THE LONGITUDINAL EFFECTS OF A WILDERNESS ADVENTURE PROGRAM ON POTENTIAL SCHOOL DROPOUTS

DEREK LOCKE

ISBN 0-315-86641-1

THE LONGITUDINAL EFFECTS OF A WILDERNESS ADVENTURE PROGRAM ON POTENTIAL SCHOOL DROPOUTS

by

Derek Locke, B.A.,B.Ed.

A Thesis submitted in partial fulfilment of the requirements for the degree of Master of Education

Department of Educational Psychology
Memorial University of Newfoundland

1993

St. John's Newfoundland

ABSTRACT

The primary purpose of this three-year longitudinal investigation was to evaluate the short- and long-term effects of a dropout prevention program that attempted to utilize wilderness adventure experiences to reduce the dropout proneness of a group of potential school dropouts.

The subjects for this study were male junior high school students (Grades VII to IX) who attended Templeton Collegiate during the 1987-88 school year. All junior high students in the sample school were administered the Dropout Alert Scale (DAS) as part of a guidance orientation program. Those male students identified by the DAS as potential dropouts were randomly assigned to experimental and control groups (24 students in each group). A randomly-selected sample of male students identified by the DAS as potential persisters formed a second control group to control for potential dropout selection bias and to evaluate the discriminating power of the Dropout Alert Scale (DAS) with a sample of Newfoundland school students.

The potential persisters were found to be significantly different before treatment from both groups of potential dropouts (control and experimental) on all selected school-related variables associated with dropouts. The selected variables included: age, years/grades repeated, percent of courses/credits passed, academic average and days absent. The

DAS accurately identified as potential dropouts all of the students who subsequently dropped out of school over the three years of the study.

The experimental program departed from conventional dropout intervention strategies in that it presented twenty-four potential dropouts with the challenge of successfully completing a five-day wilderness camping expedition. During the expedition, the school counsellor and an Army Cadet Instructor served as group leaders. Both leaders attempted to reduce the dropout proneness of the students by involving group members in a variety of learning experiences; specifically, adventure activities, communal living experiences, physical challenges, problem solving tasks, and group counselling sessions. All of these activities were conducted within a unique natural setting away from the normal influences of both home and school.

The effectiveness of the program was analyzed over a three-year period with evaluations of the dropout rates of each of the three groups of students, as well as evaluations of selected school-related variables which have been reported to reliably differientiate potential dropouts from potential persisters. A probability level of alpha = $p<.05$ was considered significant.

While there were no significant differences between the two groups of potential dropouts before treatment, there were significant differences between the experimental and control

group of potential dropouts following treatment. The number of days absent was significantly lower for experimental group students than for control group students for both the 1987-88 and 1989-90 school years. It was also observed that while the differences were not statistically significant, the experimental group students attained better results than did the control group students on all the measured variables over the entire course of the study.

The most important findings of this investigation concern those students who quit school during the three year period following the wilderness adventure treatment. It is encouraging to report that the experimental group's dropout rate was consistently lower than the control group and significantly lower (4.2 percent versus 29.2 percent) two years after treatment. Furthermore, the experimental treatment was found to have positively influenced even those students who eventually quit school. It was observed that the dropouts from the experimental group stayed longer in school and thus received significantly more formal education than did the dropouts from the control group.

ACKNOWLEDGEMENTS

A longitudinal study of this magnitude could not have been conducted without the cooperation, encouragement, and support of many people. I would like to thank all those who through their help and/or encouragement are an important part of this study.

Special thanks to Dr. Bryan Hartman, my advisor, for his painstaking reading and rereading of the paper and for his patience and encouragement.

I am indebted to my friend Leonard Kelly, who not only assisted with the logistics of the camping expedition, but also served as an invaluable member of the camping groups.

Thanks to Major Clayton Ereaut, Commanding Officer of the local militia unit, who enthusiastically supported this venture by generously providing tents, sleeping bags, canoes, and military rations.

I am grateful to the Western Integrated School Board and the administration of Templeton Collegiate for giving permission to conduct the study, assisting with transportation, and providing other assistance throughout the completion of this study.

My gratitude is also extended to the Officials of Gros Morne National Park for their cooperation and assistance throughout the camping experience.

I extend special thanks to the 24 students who participated in the camping program, not only for their willing participation, but also for all they taught me.

My sincere appreciation is extended to my family, friends, and colleagues who helped with the completion of this thesis by typing, editing, and generally encouraging me to finish.

Finally, I would like to thank my wife, Dorothy, who put up with my rantings, tolerated my absences from family activities, offered advice and encouragement, edited, and generally endured the whole process from prospectus to completion.

TABLE OF CONTENTS

Page

LIST OF TABLES

Table Page

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

> Whether he failed or left school voluntarily he has gone only so far; and he can go only so far into life; the larger and richer spheres of social and personal experiences immediately begin closing to him... he is relegated to a lower notch,... with relatively little, and surely with less than was possible. (Schreiber, 1964, p.1)

The literature clearly indicates that students who leave school without a high school diploma enter adulthood without the basic education required to succeed in an ever increasingly complex and technological world. While educators, social scientists, and government leaders stress the importance of a good education in terms of economic, social, and personal advantages, large numbers of students continue to drop out of secondary schools. Depending upon the operational definition used by researchers, the student dropout rate for Newfoundland has been computed to be between 27 and 46 percent (Crocker and Riggs, 1979; Harris and Snelgrove, 1983; the **Leaving Early Report**, 1984; and Banfield and Galway, 1992). While there has been always a great concern about the student dropout problem in this province, the increased tempo of societal and technological change has magnified the problem in recent years. Consequently, there is presently widespread concern throughout Newfoundland about the large number of students who continue to drop out of school

without the vital experience and skills necessary for the successful pursuit of their chosen life roles.

This concern has led to a large number of studies over the past several years. These studies are characterized by their reference to the tremendous waste of human resources. Parsons (1978) stated that, "...the chance of employment for a person with less than the successful completion of high school is less than half the chance of a person of the same age who has completed high school" (p.17). The **Leaving Early Report** released in 1984 determined that approximately 70 percent of the dropouts interviewed for that study were unemployed at the time of the interview. In their summary report of early school leavers' transition into the labour market, Spain, Sharpe, and Mundle (1991) reported that the unemployment rate of Newfoundland school dropouts was as high as 60 percent. They further reported that these youth experience a variety of social, psychological, and economic problems as a result of their unemployment.

Another characteristic of major Newfoundland studies on school dropouts is that all agencies associated with education within the province are exhorted to do "something" about the problem. Crocker and Riggs (1979); the **Leaving Early Report** (1984); and Spain, Sharpe, and Mundle (1991) have all made valuable recommendations on how to deal with Newfoundland's dropout dilemma. However, the majority of dropout studies are limited in that their recommendations are not based on the

actual implementation and formal evaluation of specific intervention strategies aimed at reducing the school dropout rate. With the magnitude of the present dropout problem in Newfoundland, it is not enough to merely describe the characteristics of dropouts, the reasons for dropping out, and the social, emotional, psychological, and economic ramifications of the problem. While helpful, it is also not enough to make general recommendations to deal with the problem even if these recommendations are based upon recent interviews of school dropouts. What is necessary is for school-related agencies to utilize their available resources to put recommendations into action, and test their effectiveness at reducing the school dropout rate.

Purpose of the Study

This study had three objectives. In order of importance, the first was to empirically determine whether or not a group of potential school dropouts who participated in a wilderness adventure program improved significantly on selected school-related variables associated with dropouts. The selected variables included: days absent, academic average, percent of courses/credits passed, extra-curricular participation, self-concept, and locus of control. For each variable, the performance of the experimental group was compared to that of a control group of potential dropouts who did not participate in the experimental program. The second objective was to

continue the evaluation of the two groups over a three year follow-up period to measure any long-term effects of the program and to empirically determine if there was a significant difference in the dropout rates of the two groups. The third objective was to evaluate the discriminating power of the Dropout Alert Scale (DAS) as an instrument to identify potential dropouts within a sample of Newfoundland secondary school students.

Significance of the Study

The effects of having 27 to 46 percent of the school population leaving school early without what is now considered a basic education have tremendous ramifications for both the individual students and society at large. The costs of dropping out are difficult to estimate accurately, but they include such factors as: lost tax revenue, unemployment and welfare expenditures, crime and crime-prevention costs, as well as a host of health-related expenses (Rumberger, 1987). Of course, the greatest cost is the loss of human potential. The magnitude of the dropout problem in Newfoundland was illustrated in a special issue of the NTA Bulletin (April 1987) that was devoted to the dropout dilemma. In this bulletin, the President of the NTA, Roger Grimes stated that:

> ...the NTA Provincial Executive decided to make student retention its major focus for the school year 1986-87 and to take every opportunity throughout the year, and probably for years to

> come, to continue to impress upon people the need to search for positive, localized ways of reducing the number of dropouts in our province and increasing student retention rates in our schools. (p.3)

Over the years there have been many studies completed on various aspects of the dropout problem in Newfoundland (Kennedy, 1966; Crocker and Riggs, 1979; Gillespie, 1979; the **Leaving Early Report**, 1984; and Spain, Sharpe, and Mundle, 1991). These studies have highlighted the characteristics of dropouts, described the ramifications of the problem, and made general recommendations for various agencies to do something about it. The significance of this study is that it attempts to go beyond merely describing "the problem" and making general recommendations by postulating, implementing and empirically evaluating a dropout prevention program.

Research Questions

Research questions for this study were formulated to give answers to both short-term and long-term questions. The short-term questions were analyzed before the start of the experimental treatment to evaluate the discriminating power of the Dropout Alert Scale (DAS) in identifying potential dropouts. The long-term questions were analyzed over a three-year period (at the end of each school year) to evaluate the effectiveness of a wilderness adventure program in reducing the school dropout rate and improving performance on several

school-related variables often associated with dropouts. The nature of researching student dropout rates dictates that answers to many research questions can only be obtained from a longitudinal study. Therefore, it is the intention of this author to continue to analyze the long-term questions formulated for this study for three more years to gain a complete picture of the effectiveness of this program and the long-term discriminating power of the Dropout Alert Scale (DAS).

Short-Term Questions

1. Did the random samples of students identified by the Dropout Alert Scale (DAS) as potential dropouts differ significantly before treatment from a random sample of students identified by the DAS as potential persisters on any of the selected school-related variables associated with dropouts? The selected variables included: years/grades repeated, days absent, percent of courses/credits passed, grades failed, and academic average.
2. Were there any significant differences before treatment between the two groups of randomly assigned potential dropouts on any of the above-noted variables?

Long-Term Questions

1. Throughout the three years of the study, did significantly more members of the control group of potential dropouts (Control I) drop out of school than did members of the experimental group of potential dropouts?
2. Throughout the three years of the study, did the experimental group of potential dropouts differ significantly from the control group of potential dropouts on any of the selected school-related variables associated with dropouts? The selected variables included: days absent, participation in extra-curricular activities, percent of courses/credits passed, academic average, self-concept and locus of control.
3. Throughout the three years of the study, did significantly more members of either potential dropout group (Control I or Experimental) drop out of school than did members of the potential persisters control group (Control II)?
4. Throughout the three years of the study, did the potential persisters control group (Control II) differ significantly from either group of potential dropouts (Control I or Experimental) on any of the noted school-related variables associated with dropouts?

CHAPTER 2

REVIEW OF RELATED LITERATURE

> If the intent of education is to prepare students for a successful and productive adult life, then we must begin educating the total student. We must begin attending to those difficulties presented by students which are outside the realm of academia but which have an effect upon a student's ability to perform successfully. The student must learn to see education as a vehicle to their future, not as the obstacle that many of them do. (Ruby and Law, 1982, p. 290)

The issue of school dropouts is as old as schooling itself. However, this phenomenon has become a more serious problem as school dropouts become less employable in our increasingly complex and technological society. W.T. Harris initiated the public discussion of why students drop out of school in an 1872 address to the National Education Association (Morrow, 1986). Since then, literally thousands of studies have focused on this problem, most of them devoted to describing the characteristics of dropouts, the reasons for dropping out, and the social, emotional, psychological, and economic ramifications of premature withdrawal from school. Considering the long history of the problem and the concern it has generated, it is surprising that there is so little empirically-derived information concerning the development and evaluation of programs designed to reduce student dropout rates, especially within this province.

Gillespie (1979) stated that; "The school dropout appears to be one of the most widely researched individuals in the

field of education" (p.10). Some people might argue that the issue is already overworked, and it is time to move on to more exciting contemporary issues. Indeed, numerous studies have been conducted and much written in relation to this perennial problem. However, because the vast majority of past research was more concerned with describing "the problem" than implementing and evaluating prevention strategies, the serious issue of school dropouts still exists today. Therefore, research into the dropout problem must continue; however, the focus must change to provide empirically-derived data on the development and evaluation of programs designed to reduce student dropout rates. In a discussion of the dropout dilemma, Grimes (1987) urged:

> Let's resist the temptation to argue over definitions of dropouts or to become bogged down with statistical analysis of what may or may not be the true situation in our province. Let's instead try to focus our energies on helping even one student whom we come in contact with on a day-to-day basis make a positive decision to use education to his or her full advantage so that if and when "opportunity knocks" they will have the maximum ability to answer the call and step forward into a more productive and fulfilling life. (p. 3)

In developing the rationale for this study, a comprehensive review of the literature has been completed. This review of literature has been organized so as to provide an understanding of the significance and rationale of this study. First, studies that discuss the magnitude of the dropout problem are examined to provide insight into the

significance of developing and formally evaluating intervention strategies designed to reduce school dropout rates in Newfoundland. Second, studies describing the factors that cause students to drop out of school are examined to illustrate the complexity of the problem and to identify those factors that dropout prevention strategies must strive to change if they are to be effective in reducing school dropout rates. Third, studies describing methods of identifying potential dropouts are examined because in order to implement any dropout intervention strategy one must identify potential dropouts before they leave school. Fourth, studies of previous dropout prevention strategies are discussed to provide examples of strategies that have been implemented in the past with an examination of their strengths and weaknesses.

This section serves as a transition to the next two sections which examine studies describing the use and reported benefits of therapeutic wilderness camping and outward-bound programs. This is followed by a review of Rational-Emotive Education (REE) to illustrate how REE techniques can be incorporated in wilderness programs to enhance transfer of learning. The final section provides a summary of the review of literature and establishes a rationale for the use of a wilderness adventure program as a possible intervention strategy to reduce the school dropout rate in Newfoundland.

Magnitude of the Problem

The large number of students dropping out of Newfoundland's schools has long been viewed as a serious educational and social problem. Granted, retention rates have improved over the years, but school retention rates in the province still leave much to be desired. Actual dropout rates are difficult to determine because researchers use different definitions of a high school dropout and they utilize different methods of computing dropout rates.

A profile of educational performance indicators prepared for the Newfoundland Department of Education by Banfield and Galway (1992) reported a dropout rate of 33 percent for the 1989-90 graduating class and a 27 percent dropout rate for the 1990-91 graduating class. The **Leaving Early Report** (1984) classified 33 percent of the students in their study as "early leavers". However, when they include those students listed as incomplete grade XI or enrolled for training in another agency the dropout rate rises to 44 percent.

A report published by Crocker and Francis in 1979 depicted the provincial attrition rates from 1972 - 1983 as ranging from 36 - 40 percent with the average being 38 percent. Gillespie (1979) quoting from Government of Newfoundland and Labrador Statistics for 1978 stated that "... approximately 40 percent of the [Newfoundland] school population does not complete the regular secondary school program..." (p. 1).

In a 1979 Task Force Report on Education, Crocker and Riggs listed the percentage of student loss from Grade II to Grade XI at 34 percent for Newfoundland. They also concluded that:

> If the current 10 to 11 attrition rate in Newfoundland is used as an estimate of the loss to be expected from Grade XI to XII after Grade XII is fully implemented, then a further drop of about 12 percent is likely to occur. (p. 83)

Assuming that this 12 percent loss of students from Grade XI to Grade XII did occur with the implementation of Grade XII then Newfoundland's dropout rate at the start of this longitudinal study may have been as high as 46 percent. It is the belief of this writer that even the lowest percentage stated in the above studies (27 percent) is unacceptable; especially at a time when the numbers of unskilled and semi-skilled jobs available are decreasing while the educational requirements for employment are increasing.

Given that a fundamental responsibility of our education system is to ensure that students leaving the schools possess the vital experience and skills necessary to meet the challenges of the society they enter, it is necessary for all school-related agencies to utilize their available resources to reduce the school dropout rate. However, before dropout prevention strategies are implemented, it is important to understand the various underlying factors which induce students to drop out of school.

Causes of School Dropouts

Many studies have explored the various factors that contribute to students premature withdrawal from school. Most have concluded that there is neither a single reason nor a single source of influence that causes students to withdraw from school before graduation. Kennedy (1966), Gillespie (1979), the **Leaving Early Report** (1984), Pawlovich (1985) and others have concluded that students apparently drop out as a result of the interplay of a multiplicity of factors.

One factor that is often associated with dropouts is a low self-concept. Cervantes (1969) concluded that the dropout's self-image is markedly deficient. In an Illinois dropout study, Greene (1966) found that children who perceived themselves as 'not liked' and/or 'failures' were more likely to drop out of school than were those who described themselves as 'liked' and 'successful'. Ekstrom, Goertz, Pollack, and Rock (1986) concluded that "...dropouts were significantly more likely than stayers to show lower self-concept" (p. 362). Rumberger (1987) reported that; "Dropouts have lower levels of self-esteem and less sense of control over their lives..." (p. 110).

Howard and Anderson (1978) concluded that dropouts have a external locus of control orientation, while persisters tend to display an internal locus of control. Wehlage and Rutter (1986) found that before they withdrew from school, dropouts had a more external locus of control than did persisters.

They also found that as a group dropouts developed a more internal locus of control two years after they dropped out. They concluded the lack of positive school experiences was partially to blame. Ekstrom, et.al. (1986) found that dropouts respond with an externalized locus of control, indicating that they are more likely than persisters to feel that their destiny is out of their hands.

Young and Reich (1974) stated that, "...dropping out may be viewed as a manifestation of alienation" (p. 2). This alienation includes alienation from one's self and others as well as alienation from society and its institutions. Gillespie (1979) also viewed alienation as a factor precipitating dropping out. She concluded that the conditions of meaninglessness, powerlessness, anomie, social isolation, self-estrangement, and cultural estrangement, all contribute to the potential dropouts' feeling of alienation.

Beck and Muia (1980) viewed dropping out as the result of a cultural conflict between the student and the school. They found that dropouts expressed feelings of social isolation or alienation within the school. Pittman (1986) concluded that, "...the lack of social integration of the student into the school culture is a prime determiner of dropout behaviour" (p.12).

Greene (1966) included non-acceptance by school staff and schoolmates as contributing factors to the student's decision to drop out of school. Young and Reich (1974) also concluded

that the typical dropout feels he/she was rejected by teachers and peers alike. Titone (1982) stated that the dropout usually, "... failed to become part of a social group within the school, at least with a group which expresses positive attitudes toward school" (p.3).

Finn (1989) described a model for understanding dropping out as a developmental process. His "...'participation-identification model' emphasizes the importance of a youngster's bonding with school; when this does not occur, the likelihood of problem behaviour, including leaving school before graduation, is increased" (p.118).

Cervantes (1969) described the dropout as rarely participating in extracurricular school activities. Titone (1982) stated that, "... as a rule, the dropout has shunned participation in extracurricular activities." Howard and Anderson (1978) found that, "... a lack of participation in school activities is a significant characteristic of the dropout" (p.227).

Greene (1966) concluded that consistent failure to achieve in regular school work is one of the main variables leading a student to decide to drop out of school. Zeller (1966) reported one of the primary factors which may cause a student to leave school is, "... grade placement - two or more years below age level" (p. 20). Walters and Kranzler (1970) reported that students' chronological ages in comparison to

that of their classmates can be used to predict potential dropouts.

Hicks (1969), in his study on the causes of school dropouts concluded that:

> ...failure in school generally follows a well defined path. First, the student's interest sags. This results in the lowering of grades, which encourages skipping classes. The student, then in trouble with school authorities, becomes disruptive and is banished from class. After his parents are involved, he becomes increasingly negative and defensive, which eventually leads to his decision to flee. (As cited in Howard and Anderson, 1978, p.223).

Titone (1982) concluded that failure experienced in school may lead to feelings of shame, lower self-concept, and eventually precipitate flight reactions manifested through frequent absenteeism and/or withdrawal from school. Many researchers suggest that dropouts' perceptions of themselves and others frequently lowers already deflated self-concepts and increases external locus of control orientations (Young and Reich, 1974; Gillespie, 1979; Ekstrom, et. al., 1986). Undoubtedly, this contributes to a vicious cycle of further failure, lower academic averages, non-participation in extra-curricular activities, increased absenteeism and social withdrawal until finally the student exercises his/her most viable option and drops out of school. School personnel must develop intervention strategies to disrupt this cycle. However, first they must identify potential dropouts before the cycle becomes irreversible.

Identification of Potential Dropouts

Researchers conducting studies on the identification of potential dropouts have repeatedly found a common set of variables closely associated with dropping out of school. Howard and Anderson (1978), in a review of literature on the identification of school dropouts, found that dropouts generally follow a well defined path.

Many researchers have used composite index models, consisting of checklists that identify what they consider to be important characteristics of the typical school dropout. Generally, students who possessed most of these characteristics were considered potential dropouts. The following abbreviated version of a checklist by Cervantes (1969, pp. 198-199) provides an example of a typical composite index model:

1. Two years behind in reading or arithmetic achievement at the seventh grade level.
2. Failure of one or more school years.
3. Irregular attendance and frequent tardiness.
4. Performance consistently below potential.
5. No participation in extracurricular activities.
6. Feeling of "not belonging".
7. Resentful of all authority.
8. Weak self-image.
9. Deferred gratification pattern weak.
10. Unhappy family situation.

The major weakness of composite index models is that the checklists do not differentiate one characteristic from another. Each factor has equal importance, i.e., the characteristic, "failure of one or more school years" has a weight equal to that given to the characteristic "weak self-image". Another weakness is that the checklists do not clarify how many items have to be checked before a student is considered a potential dropout.

One of the first attempts to statistically predict which students will drop out of school was made by Epps and Cottle (1958). After a thorough review of the literature, they identified 79 characteristics that differentiated dropouts from persisters. They designed 10 items to measure each characteristic. After a thorough examination of all items, they developed a commercial instrument, The School Interest Inventory, for the purpose of predicting school dropouts. This instrument has since been validated by Childers (1965), but he reported that it was time consuming to use.

Zeller (1966) utilized variables that are usually available in the school cumulative records to develop three forms that could be used to identify potential dropouts. The forms - a junior high school form, a male high school form, and a female high school form - consist of a list of variables that are closely associated with dropouts from that particular population group. Each variable is assigned a weight from -3

to +3 which is then cumulated. Studies have shown that 83 percent of all dropouts will have a score of zero (0) or higher, while persisters have negative scores (Zeller,1966).

Walters and Kranzler (1970) developed a dropout prediction model based on several variables known to be associated with dropouts; specifically, age, intelligence quotient (IQ), grade retention, reading achievement, arithmetic achievement, socioeconomic level, days absent, participation in extracurricular activities, and grade point average (GPA). Each variable is weighted and cumulated, similar to Zeller's model, to rank order students in terms of their risk of dropping out of school.

Utilizing different combinations of the variables in this model with a Grade IX cohort, Walters and Kranzler (1970) found they were able to successfully identify between 82 and 91 percent of all students who eventually dropped out. Their model was able to maintain a total accuracy of between 77 and 81 percent. (Total accuracy was determined by correctly identifying students as either potential dropouts or potential persisters).

At first glance, the model proposed by Walters and Kranzler seems very good for identifying potential dropouts. However, it is time consuming to go through large numbers of cumulative records. The model is also hard to apply because in many schools cumulative records are often incomplete.

Mathis (1976) developed the Dropout Proneness Scale to predict potential dropouts. The Bureau of Educational Research in Mississippi modified the scale for use throughout the United States and changed the name of the instrument to the Dropout Alert Scale (Cage, 1984). The Dropout Alert Scale (DAS) is a self-report instrument that provides information on a large number of variables that are associated with dropouts. The 30 items require a forced choice among four responses. Each response is weighted and scores can range from 0 to 108. A score of 39 or greater indicates a high potential for dropping out. A score of 19 to 38 indicates moderate potential for dropping out. A score of 0 to 18 indicates a potential persister. The advantage of the Dropout Alert Scale is that it can be completed easily in a short time by the students and quickly scored by any staff member. Reliability and validity coefficients for this instrument were not reported. However, the instrument has been adopted for use throughout the state of Mississippi (Evans, 1984). While requiring further research with different populations, the Dropout Alert Scale appears to be a reliable, easy-to-administer instrument for identifying potential dropouts.

One of the newest methods used to identify potential dropouts involves the use of a computer. Titone (1982) discussed the effectiveness of the Computer-Assisted Growth-Alert System (CAGAS). Basically this system analyzes various academic variables associated with dropouts in elementary

school and identifies students needing extra help. Although this system appears to hold much promise for the future, it is fairly expensive and it has not provided any empirically-derived data illustrating its long term success.

Dropout Prevention Strategies

Whether potential dropouts are identified by computer, or some other process, what happens to them following their identification should be of prime concern to educators. If the school dropout rate is to be reduced, a logical sequence of strategies must be implemented to assure that dropout-prone students have sufficient opportunities to improve not only their academic skills and grades, but also, their self-concepts, attitudes and interpersonal relationships.

The major emphasis of programs designed to keep potential dropouts in school has been on modifying the school curriculum to meet the needs of individual students and combining work experience with academic subject instruction. Zeller (1966) cited five programs in different parts of the United States that were based on a modified curriculum. Cervantes (1969) described the Comprehensive High School Approach, a Minneapolis program that was also based on a modified curriculum.

Neil (1979) described a successful program developed in Wichita, Kansas that has since been employed in 10 American states. Project DEEP is the acronym for Diversified

Educational Experiences Program which was designed for use with potential dropouts. DEEP provided students with the opportunity to receive academic credit for a project of their own design using such electronic media as cameras, movie and slide projectors, and non-electric media such as art supplies. It is reported to have reduced the absentee rate by 30 percent and the dropout rate by 37 percent.

Greene (1966), in his research, found that many schools are looking toward work-study programs as a means of solving the dropout problem. The programs usually provide students with an opportunity to remain in school, earn money, and learn a trade, all at the same time. There are several variations of this program, although, it essentially is one of part-time work and part-time study. Newfoundland has adopted a similar program, the Work Experience Program, although it is not used specifically as a dropout prevention strategy.

One of the more-reported approaches to reducing the dropout rate has been the use of group counselling. Greene (1966) said that:

> In general, the dropout has poor relationships with school personnel and his peers. Group counselling can provide a setting in which the student's perception of himself and others can be improved through the interaction of the group. (p.150)

In discussing the "holding power" of schools, Cervantes (1969) stated that; "... as far as is presently known, Milwaukee has the lowest metropolitan dropout rate (3%). One

of the many reasons for this slight educational defection is its counselling program..." (p.212).

O'Hara-Krivatsy, Reed and Davenport (1978) described a group counselling program with 10th and 11th Grade girls who were identified as potential dropouts. They reported that only 15 percent of participants withdrew from school compared to a 54 percent withdrawal rate for another group of students that chose not to participate in the group counselling. The problem with this study, which the researchers readily acknowledge, was that due to self-selection bias there was no acceptable control group.

Ruby and Law (1982) reported on a Positive Learning Program (PLP), a supportive program for potential dropouts. Twenty-one Grade IX students were randomly assigned to three groups, two experimental and one control. All subjects retained their original major classes and teachers. The experimental groups, however, reported to the PLP teacher for homeroom and study periods. During these periods the students received academic and social support in a small group setting (7 students). The program was conducted throughout the full year. In a four-year follow-up study, the researchers reported that; "Of the students involved in this study 70 percent of the PLP students graduated from high school while none of the control students did" (p.290).

Caliste (1984) reported the effects of a twelve-week

dropout intervention program based on group counselling and tutoring. Students identified as potential dropouts were randomly assigned to experimental and control groups. The experimental subjects met in small groups of two to five persons twice a week for help in reading and math from tutors. They also met once a week in groups of eight to ten students for group counselling with the school counsellor. At the end of a one-year follow-up, Caliste reported that 9 percent of the experimental group dropped out of school, while 17 percent of the control group dropped out.

A different approach to dropout prevention was reported by Goulding (1983). He adapted the Outward Bound Program to provide wilderness camping experiences for potential dropouts. Although no results were published, the general feeling of the researcher was that the program was successful in changing many of the campers' attitudes. A major problem with the study was that no analysis was conducted following treatment. The researcher acknowledged the need to conduct longitudinal research with dropout intervention strategies.

Gass (1990) examined the longitudinal effects of a 5-day adventure-based orientation program on the student retention of college students. The results indicated that after 3.5 years, students who participated in the adventure program experienced a 12 percent higher retention rate than did those who participated in a 4-day residential orientation program. The adventure group had a 20 percent higher retention rate

than did a control group who did not participate in either orientation program. The researcher reported that the adventure group experienced a significantly higher retention rate than did either of the other groups after a one-year follow up ($p<.05$), but only significantly greater than the control group after 3.5 years ($p<.05$). While this study was conducted with college students, it appears to be a viable strategy to utilize with secondary school potential dropouts.

Developing, implementing, and evaluating strategies to help reduce the student dropout rate remain some of the most important challenges facing contemporary educators. Some type of wilderness camping adventure program as suggested by Goulding (1983) and Gass (1990) may be one such strategy.

Therapeutic Wilderness Camping

> I went to the woods because I wished to live deliberately, to front only the essential facts of life and to see if I could not learn what it had to teach.
>
> - Thoreau

Over the years, different forms of therapeutic camping programs for the troubled child have become popular. Encouraged by the early work of McNeil (1957), a variety of wilderness programs have been developed for emotionally disturbed youth (Richard and Dinoff, 1967; McCreary-Juhasz, 1968; and Shniderman, 1974); mental hospital patients (Garlie and Hoxworth, 1970) problem adolescents (Harmon, 1974);

juvenile delinquents (Kelly & Baer, 1971; Cardwell, 1976; Sakofs and Schuurman, 1991; and Wichmann, 1991); and the retention of college students (Gass, 1990).

Kaplan and Talbot (1983), in summarizing findings from previous research on wilderness camping programs, concluded that enduring changes in self-esteem can result from wilderness camping experiences for a variety of different populations. They also indicated that wilderness camping has been successful in enhancing the participants' feelings of self-sufficiency, self-reliance, self-confidence and pride in personal accomplishment.

In a three-month follow-up of a wilderness camping experience with eleven emotionally troubled boys, Richard and Dinoff (1967) found that ten of the eleven boys demonstrated improved behaviour with family members, nine showed improvement in behaviour with peers, and eight were reported to have improved the quality of their school work. These findings were based on the results of a questionnaire completed by the participants' parents.

McCreary-Juhasz (1968) studied the effects of a two-week camping experience on 22 emotionally disturbed children who had been referred to a mental health clinic because of school problems. She found that there was improved behaviour in all but one child following the camping experience. The researcher concluded that:

> Changes were evident in more realistic levels of aspiration, greater self-confidence, increased ability to communicate socially with peers, acquisition of new interests, better attitudes toward discipline, a higher degree of co-operation, increased participation and higher academic achievement. (p.353)

While the results were positive, a limitation of this study was the absence of a control group. The researcher admits some of the results might have been due to maturation, new classroom situations and new teachers. The researcher stressed the need for control groups in studies of this nature.

Harmon (1974) concluded that camping improved the self-confidence, interpersonal communication, group interaction skills and values of problem adolescents. Shniderman (1974) found that emotionally disturbed boys who attended a therapeutic day camp made significant gains in social adjustment compared to a control group who had no therapeutic treatment.

Garlie and Hoxworth (1970), in describing a wilderness camping experience with adolescent mental hospital patients, concluded that the program was successful in developing good judgement, integrity, and determination in the participants. More importantly, the program helped each "... individual to develop a profound respect for oneself, others and the inevitable realities of nature, feelings many of these adolescents have lacked" (p.39).

Kelly and Baer (1971) conducted a study to determine if a wilderness-camping experience, in an Outward Bound School, was more effective in reducing the recidivism rate of juvenile delinquents than were traditional correctional centers. Experimental and control groups were established with sixty juvenile delinquents in each. The researchers found that after one year of parole, only 20 percent of the experimental group had committed a crime, compared to 42 percent of the control group. In a more recent study, Wichmann (1991) reported a significant reduction in asocial behaviours among 36 adjudicated adolescents who participated in a 30-day therapeutic wilderness program.

Sakofs and Schuurman (1991) assessed the impact of the Wilderness Alternative for Youth (WAY) program. WAY is a treatment program, conducted by the Pacific Crest Outward Bound School, for adjudicated youth which integrates wilderness or adventure experiences with community-based activities. Participants were recommended by the courts and randomly assigned to experimental and control groups. The experimental group participated in the WAY program while the control group did not participate. The researchers reported that over a one-year follow up, the experimental group had significantly more positive results than did the control group on 10 of 33 psychometric scales and behavioral assessments, including locus of control, social orientation, and counsellor assessments of participants' peer relations.

All of these studies have reported varying degrees of success, but why camping? What does this experience offer that is not or cannot be derived from other treatments? These are some of the questions that one must consider when exploring the feasibility of wilderness camping as a treatment with troubled youth.

Garlie and Hoxworth (1970) suggested that the advantage of wilderness camping as a potential treatment is that the outdoor living experience provides a constant system of rewards and success experiences. "The simple self-reliant act of preparing a nourishing meal, or the more profound achievement of climbing a difficult summit, brings immediate gratification" (p.39).

Bertolami (1981) reported that participants of a standard Outward Bound course demonstrated significant increases in self-esteem and self-assertion. She suggested that changes in self-esteem and personal control were attributed to successful accomplishment of different adventure activities, a supportive group environment, the wilderness environment, and an increased self-awareness of personal strengths and weaknesses.

Miles (1987) examined research from a variety of fields to assess the ways in which experiences in the wilderness contribute to physical, emotional, and spiritual health. He concluded that the psychological benefits, enhancement of self-worth, and ability to learn were the result of the holistic approach of wilderness adventure programs. In his

article, the author stresses that the wilderness environment itself is a "...Healing Place" (p. 4).

Hughes and Dudley (1973) suggested that; "The informal atmosphere of a camp program has much to offer treatment. The setting is totally different from school, from home, and from the hospital ... It allows a physical freedom not found in any of those settings" (p.45). These two researchers espoused a convincing rationale for the use of wilderness camping as an alternate treatment for troubled young people. They felt that undesirable defense mechanisms are weakened in a camping setting; e.g., running away may be less desirable to a child who faces miles of unknown woods. To further understand the apparent success of wilderness camping or outdoor adventure programs one must examine the Outward Bound movement.

Outward Bound

The majority of therapeutic wilderness programs are based on the philosophy and curriculum of Outward Bound Schools. Indeed, many of the studies discussed in the preceding section were conducted in Outward Bound Schools.

Outward Bound is an international, educational organization which began in Aberdovey, Wales in 1941 as a means of preparing young merchant seamen for the demands of hazardous service. The program was based on the principles of Dr. Kurt Hahn, a distinguished international educator. Hahn espoused a philosophy that stressed, "... an action-oriented

program [that] would provide young cadets with the physical stamina and, above all, the mental tenacity to overcome the challenges they would meet." (Outward Bound, 1984, p. 2).

The program's success with the young merchant seamen led to a demand for the continuance of the program following the war. Educators "... recognized that the values instilled by Outward Bound were needed by young people in peace time to meet challenges of life in an increasingly complex and demanding society" (Outward Bound, 1984, p. 2). The movement has since been adopted around the world and today there are more than 30 Outward Bound Schools operating in 17 different countries.

Traditional Outward Bound programs were based on self-discovery and experiential learning. Bacon (1987) reported that in first-generation Outward Bound programs, learning was acquired from the experience alone. In this holistic approach, the experience is centered around the wilderness setting and the experiential learning occurs as students successfully complete physical and social challenges. The physical challenges can include backpacking, sailing, canoeing, rappelling and rock climbing. The social challenges revolve around the need for group cooperation to complete some of the physical challenges as well as the communal living experiences; i.e., living, eating and sleeping together.

The development of teamwork and small group dynamics is an important aspect of modern Outward Bound programs.

Proponents of Outward Bound feel that if participants, "... can learn to function effectively in a small group, they will have a greater chance to do so within the larger framework of society" (Goulding, 1983, p. 12).

Bacon (1987) reported that in early Outward Bound programming the development of group dynamics and other learning was achieved through the experience alone or the "Mountains Speak for Themselves" model. He further reported that current Outward Bound programming includes discussion, group process, and imported techniques from group counselling. He reported, that the programming has changed to ensure greater transfer of course learning from the wilderness experiences to experiences in daily life. In effect, the discussion sessions help participants relate the completion of adventure activities to the completion of challenges they will face in society.

Rational - Emotive Education (REE)

Some possible group-counselling techniques that could be utilized in Outward Bound programs to help promote transfer of learning, can be found in Rational Emotive Education (REE). REE is a group-counselling program based on the work of Albert Ellis and his Rational-Emotive Therapy (RET). Rational-Emotive Education or REE is a planned, systematic, cognitive re-education program that is philosophically identical with Ellis' RET but it places greater emphasis on experiential

learning. The program includes presenting participants with actual tasks within the group setting, and it uses the principles of RET to help children solve problems presented by the tasks. These principles include helping individuals recognize that the thoughts one has about any event are what cause one's feelings regarding that event rather than the event itself. Another central tenet of REE is that negative feelings one might have about oneself may be the result of irrational beliefs which can be changed through re-education techniques (Omizo, Cubberly, & Omizo, 1985).

Knaus and Bokor (1975) concluded that the REE program was successful in reducing anxiety and improving self-concept in sixth-grade students. Katz (1974) found REE to improve self-concept and enhance internal locus of control. Brody (1974) concluded that REE was effective in helping fifth-grade students deal with anxiety and frustrations. Omizo, Cubberly, and Omizo (1985) concluded that REE appears to be effective in helping learning disabled children to positively enhance their self-concept and to develop an internal locus of control. They further concluded that; "REE sessions ... may prove to be an efficient and cost-effective way to help a group of students who could benefit greatly from this treatment regimen, both in and out of the school setting" (p.17). In summary, this body of research suggests that REE may contain some useful techniques to utilize with modern therapeutic wilderness programs.

Summary

One of the most consistent findings of research on dropouts is that the reasons why students choose to drop out of school are complex and contingent upon a variety of interdependent factors that interact within the social and physical milieu of the potential dropout. Greene (1966) stated that, "... dropping out of school is only a symptom of many underlying factors" (p. 10). Some of those factors include a low self-concept; an external locus of control orientation; a feeling of rejection by teachers and peers; a lack of friends within the school setting; a lack of bonding to the school; and a lack of successful experiences.

Too frequently potential dropouts permit perceptions of themselves and others to downgrade an already deflated self-concept and create a more external locus of control orientation; thus, contributing to a vicious cycle of further failure, lower grade-point averages, non-participation in school extracurricular activities, increased absenteeism, and social withdrawal. The student tends to reject both school and self, is usually insecure in his/her school status, is usually hostile toward other persons, and is often viewed as a "problem student". It becomes only a matter of time before many of these "problem students" drop out of school; perhaps hoping that the working world is "where it is at", because in their eyes, school has provided them with nothing.

It is apparent, from the research on school dropouts, that interactions within the potential dropout's total environment contribute to the decision to drop out. Therefore, in developing dropout prevention strategies one should attempt to deal with the whole child, i.e., physical, intellectual, social, and emotional. Pittman (1986) stated that; "In order for dropout programs to be most successful, it seems as if there should be a large component which addresses the personal, affective aspects of the student's life,..." (p.12). It would appear from the review of literature on Outward Bound and Therapeutic Wilderness Camping programs, that some form of wilderness adventure program may be successful with potential school dropouts.

It is generally acknowledged that an ordinary camping experience provides some therapeutic benefits for most people. Research also indicates that wilderness camping has been successful in providing a wide range of therapeutic benefits to juvenile delinquents (Kelly & Baer, 1971; Cardwell, 1976; and Wichmann, 1991), mental hospital patients (Garlie & Hoxworth, 1970), and emotionally disturbed school children (McCreary-Juhasz, 1968; and Shniderman, 1974). Some of those benefits include an improved self-concept; a more internal locus of control orientation; a sense of belonging; a feeling of acceptance by adults and peers who participate in the camping experience; improved interpersonal communication skills; and a sense of accomplishment.

When one examines the therapeutic use of wilderness camping, it would appear that wilderness adventure experiences can affect many of the same personal development variables that are associated with potential school dropouts. In discussing camping programs with regard to education, Hughes and Dudley (1973) stated that in wilderness camping:

> Material is studied as it is needed, and it becomes part of the necessary equipment for living. This in itself places a new value on education for the child who has always failed in school. It enables him to remedy some of his deficiencies and to add new interests to his life. He begins to see school as an integral part of life rather than a chore imposed upon him. Two priceless ingredients of the education process are interest and curiosity, part of what is often referred to as motivation. It would be hard to find a richer environment than camp for the development of these two ingredients. (p.48)

CHAPTER 3

METHOD

The primary purpose of this study was to evaluate the use of a wilderness adventure program as an intervention strategy for reducing student dropout rates in a rural Newfoundland school. The initial step involved identifying potential school dropouts through the use of the Dropout Alert Scale (DAS), a research-based instrument that has been effective in discriminating between potential school dropouts and potential persisters in the Mississippi secondary school system. Once the potential dropout population was identified, the intervention strategy was implemented to determine if it was possible to reduce the dropout proneness of a randomly selected group of students from the potential dropout population.

Selection of Sample Population

The potential dropouts were identified from a cohort of male, junior high students (grades 7 to 9) who attended Templeton Collegiate during the 1987-88 school year. Templeton Collegiate is a rural Newfoundland high school (grades 7 to 12) that serves a student population of 530 from six communities on the North Shore of the Bay of Islands. According to research done by school officials, Templeton has had dropout rates ranging from 40 to 60 percent since the

start of the Grade XII program. In a 1991 school profile update, the Newfoundland Department of Education reported that Templeton's graduation rate for the 1989-90 Academic year was 44 percent compared to a 68 percent graduation rate for the province. This should give Templeton an approximate dropout rate of 56 percent for the 1989-90 graduating class. Therefore, Templeton was an appropriate school in which to conduct research on school dropouts, especially research in the form of a dropout intervention strategy. Junior high students were chosen because according to statistics collected for the 1986-87 school year by the Newfoundland Department of Education, 72 percent of early leavers dropped out in Grades X, XI, and XII. (Student Retention Report, 1989). Consequently, it seemed appropriate to attempt a dropout intervention strategy immediately before the majority of dropouts leave school.

To determine potential dropouts, this study utilized the Dropout Alert Scale (DAS), a research-based instrument that was developed by Mathis (1976) and later modified by the Bureau of Educational Research, University of Mississippi (Cage, 1984). The DAS was administered to all junior high students at Templeton Collegiate as part of a Guidance Survey. Based on the scoring procedures recommended for this instrument, those students obtaining a score of 39 or higher are considered strong potential dropout candidates. Those students who obtain a score between 19 and 38 are considered

moderate potential dropout candidates. Those students who obtain a score 18 or lower are considered potential persisters. In order to identify a sufficient number of potential dropouts and potential persisters from which to draw samples for this study, it was necessary to modify the DAS scoring cut-off points. It was decided to eliminate the moderate potential dropout group. Students who scored 29 or higher were considered potential dropouts and those who scored 28 or lower were considered potential persisters.

Forty-eight students randomly selected from a sample of potential dropouts were randomly assigned to either the experimental or control group. The experimental group consisted of 24 potential dropouts who attended a five-day wilderness camping expedition. The expedition combined the uniqueness of the natural setting with physical challenges, communal living experiences, problem solving tasks, and group counselling based on Rational - Emotive Education (REE). The control group consisted of 24 potential dropouts who received no treatment. To help control selection bias and to test the discriminating power of the Dropout Alert Scale (DAS), a third group of 24 students was randomly selected from a group of male, junior high students who were identified by the DAS as potential persisters.

Instrumentation

Dropout Alert Scale (DAS)

The instrument used in this study to identify potential dropouts was the Dropout Alert Scale (see Appendix A). This instrument was selected because it can be easily completed in a short time by the target population and quickly scored by any staff member. The Dropout Alert Scale (DAS) also provides answers to a large number of items that are highly correlated with dropping out of school. The DAS is a self-report instrument consisting of 30 items that require a forced-choice among four responses. Each response has been weighted by the developers to provide specific scores (see Appendix B). Total scores can range from 0 to 108.

Reliability and validity coefficients for the instrument were not reported. However, the instrument has been adopted for use in a Dropout Prevention Manual developed by the Bureau of Educational Research, University of Mississippi (Cage, 1984). The instrument has also been included in a dropout prevention package prepared by the Mississippi Department of Education for use throughout the State of Mississippi (Evans, 1984).

Piers-Harris Children's Self Concept Scale

To measure change in self-concept, this study utilized the Piers-Harris Children's Self Concept Scale (Piers and Harris, 1969). This scale is a commercial self-report instrument consisting of 80 items that require a forced choice among two responses - "yes" or "no". The scale provides a norms table which converts raw scores to percentiles. Piers and Harris (1969) reported reliability coefficients for this scale ranging from .71 to .93, and validity coefficients ranging from .31 to .68. This instrument was administered to all three groups six weeks after the experimental treatment concluded (December), and it was re-administered six months later (June) to evaluate any long-term effects of the treatment on self-concept.

Nowicki-Strickland Locus of Control Scale

To determine locus of control orientation, this study used the Nowicki-Strickland Locus of Control Scale. This scale is a paper-and-pencil instrument consisting of 40 questions answered either "yes" or "no". Items describe reinforcement situations across interpersonal and motivational areas of affiliation, achievement, and dependency. The higher the score the more external the orientation. Nowicki and Strickland (1973) reported reliability coefficients ranging from .68 to .81; they also claimed high construct validity on

the basis of significantly high correlations between the Nowicki-Strickland scale and other measures of locus of control, such as the Rotter I-E Scale (Rotter, 1966), although no coefficients were provided. This instrument was also administered to all three groups six weeks after the experimental treatment concluded (December) and then re-administered six months later (June) to evaluate any long-term effects of the treatment on locus of control.

Procedure

Solicitation of Permission

Once the students were identified as potential dropouts and randomly assigned to experimental and control groups, the group leaders met briefly with the 24 members of the experimental group to explain the program and ask the students if they were interested in participating. Following their consent to participate, letters were sent home to solicit their parents' permission. After obtaining permission from each student's parents or guardians, the group leaders met with the participants again to provide more details about the program's activities and to answer questions. Rules and program expectations were clearly explained to the participants and they were given a list of personal items for which they were responsible.

The Experimental Program

The camping trips lasted five days. There were two trips, with each having 12 potential dropouts. The students were accompanied by the school counsellor and another adult leader. While labelled a wilderness adventure program, the adventure experiences actually took place within the confines of Gros Morne National Park. The National Park setting was used to make the program easier to replicate using regular teaching staff. Also, this setting provided a safety factor that can not be assured in a true wilderness area. While it is accessible, Gros Morne has a rugged challenging area which contains the inherent therapeutic qualities necessary to produce the behavioral and attitudal changes desired for the campers.

The treatment was conducted in early fall for several reasons. First, it was felt the time missed from regular classes would have less impact on school performance. Second, it allowed for follow-up contact for the participants throughout the school year with peers and teachers who were involved in the camping expedition. Third, the fall is a slow period for the National Park; therefore, the campers would have less contact with other people and more freedom to conduct group activities.

The emphasis of the camping program was on the development of personal growth both as an individual and as a member of a peer group. Students were taught some wilderness

survival skills and techniques, but most things were learned through experience. Students were often confronted with a variety of individual and group challenges, some of which required individual courage and effort, while others required group co-operation and participation.

Food was provided to all participants, including two days of military ration packs. However, the students had complete responsibility for the preparation of meals. This included planning menus, starting cooking fires, cooking and serving food, and cleaning up after meals. The students slept in two large military tents which they had to erect completely on their own. This task could only be accomplished with the complete co-operation of each group member. It was felt that these communal living experiences would enhance each student's ability to work and communicate within a group setting.

In an effort to provide a variety of experiential learning situations, the program also included visits to the park visitor center and the exploration of various geological and historical features of the park (see Appendix C for details). In addition to being excellent learning experiences, many of the features explored were utilized in the nightly discussions to enhance transfer of learning to daily life; e.g., the effort required in the rescue of passengers from the shipwreck of the S.S. Ethie was compared to the effort to complete school.

Throughout the five-day expedition, campers were provided with numerous physical challenges in the form of canoeing, backpacking hikes over various distances and trails, and an extended climb up Gros Morne Mountain. Participants were given instruction in basic canoeing techniques; specifically, methods of transporting canoes, canoe safety, and basic canoe strokes. As part of the physical challenge, participants had to portage the canoes from the camping area to the canoeing site (Berry Hill Pond), a distance of two kilometers.

During their expedition, students completed progressively more difficult hiking trails. The trails varied in length and level of difficulty. Each of the six trails explored provided its own unique learning experiences for the participants (see Appendix D for details). As well, each trail that was completed provided each participant with a sense of accomplishment.

The most challenging and exciting aspect of the expedition was the 16 kilometer climb and loop circuit of Gros Morne Mountain. This upland plateau reaches 806 metres above sea level, and is the second highest mountain on the island of Newfoundland. The hike starts with a winding trail through a rich boreal forest that leads to the base of the mountain. There the trail becomes indistinct and the climb much more strenuous. Once on the summit, all climbers expressed a sense of success and a great feeling of bonding with the group. Before descending, the group completed a loop around the top

of the plateau where they had a spectacular view and encountered arctic hare and ptarmigan.

Throughout the expedition, the students were given a variety of problem-solving tasks including, but not limited to, the following:

1. How to set up a large military tent.
2. How to start a campfire when the wood is wet.
3. How to pack a knapsack for long hikes.
4. How to carry an injured person out of a wilderness area.
5. How to prepare and use a survival kit if lost in the wilderness.

Most of the problem solving tasks were real problems which were integral parts of various camping activities. Others, however, were hypothetical paper and pencil tasks done during the evening group counselling sessions; e.g., the "Bomb Shelter Exercise" or the "Lost on the Moon Exercise".

Throughout the camping trip, at the completion of each evening meal, all participants were brought together for a group meeting as suggested in modern Outward Bound programming. These meetings were essentially group-counselling sessions based in part on a Rational-Emotive Education program (REE). The REE program consists of peer group discussion, exercises, games, problem solving tasks, and lectures on the principles of REE. Sessions generally lasted

one to two hours and commenced with the opportunity for participants to reflect and recount the day's activities and raise concerns. The objectives of the group sessions included: (1) to learn concretely and accurately how to express feelings and not to speak in generalities; (2) to acquire basic problem solving skills; (3) to learn the ABC format of REE; (4) to learn to control irrational thought; (5) to develop rational coping strategies; (6) to provide for transfer of learning experiences from the adventure program to various life situations; and (7) to give support, empathy, and encouragement to others in the group.

The unique wilderness setting provided the group with a non-threatening environment. It was far away from the influences of home and school, and it was very conducive for conducting group counselling sessions. In addition, the physical challenges and group problem-solving tasks of each day's activities combined with the communal living experiences to promote interdependent relationships, co-operative attitudes, and a strong sense of bonding among all group members, including the adult leaders. This helped to create a social climate that allowed members to verbalize thoughts and feelings and be receptive to the objectives of the group counselling sessions.

Follow-Up Sessions

At the conclusion of the five-day wilderness camping aspect of the program, the adult leaders conducted three follow-up sessions with the participants back in the school setting. The sessions lasted approximately 1 1/2 hours each and were held over a three-week period following the conclusion of the camping expedition. In these sessions the main emphasis was to enhance the transfer of learning experiences from the wilderness adventure program to everyday home and school situations. These sessions consisted largely of peer group discussions, supplemented with some problem solving exercises and a slide presentation of the camping expedition.

Collection of Data

Approximately six weeks after the conclusion of the camping expedition, the school guidance staff administered the Piers-Harris Self Concept Scale and the Nowicki-Strickland Locus of Control Scale to all junior high students in the school, to evaluate any effects of the treatment on self-concept and locus of control. These two scales were re-administered at the end of the 1987-88 school year to evaluate any long-term effects.

In addition to data on self-concept and locus of control, data were collected at the end of each school year for three

years following treatment on other dependent variables. These variables included: days absent, academic average, percent of courses/credits passed, and participation in extra-curricular activities. Data were also collected on the above-noted variables for the school year preceding treatment (1986-87) to eliminate any dropout selection bias. This collection of pre-treatment data combined with the random selection of the potential dropout groups has been found to be effective in eliminating internal validity threats in this type of research design (Campbell and Stanley, 1966). Sources of data included: the two administrations of the self-concept and locus of control scales, school registers, school records of academic performance, and the students' individual cumulative records.

One limitation in the collection and subsequent analysis of data was the fact that the subjects, by their very nature as potential dropouts, were often absent, transferred schools, and dropped out of school. This resulted in varying numbers in each group at different times and with different measures. This, of course, was not ideal for statistical purposes and may cause some confusion with readers. However, this limitation is unavoidable in longitudinal research on potential dropouts.

Data Analysis

To test the discriminating power of the Dropout Alert Scale (DAS), and to eliminate any selection bias, a one way Analysis of Variance (ANOVA) was conducted to determine if there were any significant differences before treatment between the three groups on any of the dependent variables. Post hoc multiple comparisons using the Scheffe procedure were used to determine the exact nature of any differences.

The longitudinal effectiveness of the experimental program was analyzed at the end of each school year over a three-year follow-up period, with evaluations of the noted variables and retention rates. ANOVA analyses were used to determine if there were any significant differences between the three groups on any of the dependent variables. Post hoc multiple comparisons using the Scheffe procedure were again completed to determine the exact nature of any differences.

To evaluate dropout rates the researcher used Fisher's Exact Probability of Independence test. This test was chosen because dropout rates are based on discrete data and the small numbers of dropouts observed within the study were not sufficient to satisfy the cell frequency and degree of freedom requirements for a chi square analysis. For all analyses reported in this study, a probability level of alpha = $p<.05$ was considered significant.

CHAPTER 4

RESULTS

The main focus of this study was to develop, implement and evaluate a wilderness adventure program as a method of reducing student dropout rates. However, to eliminate potential selection bias, it was essential to first evaluate the discriminating power of the Dropout Alert Scale (DAS) as a means of identifying potential school dropouts.

Pre-Treatment Analysis

The results of analyses of variance conducted on data collected from the 1986-87 school year (before treatment) revealed significant differences among the groups for all noted school-related variables associated with dropouts (see Table 1). Scheffe multiple comparisons were computed to determine which comparisons among the three groups of students yielded significant differences. The results of these tests of significance revealed that the persisters control group (Control II) was significantly different from both potential dropout groups (Experimental and Control I) on all variables (see Table 2). This procedure revealed no significant differences between the two potential dropout groups on any of the measured variables; i.e., student age, grades repeated, days absent, percentage of courses passed and academic average.

Table 1

Pre-Treatment Analysis of Variance of

School-Related Variables Associated With Dropouts

VARIABLES /Source	SS	df	MS	F	P
STUDENT AGE					
Between	12.33	2	6.17		
Within	85.67	69	1.24	4.97	.010
Total	98.00	71			
GRADES REPEATED					
Between	11.11	2	5.56		
Within	34.67	69	0.50	11.06	.000
Total	45.78	71			
DAYS ABSENT 86-87					
Between	2324.94	2	1162.47		
Within	7636.05	63	121.21	9.59	.000
Total	9960.99	65			
% COURSES PASSED 86-87					
Between	0.79	2	0.40	10.53	.000
Within	2.41	64	0.04		
Total	3.21	66			
ACADEMIC AVERAGE 86-87					
Between	4627.11	2	2313.55	21.88	.000
Within	6766.17	64	105.72		
Total	11393.28	66			

Table 2

Scheffe Post-Hoc Comparisons of Group Means

for School-Related Variables Associated with Dropouts

STUDENT AGE

Group	Number	Mean	Experimental 13.83	Control I 13.75	Control II 12.92
Experimental	24	13.83	0	F=1.24	F=8.01*
Control I	24	13.75		0	F=6.67*
Control II	24	12.92			0

GRADES REPEATED

Group	Number	Mean	Experimental 0.83	Control I 0.83	Control II 0.00
Experimental	24	0.83	0	F=0.00	F=16.53*
Control I	24	0.83		0	F=16.53*
Control II	24	0.00			0

DAYS ABSENT 86-87

Group	Number	Mean	Experimental 18.77	Control I 19.64	Control II 6.64
Experimental	22	18.77	0	F=0.07	F=13.35*
Control I	22	19.64		0	F=15.34*
Control II	22	6.64			0

% COURSES PASSED 86-87

Group	Number	Mean	Experimental 0.77	Control I 0.76	Control II 0.99
Experimental	23	0.77	0	F=0.03	F=13.61*
Control I	22	0.76		0	F=14.55*
Control II	22	0.99			0

ACADEMIC AVERAGE 86-87

Group	Number	Mean	Experimental 59.05	Control I 57.91	Control II 76.16
Experimental	23	59.05	0	F=0.14	F=31.14*
Control I	22	57.91		0	F=34.65*
Control II	22	76.16			0

*= P<.05 for Scheffe critical F value = $(k-1)F_{(p<.05)(k-1,N-k)} = 6.30$

While analyses found significant differences between the potential persisters and both groups of potential dropouts on all noted school-related variables associated with dropouts, there were no significant differences in the enrolled grade of each group (see Table 3). All students selected were in Junior High at the start of the study.

Table 3

Analysis of Variance of Enrolled Grade at the Start of the Study

SOURCE	SS	df	MS	F	P
Between	0.11	2	0.06		
Within	47.67	69	0.69	0.08	.923
Total	47.78	71			

To further evaluate the discriminating power of the DAS, the school's teachers were asked to rate each and every student's risk of dropping out in terms of the risk being high, moderate, or no risk. The teacher nominations were given the respective values of 3 = high, 2 = moderate, and 1 = no risk. Results of an ANOVA of these ratings found a significant difference among the groups ($F[2,69]=19.67$, $p<.001$). Analysis of the DAS scores also found a significant difference ($F[2,69]=73.63$, $p<.0001$) among the groups (see Table 4).

Table 4

Analysis of Variance of Dropout Risk

VARIABLES /Source	SS	df	MS	F	P
DAS SCORE					
Between	9564.25	2	4782.13		
Within	4481.25	69	64.95	73.63	.000
Total	14045.50	71			
TEACHER NOMINATION					
Between	19.53	2	9.76		
Within	34.25	69	0.50	19.67	.000
Total	53.78	71			

Scheffe multiple comparison tests revealed that the potential persisters group (Control II) was significantly different than both potential dropout groups (Control I and Experimental) for both the DAS scores and teacher nominations of potential dropouts (see Table 5). No significant difference was found between the two potential dropout groups. A correlational analysis of the DAS scores with the teacher nomination of potential dropouts produced a Pearson correlation of $r= 0.756$, $p<.001$.

Table 5

Scheffe Post-Hoc Comparisons of Group Means for Dropout Risk Variables

DAS SCORE

Group	Number	Mean	Experimental 45.33	Control I 44.45	Control II 20.46
Experimental	24	45.33	0	F=0.14	F=114.28*
Control I	24	44.45		0	F=106.33*
Control II	24	20.46			0

TEACHER NOMINATION

Group	Number	Mean	Experimental 2.33	Control I 2.29	Control II 1.21
Experimental	24	2.33	0	F=0.50	F=30.32*
Control I	24	2.29		0	F=28.20*
Control II	24	1.21			0

*= P<.05 for Scheffe critical F value = $(k-1)F_{(p<.05)(k-1,N-k)} = 6.30$

Self Concept

Six weeks after treatment, all students were administered the Piers-Harris Children's Self Concept Scale. Analysis of the results from this scale found a significant difference among the groups (see Table 6). Scheffe multiple comparisons of means revealed that the potential persisters group (Control II) produced significantly higher self-concept scores than did both potential dropout groups (see Table 7). In contrast, the observed difference between the mean scores of the two potential dropout groups was not found to be significant.

The scale was re-administered after six months. Analysis of variance of group mean scores again found a significant

difference among the groups (see Table 6). The Scheffe multiple comparisons for this variable revealed that the potential persisters group (Control II) again produced significantly higher self-concept scores than did the control group of potential dropouts (see Table 7). However, no significant difference was found between the potential persisters control group and the experimental group of potential dropouts ($F_{2,56} = 5.44$, $p>.05$). While the experimental group of potential dropouts scored higher than did the control group of potential dropouts (Control I) on the second administration of the self-concept scale, analysis did not find the difference significant ($F_{2,56}=0.84$, $p>.05$).

Table 6

Analysis of Variance of

Self-Concept

VARIABLES /Source	SS	df	MS	F	P
Self-Concept (Dec. 87)					
Between	12611.12	2	6305.56		
Within	43535.22	67	649.78	9.70	.000
Total	56146.34	69			
Self-Concept (June 88)					
Between	9869.33	2	4934.67		
Within	42063.72	54	778.96	6.34	.003
Total	51933.05	56			

Table 7

Scheffe Post-Hoc Comparisons of Group Means for Self-Concept Measures

SELF-CONCEPT 1987

Group	Number	Mean	Experimental 60.74	Control I 52.09	Control II 83.71
Experimental	23	60.74	0	F=1.32	F=9.54*
Control I	23	52.09		0	F=18.07*
Control II	24	83.71			0

SELF-CONCEPT 1988

Group	Number	Mean	Experimental 60.38	Control I 51.68	Control II 81.77
Experimental	16	60.38	0	F=0.84	F=5.44
Control I	19	51.68		0	F=11.85*
Control II	22	81.77			0

*= P<.05 for Scheffe critical F value = $(k-1)F_{(p<.05)(k-1,N-k)} = 6.30$

Locus of Control

Six weeks after treatment, all students were also administered the Nowicki-Strickland Locus of Control Scale. Analysis of the results from this scale found a significant difference among the groups (see Table 8). The Scheffe procedure revealed that the potential persisters group (Control II) exibited a significantly more internal locus of control orientation than did both potential dropout groups (see Table 9). This analysis found no significant difference between the potential dropout groups (Control I and Experimental).

The scale was re-administered after six months. Analysis again found a significant difference among the groups (see Table 8). The Scheffe procedure revealed that the potential persisters group (Control II) again exibited a significantly more internal locus of control orientation than did the control group of potential dropouts (see Table 9). However, no significant difference was found between the potential persisters control group and the experimental group of potential dropouts ($F_{2,56} = 5.38$, $p>.05$). While the experimental group of potential dropouts did exhibit a more internal locus of control orientation than did the control group of potential dropouts (Control I), analysis did not find the difference significant ($F_{2,56}=0.90$, $p>.05$).

Table 8

Analysis of Variance of

Locus of Control

VARIABLES /Source	SS	df	MS	F	P
Locus of Control (Dec. 87)					
Between	388.22	2	194.11		
Within	1108.65	67	16.55	11.73	.000
Total	1496.87	69			
Locus of Control (June 87)					
Between	237.31	2	118.66		
Within	1005.25	54	18.62	6.37	.003
Total	1242.56	56			

Table 9

Scheffe Post-Hoc Comparisons of Group Means for Locus of Control Measures

Locus of Control 1987

Group	Number	Mean	Experimental 15.52	Control I 15.96	Control II 10.79
Experimental	23	15.52	0	F=0.13	F=15.89*
Control I	23	15.96		0	F=18.98*
Control II	24	10.79			0

Locus of Control 1988

Group	Number	Mean	Experimental 13.56	Control I 14.95	Control II 10.27
Experimental	16	13.56	0	F=0.90	F=5.38
Control I	19	14.95		0	F=11.99*
Control II	22	10.27			0

*= P<.05 for Scheffe critical F value = $(k-1)F_{(p<.05)(k-1,N-k)}$= 6.30

Days Absent

Research has shown that days absent from school is highly predictive of potential dropouts. Analyses conducted for this study found significant differences in days absent among the groups for all three years following treatment, as well as for the year before treatment (see Table 10). For the 1986-87 school year (before treatment) the Scheffe multiple comparisons, listed in Table 11, revealed that the potential persisters group (Control II, $\bar{x}$ = 6.64) had significantly fewer days absent than did both groups of potential dropouts (Experimental, $\bar{x}$ = 18.77 and Control I, $\bar{x}$ = 19.64). However,

no significant difference was found between the potential dropout groups (Experimental and Control I).

Subsequent analyses, with the Scheffe procedure, revealed that the potential persisters group (Control II) had significantly fewer school days absent than did the control group of potential dropouts (Control I) for each of the three years following treatment (1987-88, 1988-89, 1989-90). However, the persisters control group (Control II) had significantly better attendance than the experimental group of potential dropouts (Experimental) only for the 1988-89 school year ($F\ 2,59=7.41, p<.05$). For the remaining two years of the study (1987-88 and 1989-90), the attendance of persisters and potential dropouts in the experimental group did not differ significantly (see Table 11).

While the analysis before treatment found no significant difference in days absent between both groups of potential dropouts (Control I, $\bar{x}$ = 19.64 and Experimental, $\bar{x}$ = 18.77), analyses following treatment revealed that the experimental groups absentee means (13.55, 17.12), were significantly lower than were those of Control I (23.40, 33.81) for the 1987-88 and 1989-90 school years, respectively. No significant attendance difference was found between the two potential dropout groups for the 1988-89 school year (see Table 11).

Table 10

Analysis of Variance of Days Absent

VARIABLES /Source	SS	df	MS	F	P
Days Absent 86-87					
Between	2324.94	2	1162.47		
Within	7636.05	63	121.21	9.59	.000
Total	9960.99	65			
Days Absent 87-88					
Between	2629.23	2	1314.61		
Within	6400.71	61	104.93	12.53	.000
Total	9029.94	63			
Days Absent 88-89					
Between	3039.85	2	1519.92		
Within	9105.49	57	159.75	9.51	.000
Total	12145.33	59			
Days Absent 89-90					
Between	6120.21	2	3060.10		
Within	9867.83	54	182.74	16.75	.000
Total	15988.04	56			

Table 11

Scheffe Post-Hoc Comparisons of Group Means for Days Absent

DAYS ABSENT 86-87

Group	Number	Mean	Experimental 18.77	Control I 19.64	Control II 6.64
Experimental	22	18.77	0	F=0.07	F=13.35*
Control I	22	19.64		0	F=15.34*
Control II	22	6.64			0

DAYS ABSENT 87-88

Group	Number	Mean	Experimental 13.55	Control I 23.40	Control II 7.96
Experimental	20	13.55	0	F=9.25*	F=3.25
Control I	20	23.40		0	F=24.78*
Control II	24	7.96			0

DAYS ABSENT 88-89

Group	Number	Mean	Experimental 18.74	Control I 25.18	Control II 8.17
Experimental	19	18.74	0	F=2.33	F=7.41*
Control I	17	25.18		0	F=19.21*
Control II	24	8.17			0

DAYS ABSENT 89-90

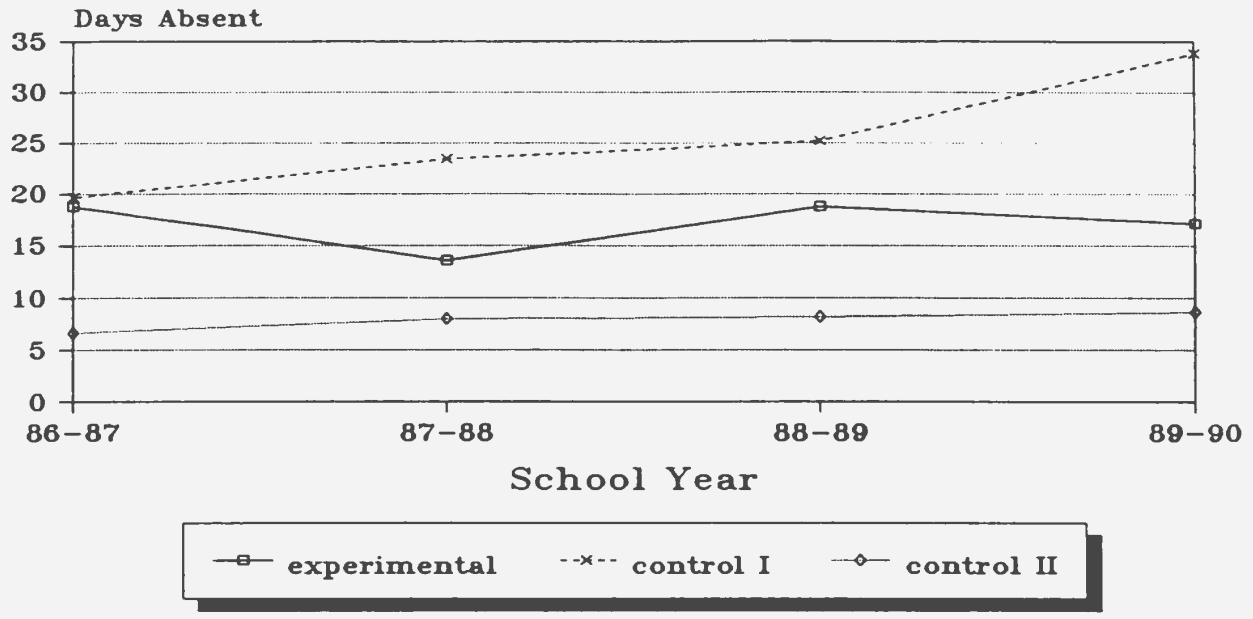
Group	Number	Mean	Experimental 17.11	Control I 33.81	Control II 8.63
Experimental	17	17.11	0	F=12.58*	F=3.92
Control I	16	33.81		0	F=33.31*
Control II	24	8.63			0

*= P<.05 for Scheffe critical F value = $(k-1)F_{(p<.05)(k-1,N-k)} = 6.30$

Figure 1 presents absenteeism trends of all three groups over the course of this study. The potential persisters group (Control II) displayed a very consistent trend in days absent. Throughout the study, the persisters control group had better attendance than did both groups of potential dropouts. Absenteeism for the potential dropouts control group (Control I) increased in each year of the study. In the year before treatment (1986-87) Control I averaged 19.6 days absent, this increased to 23.4 days in 1987-88, 25.2 days in 1988-89, and 33.8 days in 1989-90.

Relative to the control group of potential dropouts (Control I) the experimental group experienced a significant improvement in attendance for the first year following treatment, 1987-88 ($F_{2,63}=9.25$, $p>.05$). In subsequent years, absenteeism for the experimental group did increase, however, attendance was always better than it was for control group of potential dropouts (Control I) and attendance did not decline continuously as it did for the potential dropouts control group. The year before treatment (1986-87) the experimental group averaged 18.8 days absent, following treatment this decreased to 13.6 days in 1987-88, increased to 18.7 for 1988-89, and decreased to 17.1 for 1989-90 (see Figure 1).

Figure 1
Absenteeism Trends



Academic Performance

Continuously declining levels of academic performance have often been cited as a major factor precipitating a potential dropout's final decision to withdraw from school. Analyses of variance conducted for this study found significant differences in academic average among the groups for all three years following treatment, as well as for the year before treatment (see Table 12). Scheffe multiple comparisons of group means revealed that the potential persisters group (Control II) had a significantly higher

academic average than did both groups of potential dropouts (Control I and Experimental) in each year of the study (see Table 13). In contrast, the observed differences in academic average between the mean scores of the two potential dropout groups were not found to be significant. Figure 2 graphically illustrates the academic trends of all three groups throughout the four years of the study.

Table 12

Analysis of Variance of Academic Averages

VARIABLES /Source	SS	df	MS	F	P
Academic Avg. 86-87					
Between	4627.11	2	2313.55		
Within	6766.17	64	105.72	21.88	.000
Total	11393.28	66			
Academic Avg. 87-88					
Between	5509.36	2	2754.68		
Within	5635.49	62	90.90	30.31	.000
Total	11144.85	64			
Academic Avg. 88-89					
Between	4075.94	2	2037.97		
Within	4959.94	57	87.02	23.42	.000
Total	9035.87	59			
Academic Avg. 89-90					
Between	4580.36	2	2290.18		
Within	4876.06	54	90.30	25.36	.000
Total	9456.42	56			

Table 13

Scheffe Post-Hoc Comparisons of Group Means for Academic Averages

ACADEMIC AVERAGE 86-87

Group	Number	Mean	Experimental 59.05	Control I 57.91	Control II 76.16
Experimental	23	59.05	0	F=0.14	F=31.14*
Control I	22	57.91		0	F=34.65*
Control II	22	76.16			0

ACADEMIC AVERAGE 87-88

Group	Number	Mean	Experimental 58.65	Control I 56.86	Control II 76.80
Experimental	21	58.65	0	F=0.36	F=40.59*
Control I	20	56.86		0	F=47.72*
Control II	24	76.80			0

ACADEMIC AVERAGE 88-89

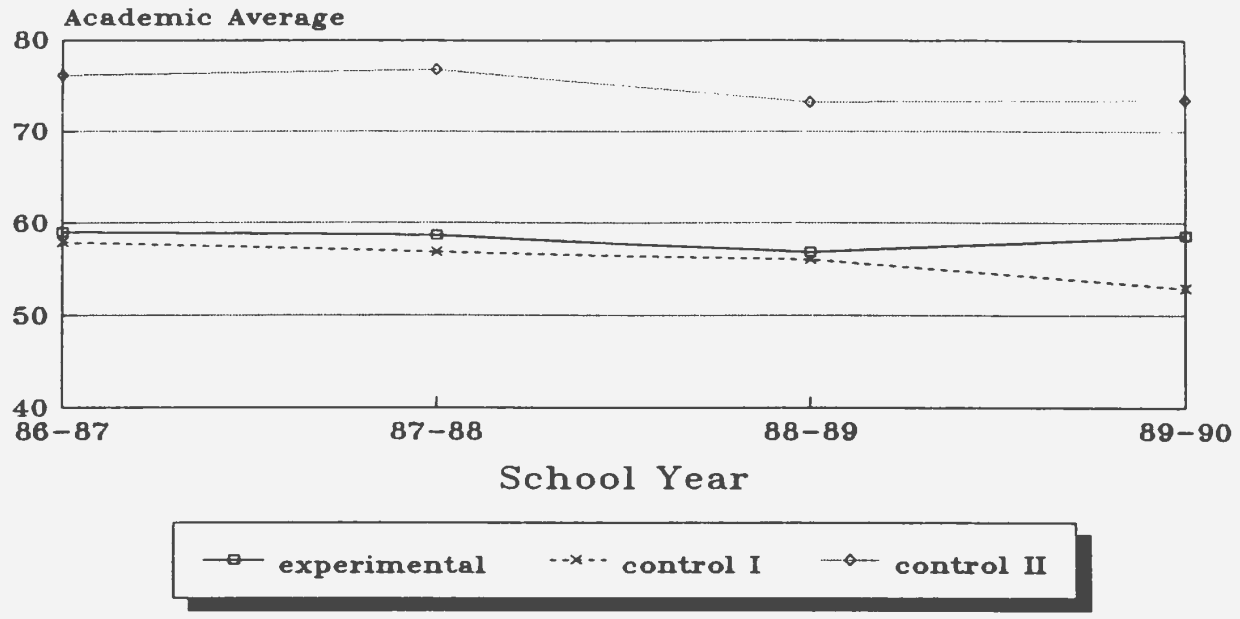
Group	Number	Mean	Experimental 56.82	Control I 56.02	Control II 73.25
Experimental	19	56.82	0	F=0.07	F=32.90*
Control I	17	56.02		0	F=33.95*
Control II	24	73.25			0

ACADEMIC AVERAGE 89-90

Group	Number	Mean	Experimental 58.45	Control I 52.96	Control II 73.45
Experimental	17	58.45	0	F=2.75	F=24.80*
Control I	16	52.96		0	F=44.63*
Control II	24	73.45			0

*= P<.05 for Scheffe critical F value = $(k-1)F_{(p<.05)(k-1,N-k)} = 6.30$

Figure 2
Academic Average Trends



A second indicator of academic performance, percent of courses/credits passed, produced results that were remarkably similar to those observed for the academic average variable. Analysis of variance of the percent of courses/credits passed by each of the three groups both before the treatment and for three years thereafter revealed that there were significant differences among the three groups for each of the four years the study was conducted (see Table 14). Scheffe multiple comparisons of group means again indicated that potential persisters (Control II) successfully completed a significantly greater number of courses than did either group of potential

dropouts and that the difference between the two groups of potential dropouts (Control I and Experimental) was, again, not significant (see Table 15). Figure 3 better expresses the consistent pattern of differences among the three groups over the four years of the investigation.

Table 14

Analysis of Variance of Percent of Courses/Credits Passed

VARIABLES /Source	SS	df	MS	F	P
% Courses Passed 86-87					
Between	0.79	2	0.40		
Within	2.41	64	0.04	10.53	.000
Total	3.20	66			
% Courses Passed 87-88					
Between	0.79	2	0.39		
Within	1.88	62	0.03	12.95	.000
Total	2.67	64			
% Courses Passed 88-89					
Between	0.57	2	0.28		
Within	1.26	57	0.02	12.78	.000
Total	1.83	59			
% Courses Passed 89-90					
Between	1.01	2	0.51		
Within	1.73	54	0.03	15.85	.000
Total	2.74	56			

Table 15

Scheffe Post-Hoc Comparisons of Group Means for Percentage of Courses/Credits Passed

% COURSES PASSED 86-87

Group	Number	Mean	Experimental 0.77	Control I 0.76	Control II 0.99
Experimental	23	0.77	0	F=0.03	F=14.44*
Control I	22	0.76		0	F=15.44*
Control II	22	0.99			0

% COURSES PASSED 87-88

Group	Number	Mean	Experimental 0.78	Control I 0.72	Control II 0.97
Experimental	21	0.78	0	F=1.22	F=13.34*
Control I	20	0.72		0	F=22.50*
Control II	24	0.97			0

% COURSES PASSED 88-89

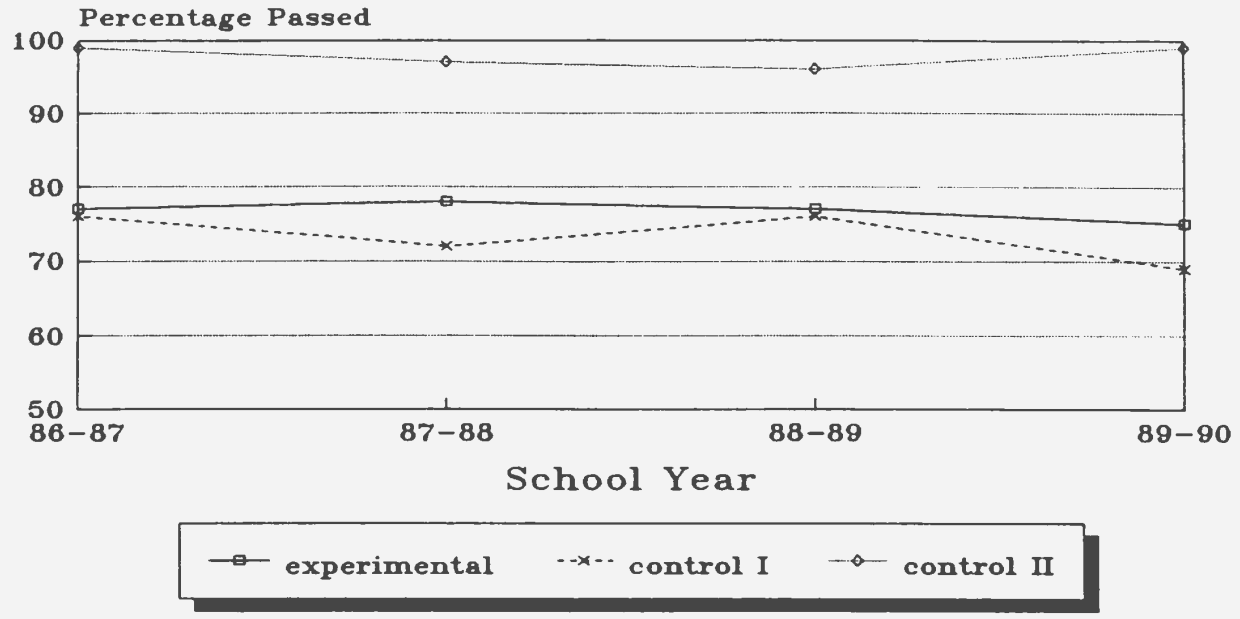
Group	Number	Mean	Experimental 0.77	Control I 0.76	Control II 0.96
Experimental	19	0.77	0	F=0.04	F=17.24*
Control I	17	0.76		0	F=17.93*
Control II	24	0.96			0

% COURSES PASSED 89-90

Group	Number	Mean	Experimental 0.75	Control I 0.69	Control II 0.99
Experimental	17	0.75	0	F=0.93	F=17.91*
Control I	16	0.69		0	F=27.00*
Control II	24	0.99			0

*= P<.05 for Scheffe critical F value = $(k-1)F_{(p<.05)(k-1,N-k)}$= 6.30

Figure 3
Percentage of Courses/Credits Passed



Extra-Curricular Participation

Analyses of variance of student involvement in extra-curricular activities found significant differences among the groups for all three years following treatment (see Table 16). The Scheffe multiple comparisons of group means revealed that the potential persisters group (Control II) was involved in significantly more extra-curricular activities than were both potential dropout groups (see Table 17).

In each of the three years following treatment, the students in the experimental group of potential dropouts were involved in more extra-curricular activities than were those

in the control group of potential dropouts (Control I). Over the three years, the experimental group averaged 2.45 activities per student, while the control I group averaged only 1.16 activities. However, the Scheffe procedure did not find any of the observed differences to be statistically significant.

Table 16

Analyses of Variance of

Extra-Curricular Activities

VARIABLES /Source	SS	df	MS	F	P
Extra-Curricular Activities 87-88					
Between	45.08	2	22.54		
Within	121.79	69	1.77	12.77	.000
Total	166.87	71			
Extra-Curricular Activities 88-89					
Between	31.13	2	15.57		
Within	66.80	60	1.11	13.98	.000
Total	97.93	62			
Extra-Curricular Activities 89-90					
Between	23.58	2	11.79		
Within	90.35	56	1.61	7.31	.002
Total	113.93	58			
Extra-Curricular Activities Total					
Between	247.31	2	123.65		
Within	596.35	56	10.65	11.61	.000
Total	843.66	58			

Table 17

Scheffe Post-Hoc Comparisons of Group Means

for Extra-Curricular Activities

EXTRA-CURRICULAR ACTIVITIES 87-88

Group	Number	Mean	Experimental 1.21	Control I 0.50	Control II 2.42
Experimental	24	1.21	0	F=3.43	F=9.95*
Control I	24	0.50		0	F=25.06*
Control II	24	2.42			0

EXTRA-CURRICULAR ACTIVITIES 88-89

Group	Number	Mean	Experimental 0.63	Control I 0.35	Control II 1.92
Experimental	19	0.63	0	F=0.69	F=15.90*
Control I	20	0.35		0	F=24.23*
Control II	24	1.92			0

EXTRA-CURRICULAR ACTIVITIES 89-90

Group	Number	Mean	Experimental 0.61	Control I 0.41	Control II 1.79
Experimental	18	0.61	0	F=0.22	F=8.90*
Control I	17	0.41		0	F=11.77*
Control II	24	1.79			0

EXTRA-CURRICULAR ACTIVITIES TOTAL

Group	Number	Mean	Experimental 2.72	Control I 1.41	Control II 6.13
Experimental	18	2.72	0	F=1.41	F=11.23*
Control I	17	1.41		0	F=20.82*
Control II	24	6.13			0

*= P<.05 for Scheffe critical F value = $(k-1)F_{(p<.05)(k-1,N-k)} = 6.30$

Dropouts

The primary variable of interest in this study was the dropout rate. Due to the small numbers of subjects who dropped out of school throughout the study, and the single degree of freedom involved in the paired comparisons of groups, Fisher's Exact Probability of Independence Test was used to analyze dropout rates.

During the first year following treatment (1987-88), four students (16.8 percent) from the control group of potential dropouts dropped out of school, while only one student (4.2 percent) from the experimental group dropped out. As expected, none of the students in the potential persisters group (Control II) left school. The Fisher's Exact Probability Tests found no significant difference between the two potential dropout groups, but a significant difference was found between the potential persisters control group and the potential dropouts control group (see Table 18).

By the end of the second year following treatment (1988-89), seven school dropouts (29.2 percent) were reported for the potential dropout control group, while the number of dropouts from the experimental group remained at one (4.2 percent). The potential persisters group continued to have a zero dropout rate. Fisher's Exact Probability revealed that the potential dropout control group had a significantly higher dropout rate than did both the persisters control group ($p<0.005$) and the experimental group ($p<0.026$). Furthermore,

there was no significant difference between the dropout rates of the persisters control group and that of the experimental group.

By the end of the third year following treatment (1989-90) eight students (33.3 percent) had dropped out of the potential dropout control group, while three students (12.5 percent) had dropped out of the experimental group. The persisters control group continued to have a zero dropout rate. Fisher's Exact Probability values, given in Table 18, revealed that the potential dropout control group again had a significantly higher dropout rate than did the potential persisters control group ($p<0.002$). In contrast, the difference between the numbers of dropouts from the experimental and persisters groups was again not significant. The difference between the experimental and control groups of potential dropouts was also not significant ($p<0.097$). Figure 4 graphically illustrates the dropout trend for each group over the entire study period.

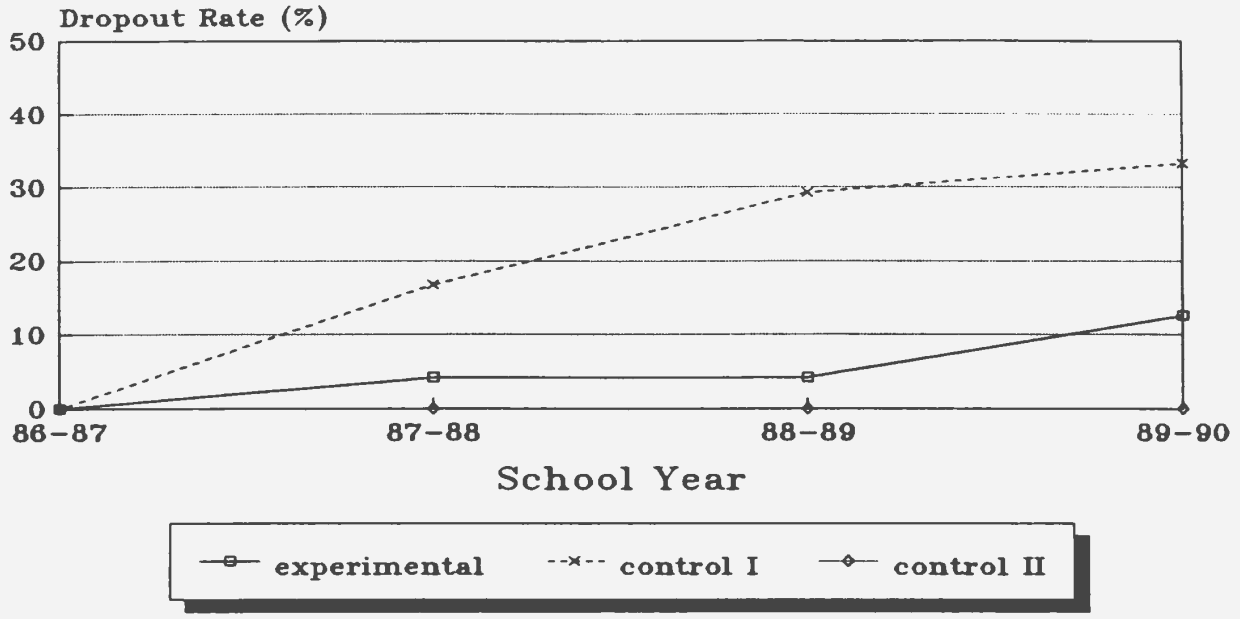
Table 18

Fisher's Exact Probability of Independence

for the Number of Dropouts

YEAR	GROUP	NO. OF DROPOUTS	FISHER'S EXACT PROBABILITY
	Control I	4	0.199
	Experimental	1	
1987-88	Control I	4	0.050
	Control II	0	
	Experimental	1	0.500
	Control II	0	
	Control I	7	0.026
	Experimental	1	
1988-89	Control I	7	0.005
	Control II	0	
	Experimental	1	0.500
	Control II	0	
	Control I	8	0.097
	Experimental	3	
1989-90	Control I	8	0.002
	Control II	0	
	Experimental	3	0.117
	Control II	0	

Figure 4
Dropout Rate Trends



Years of Formal Education Lost

It was noted that the dropouts from the Control group were dropping out of school earlier than were those from the Experimental group. To gauge the magnitude of the resultant difference in educational experience for the two groups of students, a statistical analysis of the years of formal education lost due to dropping out of school was conducted. This was calculated by looking at the specific year each student dropped out of school, and counting as lost a year of education for that year and each subsequent year up to and

including the academic year when each student should have graduated. Using this method of calculation, it was found that the control group of potential dropouts (Control I) lost a total of nineteen years of formal education while the Experimental group lost only five years. As expected, the potential persisters lost no years of formal education. An analysis of variance of this variable revealed a significant difference among the groups in the mean number of years lost (see Table 19). Subsequent Scheffe multiple comparisons revealed that while the potential dropout control group (Control I) lost significantly more years of formal education than did either the experimental group or the potential persisters control group, no significant difference was found between the experimental group of potential dropouts and the potential persisters control group (see Table 20).

Table 19

Analysis of Variance of

Years of Formal Education Lost

VARIABLES /Source	SS	df	MS	F	P
Between	8.08	2	4.04		
Within	43.91	69	0.64	6.35	.003
Total	51.99	71			

Table 20

Scheffe Post-Hoc Comparisons of Group Means

for Years of Formal Education Lost

Group	Number	Mean	Experimental 0.21	Control I 0.79	Control II 0.00
Experimental	24	0.21	0	F=6.34*	F=0.83
Control I	24	0.79		0	F=11.77*
Control II	24	0.00			0

*= P<.05 for Scheffe critical F value = $(k-1)F_{(p<.05)(k-1,N-k)}$= 6.30

CHAPTER 5

DISCUSSION

The main purpose of this study was to evaluate the longitudinal effects of a wilderness adventure program on potential school dropouts. A secondary purpose of the study was the evaluation of the Dropout Alert Scale (DAS) as a means of identifying potential school dropouts. This chapter presents a discussion of the results in relation to the stated purposes, the principal conclusions, the educational implications and the research recommendations.

Identification of Potential Dropouts

Before a school can successfully lower its dropout rate, it is essential that students at risk of dropping out of school be accurately identified. At the outset of this study, the Dropout Alert Scale (DAS) was used to identify the potential dropouts for inclusion in the study.

To evaluate the discriminating power of the DAS, the researcher answered the following short-term research question before investing time, effort, and money in the experimental treatment: Did the random samples of students identified by the DAS as potential dropouts differ significantly before treatment from a random sample of students identified by the DAS as potential persisters on any of the selected school-related variables associated with dropouts? The selected

variables included: age, years/grades repeated, days absent, percent of courses/credits passed, and academic average.

The statistical analysis conducted for this study clearly supported the use of the Dropout Alert Scale (DAS) as a reliable method of identifying potential school dropouts. An analysis of variance (ANOVA) of each of the school-related variables associated with school dropouts found significant differences among the three groups on all variables before treatment. Those variables and their F probability are as follows: age ($p<.0097$), grades repeated ($p<.0001$), days absent 1986-87 ($p<.0002$), percent of courses/credits passed 1986-87 ($p<.0001$), and academic average 1986-87 ($p<.0001$). The Scheffe multiple comparisons revealed that the potential persisters control group was significantly different than both groups of potential dropouts on all variables before treatment. No significant differences were found before treatment between the two groups of potential dropouts on any of the five noted school-related variables associated with dropouts.

To further evaluate the discriminating power of the DAS, the researcher examined teacher identification of potential dropouts. Teachers rated each student's risk of dropping out in terms of the risk being high, moderate, or no risk. A correlational analysis of the DAS scores with the teacher nomination of potential dropouts produced a significant correlation ($r=0.756$, $p<.001$).

This Pre-treatment analysis supported the following important conclusions:

1. Random samples of students identified by the DAS as potential dropouts were significantly different before treatment from a random sample of students identified by the DAS as potential persisters on a variety of school-related variables associated with school dropouts.

2. There were no significant differences between the experimental and control groups of potential dropouts before treatment on any of the school-related variables associated with school dropouts.

To evaluate the longitudinal discriminating power of the DAS, analyses comparing the potential persisters control group with both groups of potential dropouts (Control I and Experimental) were conducted throughout the three years following treatment. Results revealed that the potential persisters control group had significantly better results than did the potential dropout control group on all variables throughout the three years. The potential persisters control group had significantly better results than did the experimental group on the majority of the variables throughout the three years. The exceptions were the second administration of the Self-Concept and Locus of Control Scales, days absent for 1987-88 and 1989-90, and the years of formal education lost over the three years.

An examination of dropout rates revealed that three years after the wilderness adventure treatment, the control group of potential dropouts had a 33.3 percent dropout rate, the experimental group had a 12.5 percent dropout rate, and the potential persisters control group had a zero percent dropout rate. Analysis at the end of the 1989-90 school year utilizing Fisher's Exact Probability Test, revealed that the control group of potential dropouts had a significantly higher dropout rate than did the potential persisters control group ($p<0.002$).

The results of analyses conducted throughout this study have provided support for several conclusions that have relevance for educators. First, dropouts can be accurately identified years before they actually drop out of school. All eleven students who dropped out in this study were identified as potential dropouts one to three years before they withdrew from school. Secondly, the Dropout Alert Scale (DAS) has been found to be a useful instrument for identifying potential dropouts within a sample of Newfoundland secondary school students. The DAS accurately identified 100 percent of the dropouts in this study, before they dropped out.

Given its apparent utility, further research should be conducted on the DAS. This researcher recommends the following:

1. The subjects in the study should continue to be monitored until all subjects have either graduated or dropped

out of school. This would provide a complete picture of the discriminating power of the DAS with this sample.

2. An item analysis of the DAS would be valuable for those who may wish to modify the instrument for use with select populations for whom the reasons for leaving school may be atypical.

3. The DAS should be subjected to a generalizability study to determine its reliability and validity for populations different from that on which it was normed.

The ability to accurately identify dropouts before they drop out of school is the important first step in reducing dropout rates. However, unless educators develop and implement strategies aimed at reducing the dropout proneness of those students who are identified as potential dropouts, schools will continue to see large numbers of students drop out of school.

The Experimental Program

The primary purpose of this study was to evaluate the longitudinal effects of a dropout prevention program that utilized a wilderness adventure experience to reduce the dropout proneness of potential school dropouts. Analyses conducted over the three years following treatment yielded several findings with potential relevance for educators concerned with school dropouts. The most important finding was the partial success of the experimental treatment in

reducing the dropout rate in the sample population. By the end of the 1988-89 school year (two years following treatment) seven members of the potential dropout control group (29.2 percent) had dropped out of school, while only one member (4.2 percent) of the experimental group had dropped out. Fisher's Exact Probability Test indicated this difference in dropout rates was significant ($p<0.026$).

It was found that the retention effects of the wilderness adventure program declined in the third year following treatment. As expected, the dropout rates for both groups of potential dropouts (Experimental and Control I) increased as students continued their education. By the end of the 1989-90 school year (three years following treatment) three members (12.5 percent) of the experimental group dropped out of school, along with eight members (33.3 percent) of the potential dropout control group. Fisher's analysis revealed that this difference only approached significance ($p<0.096$).

In addition to the fact that fewer members of the experimental group dropped out of school, it was found that they dropped out later than did control group students. As a consequence, experimental group dropouts completed more of their educational program than did the dropouts from the potential dropout control group. In terms of years of formal education lost due to dropping out of school over the course of this study, the control group lost 19 years as compared to

a loss of 5 years for the experimental group. This difference was also found to be a significant one ($F_{2,68}=6.34$, $p<.05$).

In examining the school-related variables associated with dropouts, several additional significant differences were noted between the two groups of potential dropouts. While there were no significant differences in the number of days absent in the year before treatment (1986-87), analysis found significant differences between the two groups following treatment for both the 1987-88 and 1989-90 school years.

One might assume that the extra time spent in school would result in significantly better academic performance. Throughout the three years of the study, the experimental group did pass a greater number of courses and did obtain higher academic averages than did the control group of potential dropouts. However, analyses did not find these differences to be significant.

The lack of significant improvements in academic performance may be attributed to the fact that the experimental treatment had no academic component as part of its intervention strategy. In other words, the program did not include a direct treatment to address any inherent academic weaknesses possessed by many of the participants. A recommendation for any future replications of this dropout prevention strategy would be to integrate a follow-up component to address any academic weaknesses of the potential dropouts; e.g., a small-group tutoring program.

While the experimental group did not improve their academic performance over the three years following treatment, it is interesting to note that their academic performance did not deteriorate as it did for the control group. In the year before treatment (1986-87), the experimental group passed 77 percent of their courses with a 59 percent academic average. At the end of the third year following treatment (1989-90), the experimental group passed 75 percent of their courses with a 59 percent average. In the year before treatment the control group of potential dropouts passed 76 percent of their courses with a 58 percent average. Three years later they passed only 69 percent of their courses with an overall average of 53 percent. This difference is illustrated in Figures 2 and 3.

The two administrations of the Self-Concept and Locus of Control Scales revealed that the experimental group students exhibited higher self-concepts and more internalized locus of control orientations than did the control group students. Analyses revealed that these differences were not significant. However, it should be noted that in contrast to the control group of potential dropouts, the experimental group was not found to be significantly different from the potential persisters control group on the second administration of both scales.

The lack of significant differences in self-concept and locus of control orientation may be the result of the length

of time between the end of the camping expedition and the administration of the self-concept and locus of control scales. The first administration of both scales was conducted six weeks after the experimental treatment and the second administration was conducted six months following treatment. The length of time between treatment and administration of the scales may have negated the detection of possible short-term improvements in self-concept and locus of control orientation. A recommendation for any future replications of this experiment would be to administer both scales immediately following the camping experience to assess possible short-term improvements in self concept and/or locus of control orientation.

During the first year following treatment, members of the experimental group became involved in 1.2 extra-curricular activities per person, while members of the dropout control group were involved in only 0.5 activities per person. To put this in perspective, members of the potential persisters control group were involved in 2.4 activities per person. Analysis of these differences indicated that the persisters group was involved in significantly more activities than both groups of potential dropouts. No significant differences were found between the two potential dropout groups at the $p<0.05$ level. It should be noted that as the students progressed through school, the amount of extra-curricular involvement for all three groups decreased. It should also be noted that

while the difference failed to reach statistical significance, the experimental group was consistently involved in more activities than was the potential dropout control group in each year of the study. Over the three years following treatment the experimental group subjects averaged 2.45 activities each as compared to 1.16 activities for each subject in the potential dropout control group.

Analyses conducted over the three years following treatment did not find significant differences between the two potential dropout groups in extra-curricular involvement, academic average, percent of courses/credits passed, self-concept or locus of control orientation at the $p<0.05$ level of significance. However, on each variable and in every year of the study, the experimental group's performance was superior to that of the control group and several of the differences approached significance. The investigation did find significant differences between the Experimental and Control groups of potential dropouts in the numbers of days absent for 1987-88 and 1989-90. The study also found that over the three year follow-up period, more members of the control group dropped out of school than did members of the experimental group. Although this difference was not statistically significant at the end of the three-year follow-up, it was significant at the end of the second year following treatment (1988-89). Analysis of the dropout rates also revealed that because members of the control group dropped out earlier than

did members of the experimental group, they lost significantly more years of formal education.

The significant reduction in the dropout rate of experimental group students two years following treatment and the significant amount of extra time they spent in school prior to dropping out both indicate that the wilderness adventure program was partially successful as a dropout prevention treatment. The success of this program can best be understood by viewing dropping out as a developmental process. Research has shown that the act of dropping out of school is only one more event in a chain of events, characterized by failure in school activities, lowered self-esteem, non-participation in school activities, lack of identification with school, increased absenteeism and finally dropping out (Finn, 1989; Ekstrom et. al.; 1986, Gillespie, 1979; and Young and Reich, 1974). To disrupt this cycle, strategies must be developed to counter the various steps in the process leading to the final act of dropping out.

Miller, Leinhardt, and Zignord (1987) in a study of social and academic participation among high school students described dropping out as a process of gradual disengagement from school. They concluded that, "...the students engagement in at least one sub-component [of school activities]...is necessary (and may be sufficient) for keeping at - risk students in schools" (pp.5-6).

Finn (1989) appears to support the idea of providing activities to maintain students' identification with school. He concluded that:

> Extracurricular activities may have the potential for contributing to the student's sense of identification with school. ... At the least, youngsters' spending extra time in the school environment increases the likelihood of their internalizing a feeling of belongingness. Also, extracurricular and social activities may remain as a primary source of attachment to school for students whose academic work is weak. Some form of institutional encouragement may be important in maintaining this type of participation. (p.129)

The wilderness adventure program was specifically developed to modify the various aspects of the dropout process. The experimental program was designed to provide for participants an opportunity to:

(1) experience success

(2) boost self-esteem

(3) promote group cooperation and participation in various activities

(4) provide a sense of belonging or bonding to a school group

(5) enhance students' ability to work and communicate in a group setting

(6) establish a trusting relationship with adults, in particular, with a school staff member

While these goals were not measured objectively, subjectively they appear, to varying degrees, to have been achieved. In this writer's opinion, the combination of

communal-living experiences, adventure experiences, physical challenges, problem-solving tasks, and group-counselling sessions, all contributed to the program's level of success.

In follow-up sessions, participants expressed a sense of accomplishment and success in completing the various physical challenges of the program. They also expressed deep appreciation of the adult leaders (teachers) who took them on the camping trip. These two factors are similar to those described by Gold and Mann (1984) in their examination of alternative schools for at-risk youth. Schools were chosen that provided two essential ingredients, an "...increase in the proportion of a youth's successful - versus unsuccessful - experiences, and a warm accepting relationship with one or more adults" (p.11). The researchers found that when compared with a matched sample attending conventional schools, the alternative school students developed a sense of belonging or bonding to school. This was determined by reductions in their in-school disruptive behaviours. The researchers noted however, there were no improvements in their reading levels or general self-esteem nor reductions in their out-of-school delinquent acts. The results of this study compare favourably with the observations of Gold and Mann (1984) in that the students who participated in the wilderness adventure program developed a sense of bonding with the school as was illustrated by their increased involvement in extra-curricular activities, better attendance, and higher retention rates.

But, also like Gold and Mann's results, these improvements were not matched by significant improvements in the students' academic performance, self-concept, or locus of control.

The importance of students bonding to schools is not a new idea but one that has been identified repeatedly, albeit under many different labels; such as, "attachment", "commitment", "involvement", "affiliation" and "a sense of belonging". In negative terms, the use of the words, "alienation", "disengagement", "withdrawal", and "social isolation" also indicates the importance of bonding for dropout prevention programs.

Finn (1989) summarized the research on "...the importance of a youngster's 'bonding' with school" (p.118) when he proposed a participation - identification model for developing intervention strategies with potential dropouts. This model focuses on students' participation in school-related activities and their development of a sense of identification with school. Finn stressed that his model, "...does not provide specific remedies to prevent students from dropping out, but it does identify a principle: Intervention efforts at all ages should be directed toward increasing and maintaining students' participation levels" (p.132). An important aspect of the participation - identification model is that the behavioral dimensions of participation can be identified and manipulated directly in intervention strategies.

In the wilderness adventure program used for this study, participation of the potential dropouts was extensively manipulated 24 hours a day for five days. During the course of the camping expedition, the nature of the program was successful in getting all students involved in the activities. Many of the activities; e.g. setting up the military tents, could not be accomplished without full participation. It appeared to the examiner that the completion of physical challenges instilled a sense of accomplishment in all participants and created a sense of bonding with the peer group, with the adult leaders, and with the school (which was perceived as providing the opportunity).

Research Design

A critical component of this study was the actual process of evaluating the experimental program. School retention research is longitudinal in nature; however, relatively few longitudinal studies have been conducted and fewer still have had true control groups. Boyd, Magoon, and Leonard (1982) concluded that research on retention programs has shown little evidence of program effectiveness due to the lack of appropriate control groups and little application from one school to another. Terenzini (1980) also found inherent weaknesses in the research designs commonly used with retention studies and concluded that longitudinal designs of

at least 15 months are needed to examine the true effect of such programs.

Given these limitations, the research design used in this study was successful in reducing many of the inherent weaknesses in retention research. This was accomplished by using a true control group of potential dropouts, using a second control group of potential persisters to reduce dropout selection bias, analyzing pre-treatment variables to reduce potential differences between the two groups of potential dropouts before treatment, and conducting analyses over a longitudinal (3 year) period. These research methods, when possible, are recommended when developing and evaluating dropout prevention programs.

The only limitation with the design used in this study was the lack of an "attention control". The treated group of potential dropouts was compared to a non-treated group. The inclusion of another group of potential dropouts that were given some form of treatment or "attention" would have strengthened this design. This limitation, however, does not invalidate the study. The design used in this study is a true experimental design as outlined by Campbell and Stanley (1966), and it eliminates all sources of internal invalidity.

Summary

From the review of literature conducted for this study one of the most consistent findings was that students who drop out of school do so as a result of a multiplicity of factors that interact within the social and physical environment of the potential dropout. Few students come all at once to a dramatic decision to leave school. For most, the decision is long in the making and is rooted in years of unrewarding and unhappy school experiences. Finn (1989) concluded that the decision to drop out is most often the final act, granted a conspicuous act, in a developmental process that may have begun in elementary school or earlier.

The conclusions of recent research suggest two essential components for educators to include in any strategies designed to deal with the dropout problem. First, educators must have an accurate method of identifying potential dropouts early. Second, dropout intervention programs must be directed at disrupting the process that leads to students dropping out of school.

Analyses conducted during this study found the use of the Dropout Alert Scale (DAS) to be an accurate method of identifying potential dropouts at the Junior High level. While further research must be conducted on the DAS to extend its reliability and validity for use with other students and other schools, it does appear to provide a reliable, time-saving method of identifying potential dropouts at a stage

when intervention strategies can be implemented to disrupt the dropping-out process.

In this study, a program that utilized wilderness adventure experiences was used as the intervention strategy. Analyses conducted throughout the study found this strategy to be successful in disrupting the dropping-out process for some potential dropouts. Two years after treatment, the experimental group had a significantly lower dropout rate than did the control group of potential dropouts ($p<0.05$). While not significant ($p<0.096$) three years after treatment, the experimental group did have a lower dropout rate (12.5 percent) than did the control group (33.3 percent). It was also found that dropouts from the experimental group tended to drop out at a later point in their educational programs than did dropouts from the control group. Thus, members of the experimental group received significantly more formal education than did members of the control group ($p<.046$).

The wilderness adventure program also appeared to be associated with a pattern of consistent differences that was observed between the two groups of potential dropouts, but these differences speak more to the need for further study than they do to an explanation of their relationship to the wilderness adventure program. The pattern observed was that over the three years of the study, the performance of the control group of potential dropouts on all the dependent variables deteriorated. In contrast, the potential dropouts

in the experimental group tended to maintain their pre-treatment performance for these variables; specifically, self-concept, locus of control, days absent, participation in extra-curricular activities, academic average, and percent of courses/credits passed. Statistical analyses of these differences revealed that only the difference for the variable, days absent, was significant. While this result limited the discussion of casual relations to those variables that yielded significant differences, the above-noted pattern of consistent differences clearly suggests that further research on the relationship between these variables and wilderness adventure programs should be conducted.

The significant improvements in attendance, duration of schooling prior to dropping out, and retention two years after treatment indicate that there was a disruption to the dropout process within the experimental group. The nature of the differences suggest to the author that participants in the experimental program developed some sense of belonging or bonding to the school. A sense of bonding was also created between the potential dropouts and the guidance counsellor, who led the experimental group through the entire treatment program. The bonding or rapport that was developed with the school counsellor provided the potential dropouts with at least one staff member with whom they felt comfortable. Gold and Mann (1984) concluded that one of the essential ingredients of successful dropout prevention programs was,

"... a warm accepting relationship with one or more adults" (p.11). Throughout the years following the wilderness camping expedition, many of the group's members approached the school counsellor for help with personal and/or educational problems. While this investigation did not attempt to study these contacts in any way, it is the author's opinion that they were facilitated by the wilderness adventure program and they did influence the decision of some potential dropouts to stay in school.

Anyone who in the course of an expedition into the wilderness has portaged a canoe, hiked demanding trails, or climbed a mountain will recognize the exhilarating feeling of success and the powerful sense of bonding that occurs among persons who help one another achieve that success. In the opinion of the author, these feelings of success and belonging stayed with the expedition's participants and were later illustrated by significant improvements in both attendance and retention relative to that of the potential dropout control group. The passage of time following treatment did appear to lessen the overall effects of the experimental treatment; thus, suggesting the need for follow-up sessions with at-risk youth to maintain the improved sense of bonding. With ongoing support and encouragement, the gains observed early in this study might have been maintained for a longer period of time. As with all retention programs, it is

important to provide potential dropouts with regular opportunities to increase their sense of bonding with school.

Although this study has produced some encouraging results, educators are cautioned against viewing wilderness adventure programs as "the answer" in dropout prevention. Research efforts into programs with a wilderness adventure orientation need to be ongoing and need to focus on integrative follow-up experiences. Tinto (1982) concluded that the findings from specific retention programs can only be interpreted for those schools in which the study was conducted. Therefore, to expand the findings of this study it is essential for dropout prevention programs that utilize wilderness adventure experiences to be replicated with other groups, other instructors, and other schools.

REFERENCES

REFERENCES

Anderson, Kent. (1984). Developing intervention strategies for dropout prone adolescents. The School Guidance Worker, 39(4), 6-10.

Bacon, Stephen. (1987). The Evolution of the Outward Bound Process.Greenwich, Conn: Outward Bound USA.

Banfield, H. and Galway, G. (1992). Profile '92: Educational Indicators. A report prepared for the Newfoundland and Labrador Department of Educaton. St. John's, Newfoundland.

Beck, L. and Muia, J.A. (1980). A portrait of tragedy: Research findings on the dropout. The High School Journal, 64, 65-72.

Bertolami, Cheryl. (1981). Effects of a Wilderness Program on Self-Esteem and Locus of Control Orientations of Young Adults. A paper presented at the 1981 Annual Canadian Conference on the Application of Curricular Research (Eric Reproduction Service No. ED 266 928).

Boyd, V.S., Magoon, T.M. and Leonard, M.M. (1982). A small-sample intervention approach to attrition-retention in higher education. Journal of College Student Personnel, 23, 390-394

Brody, M. (1974). The Effect of the Rational - Emotive Affective Education Approach on Anxiety, Frustration, Tolerance, and Self-Esteem with Fifth Grade Students. Unpublished doctoral dissertation, Temple University.

Cage, Bob N. (1984). Dropout Prevention. Jackson, Mississippi. A manual for recognizing potential dropouts and constructing a prevention program. (ERIC Document Reproduction Service No. ED 260 321).

Caliste, E.R. (1984). The effects of a twelve-week dropout intervention program. Adolescence, 25(75), 649-657.

Campbell, D.T. and Stanley, J.C. (1966). Experimental and Quasi-Experimental Design for Research. Boston: Houghton-Mifflin Co.

Cardwell, G.R. (1976). Adapted Outward Bound Programmes: An Alternative for Corrections. A paper presented at the 1976 Atlantic Provinces Criminology and Corrections Association Conference (Eric Reproduction Service No. ED 207 476).

Cervantes, Lucius F. (1969). The Dropout: Causes and Cures. Ann Arbor: University of Michigan Press.

Childers, R.D. (1965). The Identification of Potential School Dropouts by Discriminant Analysis. Unpublished doctoral dissertation, University of Georgia.

Clark, Johnathan and Kempler, Hyman L. (1973). Therapeutic family camping: A rationale. The Family Coordinator, 22, 437-442.

Crocker, R.K. and Francis, M.J. (1979). Provincial and School District Enrollment Projections 1979 - 1998. A background report for the Task Force on Education, St. John's, Newfoundland.

Crocker, R.K. and Riggs, F.T. (1979). Improving the Quality of Education: Challenge and Opportunity. Final Report of Task Force on Education, St. John's, Newfoundland.

Edwards, Clifford H. (1989). Self-Regulation: The key to motivating at-risk children. Clearing House, 63(2), 59-62

Ekstrom, R. B., Goertz, M.E., Pollack, J. M., and Rock, D.A. (1986). Who drops out of high school and why? Findings of a national study. Teachers College Record. 87(3), 356-373.

Epps, M. M. and Cottle, W.C. (1958). Further validation of a dropout scale. Vocational Guidance Quarterly, 7, 90-93.

Evans, Sandra Nicola (1984). Dropout Prevention: Staff Development Program. Jackson, Mississippi: Mississippi State Department of Education, Division of Instruction. (ERIC Document Reproduction Service No. ED 260 322).

Finn, Jeremy D. (1989). Withdrawing from school. Review of Educational Research, 59(2), 117-142.

Garlie, N.W. and Hoxworth, D. (1970). Mountaineering as a rehabilitative training experience for selected adolescents. Journal of Rehabilitation, 26, 38-39.

Gass, Michael A. (1990). The longitudinal effects of an adventure orientation program on the retention of students. Journal of College Student Development, 31, 33-38.

Gass, Michael and McPhee, Pamela. (1990). Emerging for recovery: A discriptive analysis of adventure therapy for substence abuse. Journal of Experimential Education, 13(2), 29-35.

Gillespie, R.A. (1979). Alienation and Other Factors Affecting the Senior High School Dropout in St. John's, Newfoundland. Unpublished Master's Thesis, Memorial University of Newfoundland.

Gold, M. and Mann, D.W. (1984). Expelled to a Friendlier Place:A study of Effective Alternative Schools. Ann Arbour: University of Michigan Press.

Goulding, Kirk D. (1983). The Use of Wilderness Camping as a Dropout Prevention Strategy. Unpublished Master's Thesis, Memorial University of Newfoundland.

Greene, B.I. (1966). Preventing Student Dropouts. Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Grimes, Roger. (1987). The dropout dilemma. The Bulletin. Special Issue, April, 1987.

Hamilton, Stephan F. (1986). Raising standards and reducing dropout rates. Teachers College Record, 87(3), 410-429.

Hammer, Emanual F. (1970). Antiachievement: Perspectives on School Dropouts. Los Angeles, California: Western Psychology Services.

Harmon, P. (1974). The Measurement of Effective Education: A Report on Recent Work by Outward Bound. Greenwicki, Conn.: A paper prepared for the Conference on Outdoor Pursuits in Higher Education. (ERIC Document Reproduction Service No. ED 104 616).

Harris, Hayward and Snelgrove, V.J. (1983). The Dropout Problem: Implications for Newfoundland Schools. Department of Educational Administration, Memorial University of Newfoundland.

Henshaw, R. A. (1982). Alternatives for potential dropouts. The School Guidance Worker, 38(2), 10-13.

Hepfner, L.B. (1979). Counselling, positive experiences and understanding - all help to retain potential dropouts. The School Trustee, 32(3), 12-13.

Hilton, E. (1973). When does dropping out begin. Education Digest, 38, 26-27.

Hobbs, T.R. and Radka, J.E. (1975). A short term therapeutic camping program for emotionally disturbed adolescent boys. Adolescence, 10, 447-455.

Howard, M.A.P. and Anderson, R.J. (1978). Early identification of potential dropouts: A literature review. Child Welfare, 57, 221-231.

Hughes, Ann H. and Dudley, Harold K. (1973). An old idea for a new problem: Camping as a treatment for emotionally disturbed in our state hospitals. Adolescence, 8(29), 43-50.

James, Len. (1991). Add a little adventure: An introductory adventure program. Pathways, 3(4), 24-29.

Kaplan, Stephan and Talbot, Janet F. (1983). Psychological benefits of a wilderness experience. Human Behavior and Environment: Advances in Theory and Research, 6, 163-203.

Katz, S. (1974). The Effect of Emotional Education on Locus of Control and Self-Concept. Unpublished Doctoral Dissertation, Hofstra University.

Kelly, F.J. and Baer, D.J. (1969). Jesness inventory and self-concept measures for delinquents before and after participation in outward bound. Psychological Reports, 25, 719-724.

Kelly, F.J. and Baer, D.J. (1971). Physical challenge as a treatment for delinquency. Crime and Delinquency, 17, 437-445.

Kennedy, M.P. (1966). A Critical Analysis of the Dropout Problems in the Province of Newfoundland over the Ten Year Period 1954-1964. Unpublished Master's Thesis, Catholic University of America.

Knaus, W. and Bokor, S. (1975). The effect of rational - emotive education lessons on anxiety and self-concept in sixth grade students. Rational Living, 11(2), 7-10.

Lang, Joyce. (1985). All my aunties quit school, too! The B.C. Counsellor, 7(2), 5-12.

Leaving Early: A Study of Student Retention in Newfoundland and Labrador.(1984). St. John's, Nfld. Newfoundland School Trustees Association.

Lefcourt, Hebert M. (1982). Locus of Control: Current Trends in Theory and Practice. 2nd. ed. Hillsdale, New Jersey: Lawrence Erlbaum Associates, Publishers.

Mathis, Debely. (1976). The Dropout Process Scale: The Development of an Instrument to Predict a Dropout. University of Mississippi.

McCreary-Juhasz, A. (1968). Benefits of a school camp experience to emotionally disturbed children in regular classrooms. Exceptional Children, 34, 353-354.

McNeil, E.D. (1957). The background to therapeutic camping. Journal of Social Issues, 13, 3-13.

Miles, John. (1987). Wilderness as a healing place. Journal of Experiential Education, 10(3), 4-10.

Miller, S.E., Leinhardt, G. and Zignord, N. (1987, April). Experimental Features of Secondary Schooling for High Risk LD Students, Part I: Academic Integration. A paper presented at the Annual Conference of the American Educational Research Association, Washington, DC.

Morrow, George. (1986). Standardizing practice in the analysis of school dropouts. Teachers College Record, 87(3), 342-355.

Neil, S.B. (ed.). (1979). Keeping Students in School: Problems and Solutions. Sacramento, California: American Association of School Administrators.

Northwest Outward Bound Instructor's Manual. (1981). Portland, Oregan: Northwest Outward Bound School.

Nowicki, Stephen, Jr. and Barnes, Jarvis. (1973). Effects of a structured camp experience on locus of control orientation. The Journal of Genetic Psychology, 122, 247-252.

Nowicki, Stephen, Jr. and Strickland, Bonnie R. (1973). A locus of control scale for children. Journal of Consulting and Clinical Psychology, 40(1), 148-154.

O'Hara-Krivatsy, S., Reed, P. and Davenport, J. (1978). Group counselling with potential high school dropouts. Personnel and Guidance Journal, 56, 510-512.

Omizo, Michael M., Cubberly, Walter E. and Omizo, Sharon A. (1985). The effects of rational-emotive education groups on self-concept and locus of control among learning disabled children. The Exceptional Child, 32(1), 13-19.

Outward Bound. (1984). Toronto, Ontario: The Canadian Outward Bound Wilderness School.

Parsons, Llewellyn. (1978). Education and Unemployment in Newfoundland. St. John's, Nfld.: Department of Educational Administration, Memorial University of Newfoundland.

Pawlovich, Walt. (1985). Early school leaving: Antecedents, correlates and consequences. Guidance and Counselling, 1(2), 41-53.

Phipps, Maurice. (1991). Definitions of Outdoor Recreation and Other Associated Terminology. Conference Proceedings from the 1990 National Conference for Outdoor Leaders. (Eric Document Reproduction Service No. ED 335 189).

Piers, Ellen V. and Harris, Dale B. (1969). Piers - Harris Children's Self-Concept Scale User Manual. Los Angeles, California: Western Psychological Services.

Pittman, Robert B. (1986). Importance of personal, social factors as potential means for reducing high school dropout rate. The High School Journal, 70(1), 7-13.

Quinn, William. (1990). The essence of adventure. Journal of Outdoor Education, 24, 22-25.

Richard, Henry C. and Dinoff, Michael. (1967). Behavior change in a therapeutic summer camp: A follow-up study. The Journal of Genetic Psychology, 110, 181-183.

Richard, Henry C. and Lattal, Kennon A. (1969). Group problem - solving in a therapeutic summer camp: An illustration. Adolescence, 4, 319-332.

Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 80.

Ruby, Theodore and Law, Robert. (1982). School dropouts: They are not what they seem to be. Children and Youth Services Review, 4, 279, 291.

Rumberger, Russell W. (1987). High school dropouts: A review of issues and evidence. Review of Educational Research, 57(2), 101-121.

Sakofs, Mitchell and Schuurman, Donna. (1991). Assessing the Impact of the Wilderness Alternative for Youth Program: An Outward Bound Program for Adjudicated Youth. Greenwich, Conn.: Outward Bound, Inc.

Schreiber, Daniel, ed. (1964). Guidance and the School Dropout. Washington, D.C.: National Education Association.

Schreiber, Daniel and Kaplan, B.A. (eds.). (1964). Guidance and the School Dropout. Washington, D.C.: National Education Association.

Shea, Thomas M. (1977). Camping for Special Children. Saint Louis: The C.V. Mosby Company.

Shniderman, C.M. (1974). Impact of therapeutic camping. Social Work, 19, 354-357.

Spain, William H., Sharpe, Dennis B. and Mundle, Andrea. (1991). Life After School: A Profile of Early Leavers in Newfoundland. St. John's, NF.: Centre for Educational Research and Development, Memorial University of Newfoundland.

Student Retention Report. (1989). St. John's, Nfld.: Division of School Services, Newfoundland Department of Education.

Terenzini, P.T. (1980). An evaluation of three basic designs for studying attrition. Journal of College Student Personnel, 21, 257-263.

Thompson, Michael. and Nelson, Robert H. (1963). Twelve approaches to remedy the dropout problem. Clearing House, 38, 200-204.

Tinto, V. (1982). Limits and practice in student attrition. Journal of Higher Education, 53, 687-699

Titone, James S. (1982). Educational Strategies for Preventing Students from Dropping Out of High School. Palo Alto, California: R & E Research Associates, Inc.

Walters, H.E. and Kranzler, G.D. (1970). Early identification of the school dropout. The School Counsellor, 18, 97-104.

Wehlage, Gary G. and Rutter, Robert A. (1986). Dropping out: How much do schools contribute to the problem? Teachers College Record, 87(3), 374-392.

Wichmann, Ted. (1991). Of wilderness and circles: Evaluating a therapeutic model for wilderness adventure programs. Journal of Experiential Education, 14(2), 43-48.

Young, V. and Reich, C. (1974). Patterns of Dropping Out. Toronto: The Board of Education.

Zeller, R. (1966). Lowering the Odds on Student Dropouts. Englewood Cliffs, New Jersey: Prentice-Hall Inc.

APPENDIX A

Dropout Alert Scale (DAS)

GUIDANCE SURVEY *

NAME _____ GRADE_____ HOMEROOM_____

1. How old are you? _____years _____months.

2. Did you fail any of your subjects last year?
   ____none ____one ____two ____three or more

3. How many subjects have you failed prior to this year?
   ____none ____one ____two ____three or more

4. How much time do you spend reading a day?
   ____two hours or more ____one hour ____30 minutes
   ____fewer than 30 minutes ____none

5. Have you ever failed a grade in school?
   ____none ____one ____two ____more than two

6. Are you getting enough out of school?
   ____usually ____seldom ____never

7. How many days were you absent from school last year?
   ____0-9 days ____10-19 days ____20-30 days
   ____more than 30 days

8. Do you like the other students in your classes?
   ____almost all of them ____most of them
   ____a few of them ____almost none of them

9. How do you like school?
   ____very much ____much ____little ____very little

10. Do you attend school ball games, dances, parties, etc.?
    ____never ____seldom ____often ____very often

11. How do you think your teachers like you?
____very much ____much ____little ____very little

12. How well do you like your teachers?
____very much ____much ____little ____very little

13. How do you get along with other students in your class?
____very well ____well ____not very well ____not at all

14. How many friends do you have in school?
____more than 15 ____10-15 ____5-9 ____less then 5

15. To how many school teams/groups do you belong?
____none ____1-2 ____3-4 ____more than 4

16. How far did your father go in school?
____11th grade or higher ____8th to 10th grade
____1 to 7th grade ____did not go to school

17. How far did your mother go in school?
____11th grade or higher ____8th to 10th grade
____1 to 7th grade ____did not go to school

18. Do you think your parents:
____want you to finish high school
____don't care if you do not finish high school
____discourage you from finishing school

19. In your school work do your parents:
____encourage you often ____encourage you sometimes
____rarely encourage you ____discourage you

20. Do you live with: ____both your father and mother
____either with your mother or father
____other relatives ____with no relatives

21. Do you work outside of school?
____on a regular basis ____sometimes
____rarely ____never

22. How many brothers and sisters do you have?
____none ____1-2 ____3-4 ____more than four

23. Do you feel tired?
____never ____seldom ____often ____very often

24. Do you have any troubles with other students or teachers?
____never ____seldom ____often ____very often

25. Have you ever been sick?
____never ____seldom ____often ____very often

26. Do you feel your teachers are fair to you?
____very often ____often ____seldom ____never

27. Is it important to you that you graduate from high school?
____very important ____important ____not very important

28. Do you think you will graduate from high school?
____yes ____probably ____doubtful ____no

29. Do you do your homework?
____very often ____often ____seldom ____never

30. Do you belong to any organization such as 4-H, Boys Scouts, church groups, etc.?
____none ____1-3 ____4-5 ____more than 5

* **NOTE:** This scale and the accompanying scoring key have been adapted from the Dropout Alert Scale (DAS) developed by Cage, (1984).

APPENDIX B

Scoring Key For

Dropout Alert Scale (DAS)

SCORING KEY FOR THE DROPOUT ALERT SCALE (DAS)

Score

1. How old are you? _____ _____
   (0) same age as classmates
   (1) one year older **(2)** two years older
   (3) three years or more older

2. Did you fail any of your subjects last year? _____
   (1)one **(2)**two **(3)**three or more

4. How much time do you spend reading a day? _____
   (0)two hours or more **(1)**one hour **(2)**30 minutes
   (3)fewer than 30 minutes **(4)**none

5. Have you ever failed a grade in school? _____
   (0)none **(1)**one **(2)**two **(3)**more than two

6. Are you getting enough out of school? _____
   (0)usually **(1)**seldom **(2)**never

7. How many days were you absent from school last year? _____
   (0)0-9 days **(2)**10-19 days **(4)**20-30 days
   (8)more than 30 days

8. Do you like the other students in your classes? _____
   (0)almost all of them **(1)**most of them
   (2)a few of them **(3)**almost none of them

9. How do you like school? _____
   (0)very much **(1)**much **(2)**little **(3)**very little

10. Do you attend school ball games, dances, parties, etc.? _____
(0)never (1)seldom (2)often (3)very often

11. How do you think your teachers like you? _____
(0)very much (1)much (2)little (3)very little

12. How well do you like your teachers? _____
(0)very much (1)much (2)little (3)very little

13. How do you get along with other students in your class? _____
(0)very well (1)well (2)not very well
(3)not at all

14. How many friends do you have in school? _____
(0)more than 15 (1)10-15 (2)5-9 (3)less then 5

15. To how many school teams/groups do you belong? _____
(8)none (4)1-2 (2)3-4 (0)more than 4

16. How far did your father go in school? _____
(0)11th grade or higher (2)8th to 10th grade
(4)1 to 7th grade (8)did not go to school

17. How far did your mother go in school? _____
(0)11th grade or higher (2)8th to 10th grade
(4)1 to 7th grade (8)did not go to school

18. Do you think your parents: _____
(0)want you to finish high school
(2)don't care if you do not finish high school
(4)discourage you from finishing school

19. In your school work do your parents: _____
(0)encourage you often (1)encourage you sometimes
(2)rarely encourage you (3)discourage you

20. Do you live with: **(0)**both your father and mother _____
(1)either with your mother or father
(2)other relatives **(3)**with no relatives

21. Do you work outside of school? _____
(3)on a regular basis **(2)**sometimes
(1)rarely **(0)**never

22. How many brothers and sisters do you have? _____
(0)none **(1)**1-2 **(2)**3-4 **(3)**more than four

23. Do you feel tired? _____
(0)never **(1)**seldom **(2)**often **(3)**very often

24. Do you have any troubles with other students or teachers? _____
(0)never **(1)**seldom **(2)**often **(3)**very often

25. Have you ever been sick? _____
(0)never **(1)**seldom **(2)**often **(3)**very often

26. Do you feel your teachers are fair to you? _____
(0)very often **(1)**often **(2)**seldom **(3)**never

27. Is it important to you that you graduate from high school? _____
(0)very important **(1)**important
(2)not very important

28. Do you think you will graduate from high school? _____
(0)yes **(1)**probably **(2)**doubtful **(3)**no

29. Do you do your homework? _____
(0)very often **(1)**often **(2)**seldom **(3)**never

30. Do you belong to any organization such as 4-H, Boys Scouts, church groups, etc.? _____
(3)none **(2)**1-3 **(1)**4-5 **(0)**more than 5

The Dropout Alert Scale (DAS)

Scoring Directions

The responses for each item on the DAS have been given a weighted value ( ). Score each item using the indicated value and then total the score. A score of 39 or greater indicates a strong potential dropout candidate. A score of 19 to 38 indicates moderate potential for a dropout. Special attention should be given to item 1, 2, 3, 7, 10, 15, 16, and 17 as they are highly predictive of dropouts. Scores of 0 to 18 indicate potential persisters.

NOTE: For this study, all students who scored 29 or higher were considered potential dropouts and those who scored 28 or lower were considered potential persisters.

APPENDIX C

Experiential Learning Activities

The Wilderness Adventure Program
Experiential Learning Activities

To provide a variety of experiential learning situations the program provided participants with visits to the following:

1. The Arches - a natural rock formation of sea stacks and arches located just outside the Gros Morne Park area. This visit led to a discussion of the battle of the elements and how the vegetation of the area has adapted to meet the demands of a harsh environment. In later counselling sessions, this was compared to life and how people can adapt to bad environments to grow and flourish.
2. Lobster Cove Head - a series of small trails leading down to tidal pools containing rock crabs and starfish. The area also has an old lighthouse that has been converted into a museum.
3. Western Brook - a short hike down through the tuckamore which ends on a sandspit at the mouth of Western Brook. The students took time to do some beachcombing in this area.
4. The S.S.Ethie - an old shipwreck within the Park's boundary that the students explored.
5. The Park Visitor Centre - the students had a complete tour of the visitor centre at the park. The tour including several films on the park and

its formation, an inspection of the various displays in the centre, and a question and answer session with the very co-operative park staff.

APPENDIX D

Hiking Trails

The Wilderness Adventure Program
Hiking Trails

The students explored the following hiking trails as part of their adventure experiences:

1. Berry Hill Trail - a one-hour return hike up Berry Hill to the look-out. While climbing this trail the students carried paint cans full of sand (provided by the park officials) to help maintain trails on the top that are often eroded. This led to a discussion of how people can help the environment.
2. Berry Hill Pond Trail - a four km. hike from the campsite. This trail loops around Berry Hill Pond and provided campers with an excellent introduction to the Park's forested lands.
3. Baker's Brook Falls Trail - a ten km. return hike that follows an old logging path across wetland areas of the coastal plain and ends at a spectacular series of waterfalls along Baker's Brook.
4. Berry Head Pond Trail - a two km. trail that makes a complete circuit around Berry Head Pond.
5. Western Brook/Stag Brook Trail - a 3 1/2 hour return hike (13 kms) that leads across the bogs and ridges of the coastal plain and along the shores of

Western Brook Pond. This fiord-like pond is a spectacular geological feature extending 18 km. into the Long Range Mountains. On this hike students took time to study the interesting plants on the bog and pick various wild berries.

6. Broom Point Trail - a short trail down to Broom Point, an interesting geological rock formation jutting out into the Gulf of St. Lawrence and providing numerous tidal pools for scientific inspection.