	1.45	.50	.55	
#33. peers plan to finish high school (yes=1; no=2)	1.08	.27	.30	
#34. peer dropouts (0=1; 1=2; 2=3; more than 2=4)	1.59	1.1	.53	

Table 5
Descriptive and Factor Information for School Behaviour Outcome Variables

Latent and Measured Variables	Mean	SD	Communality	Eigen/% variance Factor
CLASSROOM BEHAVIOUR				1.9/.32
#29. level of classroom disruption (rarely=1; 1 or 2 per week=2; some classes always=3; every class=4)	1.57	.87	.54	
#30. getting along with teachers (all=1; one or two are difficult=2; one or two like=3; none=4)	1.78	.72	.40	
SUSPENSIONS/DROPOUT TIME				1.13/.19
#27. suspensions # (0=1; 1=2; 2=3; 3+=4)	1.41	.91	.48	
#28. dropout time (none=1; less than a week=2; month=3; months+=4)	1.10	.45	.63	
RELATING TO PEERS				1.0/.16
#31. getting along with classmates (most=1; 1 or 2 not=2; none=3)	1.11	.35	.48	
#32. getting along with friends (calm=1; minor disturbances=2; major disturbances=3; disturbing much of time=4)	1.39	.57	.53	

Reliability of Scales on Ulin Values Survey

Results for the reliability of the scales of the Ulin Values Survey are presented in Table 6. The calculated alphas for the scales were: Academic Achievement (.53), Athletics (.12), Peer group (.35), Dating (.52), Financial Security (.16), Urge for Upward Mobility (.09), and Family Allegiance (.36). The highest mean was for Academic Achievement, and the lowest was for Family Allegiance.

Table 6

Descriptive Statistics of Scales on Ulin Values Survey

Scale	mean	SD	alpha
Peer Group	.52	.24	.35
Family Allegiance	.32	.21	.36
Dating	.48	.24	.52
Athletics	.60	.20	.12
Financial Security	.47	.20	.16
Urge for Upward Mobility	.45	.19	.09
Academic Achievement	.64	.25	.53

Results of Analysis of Sex\Grade Differences

The variables of the Risk Factor Survey were examined using multivariate analysis of variance to explore for differences based on sex and grade. The presence of these relationships was evaluated with the F-test statistic. To control for Type I errors, each test was evaluated with an adjusted Bonferoni level of $p < .003$ ($.05/14$), making for an experiment-wise error rate of less than .05.

The MANOVA results showed significant differences between males and females. The results were: Hotelling = .25 with corresponding $F(14, 247) = 4.49$, $p < .0001$. Using the Bonferoni correction only two variables were significant: family stability, and number of grades repeated, with males having greater risk on both variables.

The MANOVA results showed significant differences between grades. The results were Hotelling = .42 with corresponding $F(2, 259) = 3.64$, $p < .0001$. Using the Bonferoni correction only one variable was significant: time on homework (with most time spent by grade nine's and least by grade eight's ($F(2, 259) = 15.84$, $p < .0001$)).

The differences between these groups, although significant, were not enough to not pool the groups for analysis in this exploratory study.

Validation of Teacher Designation

Teacher designation of risk in this study consider three points: (a) the differences between the two groups (designated at-risk and not designated at-risk) on all variables, (b) the ability of a discriminant function to predict group membership, and (c) generation of predictor variables for the population from which this sample is drawn. Results will now be presented to answer each question.

The differences between the two groups (designated at-risk and not designated at-risk) on all variables was determined by use of a MANOVA and univariate analysis. First a MANOVA was performed with the variables from the Risk Factor Survey. The results showed significant differences between the two groups. Hotelling = .34 with corresponding $F(2, 260) = 6.05$, $p < .0001$. Further, a univariate analysis of the 11 latent and 3 measured independent variables was performed. The results are presented in Table 7. For nine variables (Family Stability, Parent's Educational Expectations, Parental Concern, Student and Peer Educational Expectations, Classroom Behaviour, Suspensions /Dropout Time, Relating to Peers, Grades Repeated, Attendance) differences were statistically significant to least the .05 level. For five variables (Conflict in Family Life, Parent's Average Education, Religious Values, Control over

Destiny, and Time Spent on Homework), differences were not statistically significant.

Table 7

Univariate F-test Results for Two Designated Groups on Latent and Measured Variables of Risk Factor Survey

Variable	df	At-Risk		Not At-Risk		Fvalue
		mean	SD	mean	SD	
Family Stability	304	.32	1.16	-.04	.97	4.7*
Conflict in Family Life	304	.16	.90	-.08	.98	2.2
Parent's Average Education	304	-.04	1.02	-.01	1.01	.0
Parent's Educational Expectations	321	.39	1.16	-.09	.93	10.5*
Parental Concern	321	.63	1.08	-.12	.94	24.9***
Religious Values	291	.06	.74	.01	1.03	.1
Control over Destiny	291	-.10	.93	-.01	.99	.3
Student and Peer Educational Expectations	291	.91	1.33	-.15	.84	50.2***
Classroom Behaviour	327	.39	1.11	-.07	.97	9.2*
Suspensions/ Dropout Time	327	.76	1.59	-.14	.78	37.6***
Relating to Peers	327	.32	1.68	-.06	.82	6.1*
Homework	331	3.34	.87	3.11	.99	2.7
Attendance	331	1.50	.76	1.23	.81	4.7*
Grades Repeated	331	1.62	1.17	1.22	.75	9.7*

*p < .05 **p < .001 ***p < .0001

The seven independent variables from the Ulin Values Survey were analyzed individually to determine which variables, in isolation, were related to the criterion status of designated at-risk of dropping out and not designated at-risk. The presence of these relationships was evaluated with the F-test statistic. The resulting group means, standard deviations, and corresponding F-values are summarized in Table 8.

For two variables (Dating and Respect for Academic Achievement) differences were statistically significant. For the five remaining variables (Peer Group, Family Allegiance, Athletics, Financial Security, and Urge for Upward Mobility) differences between the two groups were determined not to be statistically significant.

Table 8

Univariate F-test Results for Two Designated Groups on Ulin
Values Survey

Variable	Not at-risk			At-Risk		F-value
	df	mean	SD	mean	SD	
Peer Group	289	.52	.24	.54	.21	.27
Family Allegiance	290	.33	.22	.27	.21	2.77
Athletics	294	.61	.21	.60	.16	.07
Dating	300	.45	.24	.63	.24	19.7***
Financial Security	297	.47	.20	.47	.18	.01
Urge for Upward Mobility	291	.45	.19	.50	.22	2.61
Academic Achievement	294	.66	.24	.48	.28	19.24***

*p < .05

**p < .001

***p<.0001

Results will now be presented concerning the ability of a discriminant function to predict group membership.

Discriminant analysis was employed to evaluate the relationship between the criterion of being designated at-risk of dropping out and not being designated at-risk and, the 14 independent variables of the Risk Factor Survey. This evaluation was based on whether the termination of linear discriminant function, composed of information from the 14 independent variables, could be employed to distinguish between the two groups. Within this function, the relative importance of each variable is signified by the size of its standardized weighting coefficient. This analysis was performed using 262 (78%) of the study sample, The 71 cases that were not utilized had missing information on one or more discriminating variables.

The discriminant function weighted the following significant variables from highest to lowest: suspensions\dropout time, parental concern, number of grades repeated, relating to peers, and student and peer educational expectations. The standardized coefficient values (see Table 9) offer a depiction of the individual variable contribution to the discriminant function. In evaluating the accuracy of the discriminant function, actual group membership was compared to predicted group membership (see Table 10). The function correctly classified a majority of the members of both groups. The hit rate for

the not at-risk group was 95%, and the at-risk group was 60%.

The function generated predictor variables that had not been included in the original checklist. These were: parental concern and student and peer educational expectations.

Table 9

Standardized Discriminant Function Coefficients

Variable	Standardized Value
Parental Concern	.34928***
Student and Peer Ed. Expectations	.24942***
Control Over Destiny	-.17720
Attendance	.28172**
Suspensions and Dropout Time	.46351***
Relating to Peers	.25586*
Number of Grades Repeated	.34201***

*p < .05 **p < .001 ***p < .0001

Table 10

Classification Results of Discriminant Function

Group	Accuracy		
	Hits	Misses	Hit Rate
Not At-Risk	269	14	95.1%
At-risk	30	20	60.0%

Note: Percent of both groups correctly classified: 86.8%

Causal Influences Of Variables in Path

Path analysis was used to examine proposed causal relations among family background, family values, student and peer values, behaviour outcomes, and on being at-risk of dropping out. Results of regression analysis of variables from each level in the path to variables in the next level are shown in Tables' 11 to 16.

This exploratory examination of these variables shows significant predictors. The significant results will now be presented for each step in the path.

The results for the predictive effects of family background variables on family values variables are presented in Table 11. The family background variables of family stability and conflict in family life predict parental concern, whereas the family background variable of

parent's average education predicts parental expectations.

The results for the predictive effects of family values variables on student and peer values variables are presented in Table 12. Both parental concern and parental educational expectations predict student and peer educational expectations, with parental concern also predicting control over destiny. Neither of the family values predicted student's religious values.

The values measured by the Ulin Values Survey were included in the path under Student and Peer Values. The results of regressions with family values as predictors are shown in Table 13. Parental Concern predicted Peer group, Family allegiance, Dating, and Respect for Academic Achievement. Parental Educational Expectations predicted Financial Security and Respect for Academic Achievement.

The results for the predictive effects of student and peer values variables on behaviour outcomes are presented in Table 14. Student and Peer Educational Expectations predicted all behaviour outcomes. Control Over Destiny predicted Classroom Behaviour and Relating to Peers. Religious Values predicted Classroom Behaviour. Few of the values measured by the Ulin Survey, however, predicted behaviour outcomes. Those with any significant results are presented in Table 15. The significant predictors are: Peer Group was a predictor of Suspensions/Dropout time, Family Allegiance and Respect for Academic Achievement were

predictors of Classroom Behaviour, and Respect for Academic Achievement was a predictor of Homework Time.

The results for the predictive effects of behaviour outcome variables on risk status are presented in Table 15. All behaviour outcomes predicted risk status.

Table 11

Regression Results Showing Effects of Family Background
Variables on Family Values Variables

Dependent Variables			
Parental Concern			
Independent Variables	B Value	SE B	T
Family Stability	.35	.05	6.8***
Conflict in Family Life	.17	.05	3.12*
Parent's Average Education	.05	.05	.95
Parental Ed.Expectations			
Family Stability	.01	.05	.26
Conflict in Family Life	.08	.05	1.44
Parent's Average Education	.22	.05	4.16***
*p < .05 **p < .001 ***p<.0001			

Table 12

Regression Results Showing Effects of Family Values
Variables on Latent Student and Peer Values Variables

Dependent Variables			
Religious Values			
Independent Variables	B Value	SE B	T
Parental Ed.Expectations	-.02	.06	-.39
Parental Concern	.07	.06	1.1
Control Over Destiny			
Parental Ed.Expectations	-.08	.06	-1.30
Parental Concern	.20	.06	3.50**
Student and Peer Educational Expectations			
Parental Ed.Expectations	.43	.05	8.63***
Parental concern	.39	.05	7.84***
*p < .05 **p < .001 ***p<.0001			

Table 13
Regression Results Showing Effects of Family Values on Ulin
Survey Value Variables

Dependent Variables			
Peer Group			
Independent Variables	B Value	SE B	T
Parental Ed.Expectations	.01	.01	.27
Parental Concern	.05	.01	3.64**
Family Allegiance			
Parental Ed.Expectations	.00	.01	.19
Parental Concern	-.03	.01	-2.00*
Athletics			
Parental Ed.Expectations	.00	.01	-.25
Parental concern	.00	.01	-.30
Dating			
Parental Ed.Expectations	.02	.01	1.75
Parental Concern	.09	.01	7.22***
Financial Security			
Parental Ed.Expectations	.03	.01	2.28*
Parental Concern	-.02	.01	-1.41
Urge for Upward Mobility			
Parental Ed.Expectations	-.00	.01	-.13
Parental concern	-.00	.01	-.40
Respect for Academic Achievement			
Parental Ed.Expectations	-.04	.01	-2.91*
Parental concern	-.10	.01	-7.15***

*p < .05 **p < .001 ***p<.0001

Table 14

Regression Results Showing Effects of Latent Student and
Peer Values Variables on Behaviour Outcomes

Dependent Variables			
Attendance			
Independent Variables	B Value	SE B	T
Religious Values	.02	.03	.60
Control Over Destiny	.00	.03	.07
Student and Peer Ed.Expectations	.15	.03	5.14***
Time on Homework			
Religious Values	.08	.05	1.58
Control Over Destiny	.01	.05	.22
Student and Peer Ed.Expectations	.26	.05	5.38***
Number of Grades Repeated			
Religious Values	- .02	.02	-.85
Control Over Destiny	- .00	.02	-.15
Student and Peer Ed.Expectations	.12	.02	5.24***

*p < .05 **p < .001

***p < .0001

Table 14 (cont)

Independent Variables	Dependent Variables		
	Classroom Behaviour		
	B Value	SE B	T
Religious Values	.15	.05	2.78*
Control Over Destiny	.13	.05	2.39*
Ed. Expectations	.32	.05	6.08***
Independent Variables	Suspensions and Dropout Time		
	B Value	SE B	T
Religious Values	-.00	.05	-.02
Control over Destiny	-.06	.05	-1.11
Ed.Expectations	-.01	.05	7.94***
Independent Variables	Relating to Peers		
	B Value	SE B	T
Religious Values	.02	.06	.41
Control Over Destiny	.20	.06	3.52***
Ed.Expectations	.06	.06	1.13
*p < .05 **p < .001 ***p<.0001			

Table 15
Regression Results Showing Effects of Ulin Survey Value
Variables on Behaviour Outcomes

Independent Variables	Dependent Variables		
	Suspensions\Dropout Time		
	B Value	SE B	T
Peer Group	.40	-.20	-2.12*
Family Allegiance	.37	-.09	-1.08
Athletics	.37	-.07	-.91
Financial Security	.37	-.06	-.86
Urge for Upward Mobility	.40	-.15	-1.87
Academic Achievement	.31	-.11	-1.36
	Classroom Behaviour		
Peer Group	.37	-.12	-1.28
Family Allegiance	.35	-.15	-2.02*
Athletics	.36	-.02	-.32
Financial Security	.36	-.10	-1.33
Urge for Upward Mobility	.38	-.12	-1.58
Academic Achievement	.30	-.32	-4.12**
	Homework Time		
Peer Group	.37	-.15	-1.55
Family Allegiance	.34	-.06	-.74
Athletics	.34	-.12	-1.54
Financial Security	.35	.01	.08
Urge for Upward Mobility	.37	-.14	-1.72
Academic Achievement	.29	-.18	-2.25*

*p < .05 **p < .001 ***p < .0001

Table 16

Discriminant Results Showing Effects of Latent and Measured
Behaviour Outcomes on Risk Status

Dependent Variables			
Risk Status			
Independent Variables	B Value	SE B	F
Classroom Behaviour	.30	.29	8.17*
Suspensions\Dropout Time	.68	.64	40.24***
Relating to Peers	.26	.31	6.10*
Attendance	.44	.41	17.29***
Time on Homework	.21	.20	4.89*
Number of Grades Repeated	.52	.38	23.48***

*p < .05 **p < .001 ***p < .0001

CHAPTER 5

DISCUSSION

Interpretation of Results

The results of this exploratory study of risk to dropping out with junior high students will now be discussed. Three questions are concerned with teacher designation of risk to dropping out, and four questions examine the impact of values of family, student and peers, on the dropout process within a path model. In the discussion to follow, the teacher validation issue will be discussed, followed by the path analysis results. First, the reliability results of the Ulin scales will be discussed.

Reliability of Scales of Ulin Values Survey

Results of the reliability of the scales of the Ulin Values Survey show alpha reliability scores poor ratings on most scales. Standardized tests should have reliabilities

of .8 or higher (Crocker & Algina, 1986). The most reliable scales of the Ulin Values Survey were "Academic Achievement" and "Dating", with internal consistencies of .5.

These results indicate that the Ulin Values survey may not be a good measure of student values. The significant results of this scale will therefore be interpreted with caution.

Validation of Teacher Selection

The first specific question asked what the discernable differences between the two groups (designated at-risk and not designated at-risk) on variables of Risk factor Survey and Ulin Values Survey were. The data were analyzed using multivariate and univariate analysis. The results showed that the two groups were significantly different. When the adjusted Bonferoni levels ($p < .003$) were applied to the univariate results, the following variables were significantly different for the two groups: family stability, parent's educational expectations, parental concern, student and peer educational expectations, classroom behaviour, suspensions/dropout time, grades repeated, and two Ulin values (dating, and respect for academic achievement).

These results support findings of previous research:

(1) The importance of family stability (as measured by number of schools and number of residence changes) supports

the work of Morris et al. (1991) and Yudin et al. (1973). Because this was a composite variable that also included family status, it is not possible to determine which aspect of family stability had the most influence.

(2) The importance of parental educational expectations in the drop out process was demonstrated by findings of Ekstrom et al, 1986; Hanson and Ginsburg (1988) and Loughrey and Harris (1990).

(3) The importance of parental concern is supported by the findings of Ekstrom et al.(1986); and Loughrey and Harris (1990).

(4) Student values have not been widely measured in the literature. However, the importance of student educational expectations in the drop out process was demonstrated by findings of Ekstrom et al. (1986); and Hanson and Ginsburg (1988).

(5) Disruptive classroom behaviour, relating to peers, suspensions, and attendance have been cited as being correlated to dropping out (i.e.Cairns, Cairns & Neckerman, 1989; Desneyers & Parker, 1988; Ekstrom et al., 1986; Gadwa & Griggs, 1985; Harris, 1980; Rumberger, 1983; Wehlage & Rutter, 1986).

(6) That dropouts repeat significantly more grades than graduating students is supported by the work of Hahn (1987), Morris et al. (1991), Mueller (1990), Romanink and Blazer (1990), and Yudin et al, (1973).

(7) Respect for academic achievement are not demonstrated in the literature. Few values measures of this type have been carried out with students of any age. Dating has been demonstrated by Keith et al. (1986) to an important dropout correlate.

In conclusion, teacher's seem to be selecting students at-risk who demonstrate more than directly observable characteristics of being at-risk. The results demonstrate a substantial relationship between the risk group and educational values. The at-risk group does not appear to have been selected on conflict in family, and parent's average education. Also student reported attendance and time spent on homework did not influence teacher's decisions.

The next specific question concerned whether or not the risk factors as measured by the Risk Factor Survey could be used to predict group membership as designated by teachers. The data were analyzed using a discriminant function. The discriminant function weighted the following variables from highest to lowest: suspensions \dropout time, parental concern, number of grades repeated, and student and peer educational expectations. The function correctly classified a majority of the members of both groups, accurately hitting 60% of the at-risk students and 95% of those not at-risk, for an overall rating of 86%. The best function found in the literature yielded classification accuracies of 73% to 88% for both the dropout and persister groups, respectively

(Morris et al., 1991). They found family structure, repeats, number of schools attended, achievement scores, and reading scores to be significant predictors for junior high school students who later dropped out. Family structure, repeats, and number of schools attended were found to be significant predictors (either singly or as part of a composite) in this study as well (achievement and reading scores had not been measured).

The third specific question answered in this study asked what additional predictor variables define the risk group. The results of the discriminant function were examined for variables that were not part of the original checklist. The variables determined by the function and not part of the checklist are: student educational expectations and parental concern.

In general, the results demonstrate a substantial relationship between the teacher designated group and a number of important risk factors. Also, the teacher designated group is strongly discriminated by obvious behaviours like suspension and dropout time, and number of grades repeated.

Causal Influences of Variables in Path

The latent and measured variables were grouped into categories according to the path model proposed by Hanson and Ginsburg (1988). Their analysis of the model supported

the importance of parental concern, parental educational expectations, student's religiosity, student's educational expectations, and peer educational expectations in the dropout process. All these variables with the exception of student's religiosity were found to be significant predictive variables in the results of this study, as well.

In addition, the questions posed in this study were more specific and revealed connections that were not evident from the Hanson and Ginsburg (1988) study. Discussion of these effects will now be presented.

The fourth specific question asked what family background variables demonstrate causal influences on family values variables. The results of the path analysis reveal that the family background variables of family stability and conflict in family life predict parental concern, whereas the family background variable of parent's average education predicts parental expectations. This result suggests that high parental educational values may not necessarily cause a parent behave in a concerned way. Family stability and lack of family conflict seem to predict these caring behaviours.

The fifth specific question asked what family values variables demonstrate causal influences on student and peer values variables. The results of the path analysis reveal that both family values variables (educational expectations and level of concern) predict student and peer educational expectations, with parental concern also predicting

student's control over destiny. Neither of the family values predicted student's religious values. Parental concern predicted the following Ulin Values measures: peer group, family allegiance, dating, and respect for academic achievement. Parental educational expectations predicted financial security and respect for academic achievement.

These results suggest that parental concern could be as important in the dropout process as parental educational expectations.

The sixth specific question asked what student and peer values variables demonstrate causal influences on behaviour outcomes. The results of the path analysis reveal that: student and peer educational expectations predict all behaviour outcomes, control over destiny predicted classroom behaviour and relating to peers, and religious values predicted classroom behaviour. Four values measured by the Ulin Survey that predicted behaviour outcomes: peer group was a predictor of suspensions/dropout time; family allegiance and respect for academic achievement were predictors of classroom behaviour; and respect for academic achievement was a predictor of homework time.

Each values variable will now be more specifically discussed:

(1) Student's control over destiny appears to influences relationship behaviours (i.e. classroom behaviour and relating to peers), but not suspension/dropout time,

homework, attendance, and grades repeated.

(2) Religious values seem little influenced by family values and other than a minor influence on classroom behaviour, does not influence behaviour outcomes.

(3) Student and peer educational expectations appears to be the most significant variable in the path to being at-risk of dropping out. It has causal influences from both parental expectations and parental concern and predicts many of the behaviour outcomes, although relating to peers.

(4) The Ulin Survey value results seem to indicate a connection between: (a) peer group allegiance and dropout\suspension time, (b) family allegiance and classroom behaviour, (c) respect for academic achievement and classroom behaviour and (d) respect for academic achievement and homework time.

The seventh specific question asked what behaviour outcome variables demonstrate causal influences on risk status. The results of the path analysis reveal that all behaviour outcomes (classroom behaviour, suspensions/dropout time, relating to peers, attendance, time on homework, and number of grades repeated) predicted risk status to some extent. Many behaviours that students choose seem to be moving them towards either staying in school or dropping out.

Limitations of the Study

Limitations will now be discussed in terms of design, sample, and instruments.

Limitations of Design

The design was cross-sectional (rather than longitudinal) and based on the analysis of natural variation (rather than experimental manipulations). This provides only a weak probe into causal representations. A more definitive answer would emerge from a study in which predictors were actually made early in the school career and tested against outcomes.

The use of path analysis to examine the impact of one set of variables on another reveals much about how one variable may influence another. An important issue in path analysis presented by Keith (1988) is that all important causes for each dependent measure must be included in the path. This is so that for the extent of the influence does not have any spurious components. Although, many of the variables suggested by Hanson and Ginsburg (1988) were used, some were left out or modified (e.g. television viewing, SES). These may have been important causal variables that would affect the level of predictability for a particular variable. For this reason only results are compared for significance, not for values of the path coefficients. It is also possible that Hanson and Ginsburg (1988) have left

out important causal variables from their path.

Another important issue concerns the method of determining classification accuracy. Determining the accuracy of classifying a sample gives a positively biased estimate of the accuracy of the model. Only by considering the cross-validated classification accuracy of a prediction model can the researcher be confident that accuracy estimates will be robust on application of the model to new samples.

Limitations of Sample

The sample was nonrandom; the subjects came from one school and therefore, representative of a particular neighbourhood.

Limitations of Instruments

The Risk Factor Survey measure has no reliability and validity data. The difficulty of using student perceptions on some variables, especially family background and family values, leads to questions concerning their validity, particularly. Further to the same point, the scales of the Ulin Value Survey did not have the internal consistency that is desirable for a measure of this kind.

In this study, it is important to note that it is the student perceptions that are being measured, not parent's perceptions of their values and background. This also

reduces the validity somewhat.

Because factor scores were used to designate a composite of variables, it is unclear as to what aspects of the composite (e.g. family stability, and student and peer educational expectations) are the most influential. This limits the specificity at which causal connections can be made.

In order to get a clearer understanding of influences that affect students to make a decision to dropout or stay in school, this study employed the at-risk designation by teachers as an outcome variable. Although this designation was partially validated by this study, it is inferior to having a group that has dropped out.

Recommendations for Further Research

The recommendations for further research arise out of the limitations and significant results. Recommendations will be grouped into two categories: (a) further studies of validation of teacher designation of risk; (b) further studies using values in a path model, and (c) further studies of values with junior high students.

Further Studies of Validation of Teacher Designation

The best way to validate teacher designation is to

design a longitudinal predictive criterion validity study that follows students to determine whether or not they do in fact dropout. This type of study is recommended for further work in this area.

Evaluation of classification functions needs to consider the negative impact of missing a potential dropout by classifying the child as a persister. This type of error is more serious than classifying a few extra persisters as dropouts. To develop a better checklist, a sample of students that did dropout, but had not been designated, could be compared to a sample of students that had been both designated and had dropped out. The variables that distinguish between the two groups would be important in identifying those that are missed in standard designation procedures.

It is apparent from this study that the two groups differed significantly at the junior high level. The more meaningful question, however, concerns the development of these differences as it relates to the functioning of the two groups. More study into the mechanisms (e.g. modelling, parenting techniques) and at earlier ages would clarify this process immensely. A specific question that could be investigated is: Are the two groups different from the beginning, or does the school experience influence the differentiation?

The generalizability to other situations of the

particular sets of variables selected for dropout prediction in this study and the resulting accuracies is unknown.

However, although these models were generated to be representative of a suburb of Calgary, there is no guarantee that they are applicable elsewhere. Morris et al.(1991) and others recommend local replications to obtain optimal models and estimates of their classification accuracy.

Further Studies Using Values in a Path Model

The path analysis technique provides a useful framework for model testing. The model proposed by Hanson and Ginsburg (1988) and partially validated by this study, could be applied to more junior high samples. More variables could be entered into the path to determine the influence of all possible causal variables. The path coefficients could be easily compared and the model refined, eliminating variables that are shown consistently to be low or non-significant predictors (e.g.religious values). The dropout studies could then be combined with achievement studies to form a comprehensive school outcome model.

Further, some measures for these variables need to be created that have reliability and validity supporting data. This would eliminate the need for factor analysis, which has the disadvantage of combining variables that should be considered separately. The information from the factor analysis in this study and others (e.g. Hanson & Ginsburg,

1988) could be used to create this instrument.

More study is indicated to sort out the dynamics of high expecting parents from concerned parents. It is possible, that in the short term, both traits in parents produce achieving children, but the differences in identity formation (e.g. control over destiny) may have other significant long term effects.

Further Studies of Values in Junior High Students

Educationally related values has been shown in this study and others to be an important influence in the dropout process. The study of this topic cannot be furthered without a good measurement instrument for the junior high level. The reading level must be appropriate, especially for low achievers (i.e. grade 4 reading level) and choices must be appropriate for the culture the student lives in. Choices that are not plausible will not be chosen, even if the value that it represents is one the student values highly.

Implications for Counsellors

Selection of At-Risk Students

Identifying students who are at-risk, through initial screening so that appropriate remediation strategies may be applied, was mentioned as important in a recent review of

the literature (Rumberger, 1987). Many young people with very adequate abilities fail to maximize their potentials. Adequate diagnostic techniques, which would permit the early identification of high risk children, used on a broad basis, might make it possible to reverse an established tendency toward failure. Classification accuracies for those designated at-risk were significantly greater than chance expectation. The results of this study indicate that a school counsellor would get useful information by exploring student educational expectations and parental concern. The valid designation of risk could improved further by this exploration.

The classification function is practical as well as useful. This is because it includes variables that are easily obtained from school records and teacher's knowledge of the student. It is indicated by the results of this study that this function could be used in screening procedures in schools. It should be emphasized that the probabilities generated by this function are seen as only a preliminary data-based screening tool. If a student receives a low probability of drop out using the function's relevant predictor variables, but, because of other reasons, is judged at-risk by school professionals, that student should be added to this initial pool for potential treatment. Likewise, it may be that it is clear from professional knowledge that a student, who is identified as at-risk,

clearly is not and should not be included. The purpose of the prediction model is merely to provide help to the educational professional in directing personal attention and decision-making resources to a more manageable number of students and to force a decision to be made for students who might otherwise be overlooked.

Encouraging At-Risk Students to Stay in School

The results of this exploratory study suggest that programs for early intervention and the development of positive attitudes toward academic values would be productive. School counsellors might specifically encourage students to raise their expectations of what they will achieve. Counsellors, who meet with parents of discouraged youngsters, might use the results of this study to encourage parents to show concern about their child's schooling and whereabouts.

Using Values to Help Student's At-Risk

School counsellors, and counsellors working with adolescents, could consider the importance of student values in a student's process toward behaviour choices in school and ultimately about whether or not they choose to stay in school.

The results indicate that important values to consider are: student and peer educational expectations and a

student's sense of control over his/her destiny. Altering the student's perceptions of these values could make the difference between dropping out and staying in school.

Conclusions

Recently, considerable concern has been voiced over the number of students still dropping out of our schools. A number of educators and scholars have suggested that students' attitudes and values may play a critical role in their decision to stay in school or leave. The findings of this study support these suggestions; when students, their parents, and their peers believe in values and accompanying behaviours that stress educational achievement and student's believe they have control over their future; students have a better chance of staying in school.

In this exploratory study, a sample of junior high students were surveyed to examine (a) the type of student the teacher designates as at-risk and whether or not they fit the profile for being at-risk, and (b) the importance of path variables, particularly values in the process towards dropping out.

It was concluded that the junior high student who teachers designate as at-risk, differs from those not designated in the amount of time they spend out of school due to suspensions or temporary dropping out; the amount of

parental concern and family stability; parental, student, and peer educational expectations; classroom behaviour; relating to peers; attendance; and number of grades repeated.

It was also concluded that certain variables seemed to emerge out of each step in the path as being particularly important in influencing what a student will decide to do about finishing school. Parental concern, parental educational expectations, and student educational expectations have emerged as significant values in the path towards dropping out. The decision for dropping out seems to be a complex one, determined in part by experiences beginning in the family, and the values and attitudes the individual student brings to school. It may be that energy expended on encouraging parental involvement and improving hope for future success would result in ultimate benefits for all.

The weak influence of family stability suggests a need to look at some of the ways that we describe disadvantaged students. As pointed out by Thompson (1985), "culturally disadvantaged" may need to refer to impoverished parental support and ambition concerning the education of children, shifting the emphasis away from impoverished material surroundings, and non-traditional family life-styles.

It is possible that the present study identifies significant influences for the prediction of children "at

risk" of not succeeding in school, as a step in the process of dropping out. More importantly, though, it identifies values already in place in the junior high student. The family responsibility to their child's education is the focus of more and more interest, with the economic and world situation we find ourselves in. As recommendations are made to schools and families, it would be productive to understand better which components of the family environment influence performance the most.

References

- Alberta Education (1988). Facts and Figures on Schooling
- Alexander, K.L., Cook, M.A. (1982). Curricula and coursework: a surprise ending to a familiar story, American Sociological Review, 47, 626-640.
- Asher, H.B. (1983). Causal modelling (2nd ed.). Beverly Hills, CA: Sage.
- Baggaley A.R., & Dole A.A. (1977). Life goals and academic interests as predictors of extracurricular activities of secondary sophomores. Contemporary Education, 2, 172-180.
- Barrington, B.L. & Hendricks, B. (1989). Differentiating characteristics of high school graduates, dropouts, and nongraduates. Journal of Educational Research, 82, 309-319.
- Cairns, R.B., Cairns, B.D., & Neckerman, H.J. (1989). Early school dropouts: configurations and determinants. Child Development, 60, 1437-1452.
- Cohen, J., & Cohen, P. (1983). Applied multiple regression/correlation analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Erlbaum.
- Coleman, J., Hoffer, T., Kilgore, S. (1982). High school achievement: Catholic, public and private schools compared. New York: Basic Books.
- Coleman, J.S. (1968). The mathematical study of change. In H.M. Blalock & A.B. Blalock (Eds.), Methodology in social research (pp 428-478) New York: McGraw-Hill.
- Conger, A.J.; Conger, J.C. & Riccobono, J.A. (1976). Reliability and validity of national longitudinal study measures: an empirical reliability analysis of selected data and a review of the literature on the validity and reliability of survey research questionnaires. Report prepared by Research Triangle Institute for the National Center for Education Statistics.
- Crocker, L., & Algina, J. (1986). Introduction to classical and modern test theory. Fort Worth: Holt, Rinehart and Winston, Inc.
- DeJung, J.E. (1988). Identification and school related attitudes and expectations of at-risk high school students . Final report OERI project No. 117EH 60006.

ED299350.

- Desnayers, J. & Pauker, J.D. (1988). School attendance and non-attendance in Canada and the United States: review of the 1975-1986 literature. Ontario Ministry of Education. (ERIC document Reproduction Service No. L11059 #4700).
- Ekstrom, R.B., Goertz, M.E., Pollack, J.M., & Rock, D.A. (1986). Who drops out of high school and why? finding from a national study. Teachers College Record, 87(3), 357-373.
- Ekstrom, R.B., Goertz, M.E., Rock, D.A. (1988). Education and American youth. Philadelphia: The Falmer Press
- Ferguson G. A. & Y. Takane (1989). Statistical analysis in psychology and education McGraw-Hill Book Company New York 6th edition.
- Fetters, W.B.; Stowe, P.S. & Owings J.A. (1987). Quality of responses of high school students to questionnaire items. High School and Beyond: a national longitudinal study for the 1980's. National Center for Educational Statistics.
- Finney, J.M. (1972). Indirect effects in path analysis. Sociological Method and Research, 1, 175-186. PA
- Gadwa, K., & Griggs, S.A. (1985). The school dropout: implications for counsellors. The School Counsellor, 9-17.
- Gastright J.F. (1989). Don't lose your dropout program on somebody else's problem. Phi Delta Kappa, 70, 3-4. (Research Bulletin, Center on Evaluation, Development and Research).
- Hahn, J. (1987). Reaching out to America's dropouts: What to do? Phi Delta Kappan December
- Hill, T. (1992). Living the solution. Report prepared for the Youth Works Foundation of Alberta.
- Hanson, S.L. & Ginsburg, A.L. (1988). Gaining ground: values and high school success. American Educational Research Journal, 25, 334-365.
- Harris, L.H. (1983). Role of trauma in the lives of high school dropouts. Social Work in Education, 77-88.

- Kagan, D. (1988). How do teachers define students at risk? The Clearing House, 61, 320-324.
- Keith, T.Z. (1985). Homework works at school: national evidence for policy changes. School Psychology Review, 14, 351-359.
- Keith, T.Z. (1988a). Path analysis: an introduction for school psychologists. School Psychology Review, 17(4), 343-362. PA
- Keith, T.Z. (1988b). Using path analysis to test the importance of manipulable influences on school learning. School Psychology Review, 17(4), 637-643.
- Keith, T.Z. & Page (1984). Homework works at school: national evidence for policy changes. School Psychology Review, 14(5), 351-359.
- Keith, T.Z., Reimers, T.M., Fehrmann, P.G., Pottebaum, S.M. & Aubey, L.W. (1986). Parental involvement, homework, and TV time: Direct and indirect effects on high school achievement. Journal of Educational Psychology, 78, 373-380.
- Kenny, D.A. (1979). Correlation and causality. New York: Wiley.
- Kortering, L.; Haring, N. & Klockers, A. (1992). The identification of high-school dropouts identified as learning disables: evaluating the utility of a discriminant analysis function. Exceptional Children, 58(5), 422-435.
- Loughrey, M.E., & Harris, M.B. (1990). A descriptive study of at-risk high school students. The High School Journal, 187-193.
- Marsh, H.W. (1990). Two-parent, stepparent, and single-parent families: changes in achievement, attitudes, and behaviours during the last two years of high school. Journal of Educational Psychology, 82(2), 327-340
- Miller, S.E., Leinhardt, G. & Zigmond, N. (1988). Influencing engagement through accommodation: an ethnographic study of at-risk students. American Educational Research Journal, 25, 465-487.
- Morris, J.D., Ehren, B.J. & Lenz, B.K. (1987). Predicting future high school dropouts for fourth through eighth graders. Paper presented at the Annual meeting of the American Educational Research Association, Washington,

DC.

- Morris, J.D., Ehren, B.J. & Lenz, B.K. (1991). Building a model to predict which fourth through eighth graders will drop out of high school. Journal of Experimental Education, 59(3), 286-293.
- Mueller, E.J. (1990). The assessment of risk factors in a student population. Paper presented at the annual meeting of the American Educational Research Association ED319832.
- Myers & Ellman (1983). Early exits from high school and post high school transitions Washington DC: Decisions Resources Corporation.
- National Center for Education Statistics (1984). Quality of responses of high school students to questionnaire items. Washington, DC: U.S.Government Printing Office.
- Natriello, G. McDill, E.L. (1986). Performance standards, student effort on homework, and academic achievement. Sociology of Education, 59, 18-31.
- Natriello G. (1984). Problems in the evaluations of students and student disengagement from twenty schools. Journal of Research and Development in Education, 17(4), 14-23.
- O'Sullivan, R.G. (1990). Validating a method to identify at-risk middle school students for participation in a dropout prevention program. Journal of Early Adolescence, 10, 209-220.
- Page, E.B., & Keith, T.Z. (1981). Effects of US private schools: a technical analysis of two recent claims. Educational Researcher, 10(7), 7-17.
- Peng S.S., Takai R.R., & Feters W.B. (1983). High school dropouts: preliminary results from High school and Beyond Survey. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.
- Peng, S. (1983). High school dropouts: descriptive information from high school and beyond. Washington, DC: National Centre for Educational Studies.
- Radwanski, George (1987). Ontario Study of the Relevance of Education and the Issue of Dropouts. Toronto: Ministry of Education.
- Rock D.A. (1985). The impact on achievement gains of

dropping out of school. Paper presented at the Annual meeting of the American Educational Research Association, Chicago.

Rock, D.A., Goertz, M.E., Ekstrom, R.B., Pollack, J., Hilton, T.L. (1984). Factors associated with test score decline. Princeton, NJ: Educational Testing Service.

Romanik, D. G. & Blazer, C.A. (1990). Reasons for dropping out of school and assessment of risk factors: a comparison of dropouts, at-risk and regular students. Dade county Public Schools, Miami FL. Office of Educational Accountability ED337512

Rumberger, R.W. (1983). Dropping out of high school: the influence of race, sex and family background. American Educational Research Journal, 20, 199-220.

Sewell, W.H., Hauser, R.H. (1972). Causes and consequences of higher education: models of the status attainment process. American Journal of Agricultural Economics, 54, 851-861.

Sewell, T., Palmo, A.J., & Manni, J.L. (1981). High school dropout: psychological, academic, and vocational factors. Urban Education, 16, 65-76.

Spss, Inc. (1983). Spss-X user's guide. New York: McGraw Hill.

Student Retention Study Report (1989). Calgary Board of Education

The Dropout Prevention and Recovery Plan, Los Angeles Unified School District Dropout Prevention/Recovery Office. Undated

Thompson, W.W. (1985). Environmental effects on educational performance. Alberta Journal of Educational Research, 31, 11-25.

Ulin, R.O. (1975). The Italo-American student in the American public school: a description and analysis of differential behaviour. Arno Press Inc.

Walberg, H.G. (1984). Improving the productivity of America's schools. Educational Leadership, 41(8), 19-30.

Walters, H. & Kranzler, G. (1970). Early identification of the school dropout. The School Counsellor, 18(2), 97-

104.

- Wehlage, C.G., & Rutter, R.A. (1986). Dropping out: How much do schools contribute to the problem? Teachers College Record, 87, 342-392.
- Weiner, B. (1973). From each according to his abilities: the role of effort in a moral society. Human Development, 16, 53-60.
- Wells, Bechard & Hamby (1989). How to identify at-risk students: a series of solutions and strategies Clemson, SC: National Dropout Prevention Center, Clemson University.
- West, L.A. (1991). Effective strategies for dropout prevention of at-risk youth. Maryland: Aspen Publishers.
- Wise, L.L. & Mclaughlin, D.H. (1980). Guidebook for imputation of missing data (Tech. Rep. No.17). Palo Alto, CA: American Institutes for Research.
- Yudin, L.W., Ring, S.I., Nowakiwska, M., Heinemann, S.H. (1973). School dropout or college bound: study in contrast. Journal of Educational Research, 67, 87-93.

Appendix A
Risk Factor Survey

Student Background and Attitude Questionnaire

Answer on computer score sheet. Please do not write on these sheets.

1. Sex:
 - a) female
 - b) male
2. Grade you are currently in:
 - a) seven
 - b) eight
 - c) nine
3. How would describe your family's culture?
 - a) Asian
 - b) South American
 - c) North American Indian
 - d) European
 - e) Canadian or American
4. What community do you live in?
 - a) Ogden - Lynnwood
 - b) Riverbend
 - c) another part of the city of Calgary
 - d) outside of the city of Calgary
5. Which statement best describes your family circumstances.
 - a) We struggle to have enough money to pay the bills.
 - b) We don't have money for extras, but we live comfortably.
 - c) We have money for extras, like vacations and outings.
 - d) I'd prefer not to answer this question.
6. Which adults live in your home with you, and are responsible for your care? Pick the best answer.
 - a) mother and father in the same house
 - b) father and mother in different homes (joint custody)
 - c) mother or father only
 - d) relative(s)
 - e) non-relative(s) (friends, social workers, etc.)
7. Have you been involved in any type of personal counselling or support for dealing with personal problems?
 - a) no
 - b) yes, with a probation officer
 - c) yes, with A.A.D.A.C.
 - d) yes, with social services
 - e) yes, with counsellor(s) other than those mentioned in b)
 - c) d)
8. How many times have you moved in the last 3 years?
 - a) 0
 - b) 1
 - c) 2
 - d) more than 2
9. Which of the following situations best describes your family life.

- a) calm
 - b) calm with minor disturbances (arguments, grief)
 - c) calm with major disturbances (fighting, yelling)
 - d) very disturbing and hurtful much of the time
10. Highest level of education of father:
- a) elementary school
 - b) high school
 - c) vocational training (trade, extra training, SAIT)
 - d) college or university
 - e) don't know
11. Highest level of education of mother:
- a) elementary school
 - b) high school
 - c) vocational training (trade, extra training, SAIT)
 - d) college or university
 - e) don't know
12. How many siblings (brothers or sisters) have left school before completing high school?
- a) none
 - b) 1
 - c) 2 or more
13. My mother knows how well I am doing in school.
- a) true
 - b) false
 - c) not sure
14. My father knows how well I am doing in school.
- a) true
 - b) false
 - c) not sure
15. Who encourages you most to get more education?
- a) parents (one or both)
 - b) television
 - c) relative or friend
 - d) teacher(s)
 - e) no one encourages me
16. The highest level of education that my parents expect me to achieve:
- a) finish jr. high
 - b) finish high school
 - c) vocational training
 - d) college or university
17. My parents (or guardians) usually know where I am.
- a) true
 - b) false
18. How often do you talk to your parents (guardians) about personal experiences?
- a) often
 - b) sometimes
 - c) rarely
 - d) never
19. How do you get along with your mother?
- a) calm (good communication)
 - b) calm with minor disturbances (arguments, grief)

- c) calm with major disturbances (fighting, yelling)
 - d) very disturbing and hurtful much of the time
20. How do you get along with your father?
- a) calm (good communication)
 - b) calm with minor disturbances (arguments, grief)
 - c) calm with major disturbances (fighting, yelling)
 - d) very disturbing and hurtful much of the time
21. How do you get along with your brother/ sisters?
- a) calm (good communication)
 - b) calm with minor disturbances (arguments, grief)
 - c) calm with major disturbances (fighting, yelling)
 - d) very disturbing and hurtful much of the time
 - e) I am an only child
22. How well would you say you are doing in school?
- a) excellent
 - b) good
 - c) getting by
 - d) may fail some subjects
 - e) may fail most subjects
23. How many grades have you repeated (do not count kindergarten)?
- a) none
 - b) 1
 - c) 2
24. How many schools have you attended in the elementary grades (1-6)?
- a) 1
 - b) 2
 - c) 3
 - d) more than 3
25. How many different schools have you attended in junior high so far?
- a) 1
 - b) 2
 - c) 3
 - d) more than 3
26. How regularly do you attend school?
- a) attend almost every day
 - b) miss about once every two weeks
 - c) miss about once a week
 - d) miss more than once a week
 - e) sometimes never miss and then miss a lot
27. As a consequence of your behaviour, how many times have you been asked to stay home from school in the past three years? (out of school suspensions or being kicked out)
- a) 0
 - b) 1
 - c) 2
 - d) more than 2
28. Have you ever dropped out of school?
- a) no
 - b) yes, for less than a week

- c) yes, for about a month
 - d) yes, for several months
 - e) yes, for a year or more
29. How often do you get "in trouble" in school?
- a) at least once per class per day
 - b) at least once per class in certain classes but not others
 - c) once or twice a week
 - d) rarely or never
30. How do you get along with your teachers?
- a) I get along well with all my teachers
 - b) I get along well with most of my teachers, but one or two are difficult.
 - c) I don't get along with most teachers, but one or two I like.
 - d) I don't get along with any teachers.
31. How do you get along with your classmates?
- a) I get along well with all my classmates
 - b) I get along well with most of my classmates, but one or two are difficult.
 - c) I don't get along with most of my classmates, but one or two I like.
 - d) I don't get along with my classmates.
32. How do you get along with your friends?
- a) calm (good communication)
 - b) calm with minor disturbances (arguments, grief)
 - c) calm with major disturbances (fighting, yelling)
 - d) very disturbing and hurtful much of the time
33. Does your closest friend in this school plan to finish high school?
- a) yes
 - b) no
34. How many of your friends are not attending school?
- a) 0
 - b) 1
 - c) 2
 - d) more than 2
35. Does your closest friend in this school attend class regularly?
- a) yes
 - b) no
36. How often do you attend church or church functions?
- a) more than once a week
 - b) about once a week
 - c) about once a month
 - d) several times a year
 - e) never
37. Do you think of yourself as a religious person?
- a) yes
 - b) no
38. I feel that I have control of my life.
- a) true

- b) false
- 39. When I make plans, I usually can make them work.
 - a) agree
 - b) disagree
- 40. Which is more important for success in life?
 - a) good luck
 - b) hard work
- 41. Every time I try to get ahead, something or somebody stops me.
 - a) agree
 - b) disagree
- 42. When I make plans, they usually:
 - a) don't turn out.
 - b) turn out
- 43. If you had a choice of jobs when you left school, which would be the most important factor in your decision.
 - a) a job you like doing
 - b) a job that pays well
 - c) a job that has opportunities to be promoted (and pay well later)
 - d) a job where you like the people
- 44. I like to work hard at school.
 - a) agree
 - b) disagree
- 45. How many hours of homework do you do per week on average?
 - a) 0-2
 - b) 3-5
 - c) 6-10
 - d) 11-15
 - e) more than 15
- 46. How many hours of television do you watch per week on average?
 - a) 0-2
 - b) 3-5
 - c) 6-10
 - d) 11-15
 - e) more than 15
- 47. How many hours of video games do you play per week on average?
 - a) 0-2
 - b) 3-5
 - c) 6-10
 - d) 11-15
 - e) more than 15
- 48. How many hours of paid work do you do per week on average? (not including chores at home)
 - a) 0-2
 - b) 3-5
 - c) 6-10
 - d) 11-15
 - e) more than 15
- 49. What level of education do you think you will finish before quitting school?

- a) junior high
 - b) high school
 - c) vocational training (trades, training, SAIT)
 - d) university or college
 - e) I won't finish junior high
50. What do you think about students who get good marks?
- a) you respect them
 - b) you think they are nerds
 - c) it depends on the person
51. What is your opinion of school?
- a) I really hate it
 - b) The only thing I like is being with my friends.
 - c) I like my friends, teachers and the school, but don't like the work
 - d) I like most things about school.
52. Choose the best statement that applies to you:
- a) I never think of leaving school
 - b) I think about leaving school, but probably won't do it.
 - c) I think about leaving school, and could see myself doing it.
- For the following questions choose which would be most important if you
- had to make a choice between the two.
90. a) being with your friends
b) being with your family
91. a) being with a favourite relative
b) going on dates
92. a) doing well in school
b) having a good time
93. a) doing well in sports
b) doing well in school
94. a) being financially secure
b) having a fun life
95. a) having a job that pays well
b) having a job working with people I enjoy

Appendix B
Letter of Consent



THE UNIVERSITY OF NORTH CAROLINA
AT
CHAPEL HILL

Office of International Programs

CB# 3130, Caldwell Hall
The University of North Carolina at Chapel Hill
Chapel Hill, N.C. 27599-3130

Telephone: (919) 962-3094
FAX: (919) 962-2262
Study Abroad Office
(919) 962-7001

Feb. 5, 1992

Dear Ms. Young,

Your letter has been some time in reaching me so
I shall answer promptly but briefly.

I do not know of other instruments like mine
nor do I know of other investigators who have used it,
though several here made inquiries about it.
I would suggest that you get my instrument from
ETS or get either a copy of my doctoral dissertation
done at the Harvard Graduate School of Education or
its publication as a book in 1975 by The New York
Times' Arno Press, titled *The Ibero-American Student
in The American Public School*.

Best of luck,

Richard O. Arlin

Professor, International Studies

Appendix C

Ulin Values Survey

Answer on answer sheet

Values situations questionnaire - For the following situations, give your honest opinion of what you would likely do in each case.

1. A farewell party has been planned for three of Tom's closest friends who are going into the army the next day. Tom would like to go, but if he does, he will disappoint his parents, who expect him to attend their anniversary party. Tom should:
 - a) go to his parents' party.
 - b) go to his friends' party.
2. Sarah is both a good student and an excellent folk singer. She is urged to go on tour, but if she chooses to do so, she will have to devote all her time to her music. This means she will have to give up school. She should:
 - a) go on tour.
 - b) stay in school.
3. Ted shows promise of becoming a star downhill ski racer. He loves the competition, and the crowd looks forward to seeing him in action. Ted's mother, however, worries about his getting hurt. He knows she would prefer he didn't race. What do you think Ted should do? Ted should:
 - a) continue to race.
 - b) stop racing.
4. Alison has two job opportunities which are alike in most ways. However, one is a steady position for life at a fair salary. The other, though it offers no security, gives her a chance to work her way to the top. Alison should:
 - a) take the steady job.
 - b) take the job which gives her a chance to get to the top.
5. Fred has a busy schedule. He is in school and works after school and weekends. He'd like to play on the community hockey team, but if he does, he won't have any time left for seeing girls, for dates and parties. Fred should:
 - a) give up hockey.
 - b) give up dates and parties.
6. Jennifer is in high school and has been offered work at average pay evenings and weekends at the Telephone Company. She likes the work, and if she takes it, she will be guaranteed a steady job when she graduates. What she doesn't like about it is that it will cut her out of almost

all dates and dances during the school year. Jennifer should:

- a) take the job.
- b) not take the job, so she can date.

7. Carl has worked his way up to the final round of the city tennis tournament. The final match is to be played Sunday morning. Saturday night, the boys are having a farewell party for two of Carl's closest friends, who are leaving the next day to work up north. Carl wants to go to the party, but he knows that if he goes, he may be tired for his match the next morning. Carl should:
 - a) go to the party.
 - b) not go to the party.
8. Hanna has to make a choice. Should she go the college and get a good education or take a good permanent position as soon as she graduates from high school? She should:
 - a) go to college.
 - b) take the good permanent position
9. Bill is fond of a girl. His parents don't like her and tell Bill they don't want him to date her. Bill should:
 - a) stop dating her.
 - b) continue to date her.
10. Dan may make radio work his career, and he has a chance Saturday nights to help out at a local radio shop. He will not be paid, but experience may help him get ahead faster when he gets out of school. Every Saturday night, however, there is a community dance, and it is the only time he can meet and be with girls. He should:
 - a) work at the radio shop.
 - b) attend the dance.
11. Darren graduates from college with an engineering degree. He has also made the All-America football team. He now has to choose between entering a good engineering firm or playing for the Chicago Bears professional football team. Darren should:
 - a) take the engineering job.
 - b) play professional football.
12. Suppose a group of girls has planned a picnic in the park. It will be a farewell party for a few of Andrea's friends who are going to Vancouver for summer work. She wants to go badly, but doesn't want to break a date with her boy friend, who will be disappointed if she backs out at the last minute. Andrea should:
 - a) go to the picnic.
 - b) keep her date.

13. For a year John has been going steady with a girl he likes. He finds that when he is seeing her, he can't keep his mind off her and his grades suffer. John should:
 - a) stop seeing her.
 - b) continue seeing her.
14. Chris's father has not been well and he has been looking forward for a long time to Chris's coming into the family business with him. Chris likes to work with his father, but he knows the business is a shaky one. Besides, he has the chance of a good, steady position with a well-established firm. He should:
 - a) take the good, steady position.
 - b) work in the family business.
15. Kevin is an excellent hockey player, and could play in the NHL some day. He wants to be a finish carpenter and has been offered an apprenticeship working after school and the prospect of a good job when he graduates. But he can't accept the offer unless he gives up his hockey. He should:
 - a) take the job after school and give up his hockey.
 - b) not take the job and continue to play hockey.
16. Jen has been offered two jobs. They pay the same and are equal in other respects. Job A is more permanent, but the people there are not friendly. All of Jen's friends work at Job B. She should:
 - a) choose the job at Job A (permanent).
 - b) choose the job at Job B (friends).
17. Dan, who has been an outstanding football player for two years, wonders whether he ought to play in this, his senior year. He knows that whenever he plays football his grades suffer. Dan should:
 - a) play football.
 - b) not play football.
18. Mark's father has worked hard all his life and built a small family business. He has looked forward to Mark's graduating, because he has not been well and he needs Mark's help in the business. But Mark has a chance to join a new, fast growing company and move right up. Mark should:
 - a) work with his father.
 - b) join the new company.
19. Christa really enjoys Milwood High School, and it is a good one. However, Greenhill High, a school on the other side of the city, specializes in college preparation, and since Christa may want to go on to college, it has been suggested that she transfer. However, the students of Greenhill are not too friendly, and if Christa does transfer, she will be cutting herself off from all the wonderful friends she has

made at Milwood. She should:

- a) stay where she is.
- b) transfer.

20. Phillip is an average hard-working student. A good job working after school is offered him at a local store. The money he would make would definitely help out at home. If he takes the job, however, he cannot continue in the college course, because he will not have time to do the homework.

Phillip should:

- a) take the job.
- b) not take the job.

21. Suppose a group of boys have planned a farewell party on Saturday. All of Tim's friends will be there, and it will be the last time he will see some of them for a long time. Tim wants to go, but he has exams that he feels he should study for. He should:

- a) be with his friends.
- b) stay home and study.

Appendix D
Letter Read to Subjects

Read the following to the students before they begin the survey.

1. This survey is connected to project Oasis. We are surveying all students with a view of identifying students who are at-risk of dropping out in the future.
2. Names will not be published. The data may be used by our counsellors to help students. Please be as honest as possible. Your effort and time given is greatly appreciated.
2. This is not a test (even though the word test is on the answer sheet). There are no right or wrong answers. You are expected to give the best answer that matches your knowledge, opinion or feelings. If you choose not to answer, leave it blank rather than filling in any answer.
3. At the top of the page fill in:
 1. "student name" section (darken in letters)
 2. "age" section. (darken in numbers)

Leave all other sections blank.

4. Please stop and check at the beginning of each page to see if the number of the question you are doing matches the number on the answer sheet.
5. When the terms "mother" and "father" are used, they can refer to stepparent or guardian of that sex.

Appendix E
Correlation Matrixes for Factor Analysis

Table E-1

Correlation Matrix for Family Background Variables

Variable							
V6	V8	V24	V25	V19	V20	V9	
V6	1.00000						
V8	.37723	1.00000					
V24	.14862	.33041	1.00000				
V25	.23103	.41871	.20860	1.00000			
V19	.12365	.09133	.08573	.12291	1.00000		
V20	-.10274	-.03668	.11573	-.03729	.34575	1.0000	
V9	.08674	.05204	.06918	.09284	.54711	.43599	1.00000
V10	.05054	.01178	.05074	-.05998	.12503	.01339	.09938
V11	.02542	.01873	.05058	-.04520	.04136	.07133	.07773
V10	V11						
V10	1.00000						
V11	.25414	1.00000					

Table E-2

Correlation Matrix for Family Values Variables

Variable				
	V16	V17	V18	V13
V16	1.00000			
V17	.16818	1.00000		
V18	.06799	.28340	1.00000	
V13	.12895	.24044	.29977	1.00000

Table E-3

Correlation Matrix for Student and Peer Values Variables

Variable							
V36	V37	V38	V39	V42	V44	V49	
V36	1.00000						
V37	.29293	1.00000					
V38	-.05836	-.09824	1.00000				
V39	-.07251	-.04479	.31974	1.00000			
V42	-.10966	-.07297	.28680	.60987	1.00000		
V44	.05969	.12737	.21570	.15193	.09395	1.00000	
V49	.05324	-.00516	.16802	.10513	.10698	.24731	1.00000
V52	.05384	-.04022	.26114	.22265	.23312	.23983	.40385
V33	.10025	.03580	.10202	.13266	.12660	.11981	.32059
V34	.08969	.03803	.12637	.01009	.01968	.23328	.35443
	V52	V33	V34				
V52	1.00000						
V33	.26027	1.00000					
V34	.36253	.21168	1.00000				

Table E-4

Correlation Matrix for School Behavior Outcome Variables

	Variable					
	V27	V28	V29	V30	V31	V32
V27	1.00000					
V28	.30469	1.00000				
V29	.27920	.20334	1.00000			
V30	.19624	.09375	.41131	1.00000		
V31	.16976	-.00737	.09965	.10814	1.00000	
V32	.16331	-.00437	.21088	.14602	.20954	1.00000

Table E-5

Rotated Factor Matrix After Varimax Rotation of Family
Background Variables

	Factor		
Variable	1	2	3
V8	.81507	-.01708	.00014
V25	.69223	.05879	-.19540
V6	.64966	-.02548	.10135
V24	.54373	.11112	.09531
V9	.09142	.83390	.06858
V19	.16481	.77858	.06840
V20	-.11514	.75443	-.00865
V10	.02605	.06282	.78636
V11	.01140	.03422	.77203

Table E-6

Rotated Factor Matrix After Varimax Rotation of Family
Education Values Variables

	Factor	
Variable	1	2
V18	.78815	-.10429
V13	.70870	.08653
V17	.63753	.28599
V16	.06503	.96883

Table E-7

Rotated Factor Matrix After Varimax Rotation of Student and
Peer Education Values Variables

Variable	Factor		
	1	2	3
V49	.75248	.04509	-.03751
V34	.72377	-.10245	.01991
V52	.68992	.25790	-.05193
V33	.52992	.11228	.10475
V44	.44760	.21643	.25344
V39	.04199	.86701	.01443
V42	.03911	.84469	-.05530
V38	.27867	.53845	-.12873
V37	-.02963	-.02498	.82811
V36	.12203	-.11655	.73627

Table E-8

Rotated Factor Matrix After Varimax Rotation of School
Behavior Outcome Variables

Factor			
Variable	1	2	3
V30	.84824	.01361	.06211
V29	.77825	.24502	.10600
V28	.06046	.85461	-.15935
V27	.18359	.71836	.29406
V31	-.06706	.09809	.81998
V32	.26022	-.04133	.68151
