

AN EXPLORATORY STUDY OF STUDENT ATTRITION
ON A MILITARY TRAINING PROGRAM

by

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ABSTRACT

This study was an exploration of student attrition on a military training program. Factors relating to attrition among Francophone students as compared to Anglophone students were examined using a model which combined the major constructs of Tinto's Model of Institutional Attrition (1975) with those of Mobley's Expanded Turnover Process Model (Mobley, 1982). The study was conducted at the Naval Officer Training Centre, located at Esquimalt, B.C. and involved 75 Anglophone and 60 Francophone naval officers who had successfully completed the MARS 71A Training Program between 1981 and 1988 and 65 Anglophone and 52 Francophone ex-naval candidates who had commenced training during this period but who had failed to complete the training.

Multiple regression analysis established that the model explains 28.7 percent of the total variance in the MARS attrition process. Separate applications of the regression analysis revealing that the model explains 30.8 percent

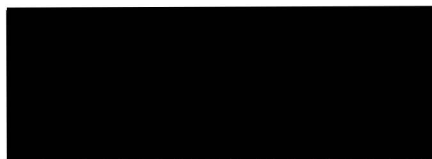
of the variance in the Anglophone attrition process and 31.2 percent in the Francophone attrition process. Five variables were identified as being significantly associated with the attrition process; goal commitment, organization factors, extra-organizational factors, academic integration, and age. As predicted by several prior applications of Tinto's model, the background variables were not significantly associated with the attrition process, suggesting that the students' experiences during training are more important than the characteristics which they bring to a training institution.

A 2 X 2 MANOVA conducted on the six dependent variables (academic integration, social integration, goal commitment, organizational factors, extra-organization factors, and individual factors) to analyze the difference with respect to the independent variables of group (Anglophones - Francophones) and status (completers - dropouts) revealed a statistically significant main effect for status but failed to identify a significant main effect for group or a significant interaction effect. Univariate F tests on the status effect revealed that the differences were statistically significant on four of the six variables; academic integration, social integration, goal commitment, and extra-organizational factors.

Chi-square tests of independence failed to detect an association between a student's age or his entry plan into

the Canadian Forces and attrition on the overall sample. The tests did, however, discover a significant association between age and attrition on the Anglophone sample and entry plan and attrition on the Francophone sample.

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DEDICATION

I wish to dedicate this thesis to my wife, Wavie, whose love, patience, and understanding made this dream possible and to my daughters, Erin and Ashley.

CHAPTER 1

INTRODUCTION

There has been an increased emphasis in recent years by companies in the financial, industrial, and business communities in Canada and the United States to recruit and train their own work force. This is an expensive undertaking, demanding substantial financial and human resources. These companies cannot afford the luxury of recruiting and training personnel only to lose them to attrition prior to their becoming qualified. Therefore, understanding the causes of training attrition is a major concern of trainers, researchers, and practitioners.

Historically, a fundamental problem with the literature on training attrition and employee turnover has been the researchers' preoccupation with simple relationships or causes of the situation. Very little literature has been devoted to the development of theory, which has resulted in a tendency to attribute all attrition to superficial motives without determining a deeper understanding of the reasons people quit, fail, or drop out (Mobley, 1982; Tinto, 1975). To understand the causes of attrition would be advantageous to any training organization, as it could assist in the development of more effective and efficient training programs. For example, the training programs might be more cost-efficient both financially and in terms of training

resources if attrition levels were reduced. With lowered attrition rates, training quotas could be met and organization manning levels maintained with less emphasis on recruiting and with fewer personnel devoted to the conduct of training. This in turn could release recruiting and training personnel for other duties.

Therefore it is essential that through research, educators and trainers develop an understanding of the reasons people drop out of training programs. In addition, in a bilingual, multicultural country like Canada, to understand training attrition one must also understand the importance of cultural and social factors. This is particularly true of the Canadian Armed Forces' Maritime Surface and Sub-Surface (MARS 71A) Military Occupation Training, a fifty-week training program designed to train naval officers in the basic skills of navigation and ship handling to the level of second Officer-Of-The-Watch (OOW). The program consists of 23 weeks of training in-house at Venture, the Naval Officer Training Centre (NOTC), located at Esquimalt, British Columbia (B.C.) and 27 weeks at sea in the ships of the Fourth Canadian Destroyer Squadron and Training Division One.

Statistical records for the MARS 71A Training Program commenced with the 30th MARS Qualification Course (MQC) in August 1981. At that time, a manual tracking system was implemented that monitored the progress of each student as

he advanced through the various phases of training. Statistics from the 30th MQC through to the 47th MQC (graduated May 1988), derived from this manual tracking system, set the total attrition for the training program at appropriately 39.6 percent, with Anglophone attrition at 37 percent and Francophone attrition at 51 percent.

These are alarming figures which are threatening to become even more significant in the immediate future. As the economic situation in society continues to improve, bringing with it lower unemployment rates and more career and employment opportunities for young people and as the pool of young people from which the educational institutions, military organizations, and the industrial and business communities normally recruit slowly shrink as the trailing edge of the aging "Baby Boom" generation passes through their late teens and early twenties, training attrition will become an increasingly important problem. There will no longer be an endless supply of candidates from which to choose. Organizations, including educational institutions, government agencies, and industrial and business companies will have to place much more emphasis on retaining their personnel. Therefore, it will become increasingly important that they understand the attrition process and development sound policies and programs, based on theoretical research, to reduce their attrition. In turn, work on group-specific models of dropouts will have

Table 1Completion and Attrition Rates on the MARS 71A Training Program by Entry Plan.

Group	Entry Plan			
	DEO	ROTP	OCTP	OTHER
Anglophone				
Completers	51 (59%)	143 (62%)	146 (65%)	9 (82%)
Dropouts	36 (41%)	88 (38%)	78 (35%)	2 (18%)
Subtotal	87 (100%)	231 (100%)	224 (100%)	11 (100%)
Francophone				
Completers	9 (33%)	19 (40%)	37 (63%)	0 (0%)
Dropouts	18 (67%)	28 (60%)	22 (37%)	0 (0%)
Subtotal	27 (100%)	47 (100%)	59 (100%)	0 (0%)
Anglophone/Francophone				
Completers	60 (53%)	162 (58%)	183 (65%)	9 (82%)
Dropouts	54 (47%)	116 (42%)	100 (35%)	2 (18%)
Total	114 (100%)	278 (100%)	283 (100%)	11 (100%)

Note. The numbers in the parentheses represent the percentages of Completers and Dropouts by Entry Plan.

Entry Plans

- DEO - Direct Entry Officer.
 ROTP - Regular Officer Training Plan.
 OCTP - Officer Cadet Training Plan.
 OTHER - Includes such plans as Commissioned From the Ranks and Special Commissionings.

increasingly important policy implications. Studies of dropouts among specific groups of people, especially women, minorities, language groups, the handicapped, and the disadvantaged, will become increasingly important and will have increased influence on the development of training policies and programs. Research to date on attrition indicate that males and females drop out of college for different reasons (Bean, 1980; Spady, 1971) and Bynum and Thompson (1983) found that based on the dropout pattern, minorities students of any race - American Indian, Black, or White - are much more likely than students of the majority to drop out. Pascarella and Terenzini (1979) suggests that:

the positive benefits of new programs and policies will accrue differentially rather than generally. . . . rather benefiting all students equally, the impacts of such programs on student retention are likely to be mediated by the characteristics of the students involved.

Thus policies and programs needed to address a training attrition problem may have to be different for the various groups involved in that training.

Aim

The purpose of this study, therefore, was to explore various factors that contribute to attrition on the MARS 71A Training Program. This included investigating the

influence of social and cultural factors to aid in understanding the difference in attrition between the Anglophone and Francophone students. Specifically the study explored the perceptions held by both Anglophone and Francophone students who dropped out, and those who completed the program toward the individual, the organizational, and the extra-organizational factors defined in Mobley's Expanded Turnover Process Model (Mobley, 1982). The study also investigated the relationship between the levels of integration of these four groups of students into the social and academic substructures of the institution and the social substructure of the surrounding area and attrition on the MARS 71A Training Program. In conjunction with this, the study investigated the relationship between the students' commitment to becoming MARS officers and attrition.

Therefore, in summary, the purpose of the study was to investigate if differences in perception exist between those who complete the program and those who drop out and between Anglophone and Francophone students. A subsidiary purpose of the study was to explore if there are significant relationships between the students' age of the students at the time of training and their entry plan into the Canadian Forces (CF) and attrition on the MARS 71A Training Program.

CHAPTER 2

LITERATURE REVIEW

Literature on Military Attrition

Military organizations and defence agencies, in both Canada and the United States (US), have dedicated much time and effort to understanding the reasons their members quit or drop out, but very little of this research has been devoted specifically to understanding the reasons officer candidates and non-commissioned recruits drop out prior to completing the initial phases of their training. Hand, Griffeth, and Mobley (1977) state that most US military attrition research has placed much more emphasis on re-enlistment attrition than on why people drop out prior to the end of their engagement and have placed more emphasis on individual variables such as education, age, background, and so forth than on organizational factors. In the CF, the most prominent studies into military attrition have been those conducted by the Canadian Forces Personnel Applied Research Unit (CFPARU) and include Fournier and Keates (1975), Donnelly, Cotton, and Tierney (1980), Mendes and Lyon (1984), and Lyon (1987).

Fournier and Keates (1975) found from data collected by questionnaires and interviews of over 1500 voluntary withdrawals from the CF between October 1974 and March 1975 that there are several major themes regarding an

individual's employment expectations which influence a person's decision to voluntarily leave the CF, namely:

1. personnel expect challenging and rewarding work that keep them fully occupied;
2. personnel expect fair discipline as opposed to simple exercise of authority; and
3. personnel expect to be treated so as to feel that they are an important part of the organization.

Fournier and Keates further found that personnel often left the CF when they perceived that their prospects for long term employment and a career were not sufficient.

In a study into factors affecting the stay/leave decision of post Trade Level Three graduates, Donnelly, Cotton, and Tierney (1980) studied attrition among 4991 recruits during the period 1975 to 1977. They found the recruits' initial pre-training intentions to be a fairly accurate predictor of attrition. Those recruits who stated that they intended to remain for one full term of service showed an attrition rate just under 25 percent, while those who stated intentions to leave prior to completing one term of service had an attrition rate of 61 percent. Of the undecided group, 31 percent left the CF. Additionally, Donnelly, Cotton, and Tierney (1980) found that there was a mild general trend for younger people to be less satisfied with training and less committed to the CF but they found

little relationship between prior experience in cadets and the retention or loss rate subsequent to Trade-Level Three training.

Mendes and Lyon (1984) conducted their study in two phases. Phase I was conducted at seven CF Bases and included 428 participants; 227 stayers and 151 leavers. Phase II was conducted at sixteen CF Bases and in eleven of Her Majesty's Canadian Ships and included 2006 participants. This sample consisted of 1691 stayers and 315 leavers and provided adequate representation by Officer/Non-Commissioned Member (NCM), Gender, Language, Element, and Geographic Regional groupings. Mendes and Lyon reported that while stayers and leavers shared some similar concerns about their employment in the CF, they had different perspectives on several factors including the nature of the work, their relationship with supervisors, and family or lifestyle issues. The study also identified seven major factors associated with a leave or potential leave decision. These factors were: postings, nature of work, advancement opportunities, pay, benefits, CF lifestyles, and military occupation recognition.

Lyon's study on attrition is still ongoing. He is using the CF Attrition Information Questionnaire developed by CFPARU (Lyon, 1987). This questionnaire is presently being administered to all personnel leaving the CF by military staff manning the release centres at CF Bases.

In the United States, numerous studies have been conducted into military attrition. An US Navy study, (Stoloff, Lockman, Allbritton, & Mckenly, 1979), cited by Adams (1981) was conducted aboard navy ships to assess the affect psychological, economic, and demographic variables have on retention. Using response frequency to analyze the data, these authors found that retention decisions were frequently associated with pay, retirement, advancement, fringe benefits, and duties; while the decision to leave the Navy was often related to military way of life, family separation, leadership, and compensation. additionally, they found that living conditions and job environment were essential elements in the decision process.

In an analytic study of first-tour attrition research studies conducted across all US military services, Goodstadt (1980) suggested that a variety of organizational conditions decrease the attachment of military personnel including:

1. poor quality of personal lifestyle and general living conditions;
2. lack of meaning and variety in the jobs available;
3. a perception of an authoritarian organization characterized by infrequent feedback and inequity in rewards and punishments;
4. disconfirmation of initial expectations with regard to the quality of military life and the nature of military duties;

5. leaders' characteristics and behavior;
6. military's power to use discharges and other resources for coping with problem personnel; and
7. mismatch between training and job assignment.

The results of this study also indicated that those who withdrew viewed civilian work environment as more attractive, experienced more expectancy disconfirmation concerning Boot Camp, and were more likely to expect the real military to be a continuation of Boot Camp.

The literature available on military attrition devoted specifically to training is very limited. In Canada, the major studies related to military training attrition have been descriptive studies primarily concerned with comparing how selected characteristics of those who dropped out differ from those who do not. They fail to identify factors which contribute to attrition and even in their descriptive nature they fail to distinguish between differences which may be the causes of attrition from those which may be the consequences of such causes.

A CFPARU study of attrition at NCM recruit training (Hamel, 1978) looked at a sample of approximately 1400 male NCM recruits and examined how survival in the first eighteen months of service varied with different social background and pre-enrollment employment experiences. It found that less educated recruits with a history of marginal

involvement in the labour force are high risks in the military settings, a situation which holds for both Anglophone and Francophone populations. The study confirmed the results of earlier research, namely, that the CF is a comparatively unattractive career option for the more educated youth with a commitment to stable labour force participation. Hamel also found there were higher attrition rates among Francophone recruits (43 percent) compared to Anglophone recruits (37.2 percent), a difference due primarily to a higher proportion of voluntary releases among Francophones.

Hamel failed to find a significant relationship between early career attrition and either family background or place of residence on enrollment.

Other CFPARU studies, such as Walker (1979), which was intended to develop interest scales for predicting retention and success in the Canadian Military Colleges, and Okros (1988), which investigated attrition on the MARS 71A Training Program at NOTC, were also descriptive in nature, concerned primarily with identifying who were dropping out rather than understanding why they were leaving.

A study of available attrition research conducted at the Royal Military College of Canada, (Lefroy, 1980) is worth noting. It attempted to determine guidelines for trainers interested in reducing attrition. This study was not intended to be a definitive statement of what causes

attrition nor did it try to provide guaranteed remedies, but it did make several very realistic and pragmatic recommendations. Among the recommendations, Lefroy suggested:

1. maintaining recruits in the same peer groups whenever possible throughout all phases of training;
2. implementing a graduated system of privilege dress and discipline across all training units within the training system;
3. establishing a standards section within each school/training unit to determine pass/fail or recourse;
4. rewarding instructors and training staff for having the greatest number of students achieve the pass standard as opposed to having the best squad;
5. implementing a system for ensuring training relevance by only giving knowledge or skills that are absolutely required for the next step in training or employment;
6. implementing a brief orientation phase at each new step in training and employment;
7. fostering peer group bonds through supervised recreational activities and team building exercises;
8. indoctrinating recruits with a military values system built around a healthy life style;
9. implementing a more careful screening and selection

process for personnel posted to training units, especially training involving initial phases of career training; and

10. implementing in-house work shops for squad leaders on such topics as adolescent psychology, the effective use of rewards and punishment, interpersonal communications skills, and team building.

Lefroy's analytic review of the research on attrition quoted extensively from Van Maanen and Schein (1979). According to these authors early organizational experiences have a significant influence on one's later organizational beliefs, attitudes, and behavior. If individuals are successfully socialized or assimilated into the organization, they will develop new self images, discover new involvement, adopt new values, and experience new feelings of accomplishment. The degree of successful organizational socialization contributes to such factors as retention, performance, and morale. According to Van Maanen and Schein (1979) this assimilation involves more than simply the teaching/learning of knowledge and skills, more importantly it involves the teaching/learning of values, rules, etiquette, customs, and prejudices through filling various positions and roles in the formal organizations and the informal work groups. Since most CF recruits are in the 18-25 age bracket, post adolescent but pre-adult, they have

not yet fully adopted the occupational, marital and parental roles characteristic of an adult. Their adult identities have not yet been established, therefore, it is the task of the CF to create a situation and a socialization process which will lead these people to identify with the military as their occupational role.

The work of Van Maanen and Schein support the present research on labour force participation. This research suggests that it is normal for young people to frequently change jobs as it is simply a consequence of career choice processes as they explore the world of work by experimenting with a variety of occupations. As young people mature and undergo personal changes in their lives, they more precisely define their occupational interest and career goals (Goodstadt, 1980).

In the United States, while the military organizations have devoted more time and effort to researching the problem of training attrition, their efforts are far from adequate, and as in Canada, with few exceptions, the majority of the studies are descriptive in nature. One longitudinal study of recruits training in the Marine Corps (Mobley, Hand, Baker, & Meglino, 1977) identified a number of organizational factors that influence attrition. Dropouts indicated that the major causes for their voluntary withdrawal included: missing family and friends, lack of personal freedom, pressure, and rules and regulations. Data

from pre-training expectations indicated that compared to graduates, dropouts commenced training with lower expectations of completing their enlistments, were less attracted to a "Marine Corps Role", expected less leadership structure, and expected to be less satisfied. Additionally, this study found that persons who were discharged felt that they had a better chance of finding an acceptable civilian job.

In a related 25 month longitudinal analysis of military recruit attrition, Youngblood, Laughlin, Mobley, and Meglino (1980) use 1520 male Marine recruits. This study found that the measures which best differentiated the dropouts from the others were expected satisfaction, chances of completing first term, intention to complete first term, and the individual's attractedness to the Marine Corps.

Finally, an US Army study of the reasons for attrition of US Military Academy Preparatory School graduates from the US Military Academy at West Point (Bulter, 1981) used statements from dropouts, their tactical officers, and other data contained in official personnel records. The results of this study supported the United States General Accounting Office study of attrition (GAO, 1976) which found that low motivation for a military career, incompatibility with the military academy environment, adjustment difficulties, and changes in career goals were the major factors in cadet attrition.

In summary, while extensive research has been conducted into general military attrition, little of this research relates directly to military training attrition and scarcely any is devoted exclusively to the study attrition from officer training programs. Research completed to date clearly demonstrates that the military training attrition is a complicated and involved process which cannot be explained by a single factor or cause. It would appear that the major portion of persistence/withdrawal behavior is so idiosyncratic, in terms of external-circumstances and personal propensities, that it is very difficult to capture in a single rational explanatory model. The research suggests that only a limited proportion of the variance associated with attrition can be accounted for with individual difference variables, such as age, education, race, background, and so forth, which are used for screening purposes (Goodstadt, 1980).

General Literature on Attrition

The issue of attrition has been studied more generally by such people as Spady (1970, 1971); Tinto (1975); Terenzini and Pascarella (1979, 1980); Terenzini, Pascarella, Theophilides, and Lorang, (1985); Pascarella and Chapman (1983); Pascarella, Duby, and Iverson (1983); and Mobley (1977, 1982). Review of this literature offers many criticisms of the methodology of previous attrition research. One of these criticisms is the lack of a common

definition of the population of dropouts, which has frequently led to contradictory findings (Tinto, 1975). For example, there are dropouts who withdraw voluntarily versus those who are academically suspended (Getzlaf, Sedlacek, Kearney, & Blackwell, 1984). Many studies, such as Terenzini and Wright (1987), do not distinguish between voluntary withdrawals and academic dismissals nor do they take steps to demonstrate that the differences in the two groups are not statistically significant. Others, Pascarella and Chapman (1983), Pascarella and Terenzini (1980), and Pascarella, Duby, and Iverson (1983) simply dropped the academic dismissal subjects from their study data. While still others, Bean (1982), Bynum and Thompson (1983), and Thompson (1984) define dropout as "the student who fails academically or withdraws for any reason with little apparent opportunity or intention to complete his or her degree."

The literature available on the attrition reveals that it is a complex process with many influencing factors. It suggests that no one study can identify all the causes of attrition, it can only provide more insight into the influencing factors. Therefore, no single source can provide all of the background information necessary for the development of an attrition information questionnaire.

The literature on military attrition indicates that a theoretically based questionnaire is required to explain the

reasons servicemen leave the CF (Lyon, 1987). To develop this theoretical base, CFPARU has validated and used Mobley's (1982) Expanded Turnover Process Model. This model describes the relationships among individual (e.g., age, education, background, personal preference, personal values and other personal, biological, and historical data), organizational (e.g., the job, the company policies, work environment, and other work-related information), and extra-organizational (e.g., economic-labour market, unemployment, and other environmental and external influences) factors, and explains how these factors combine to affect an individual's attitude and perception toward his/her employment.

Lyon (1987), in amplifying Mobley's model, states that individual values, attitudes, and perceptions about the job and the labour market create expectations about one's present job and about alternative employment, which, in turn, influence the levels of satisfaction and attraction to the present job and to possible alternatives. Therefore, a study of attrition in a training program, such as the MARS 71A Training Program, where the individuals are being paid to train for a specific career, must be aware of and take into account work-related factors such as nature of work, postings, advancement opportunities, pay, benefits, and lifestyle, along with personal factors such as values and preferences, and biological and historical factors such as

age, education, and method of entry into the program.

Mobley has conducted extensive research with the United States Military in the field of personnel attrition which has served to validate the major constructs of his Expanded Process Turnover Model (1982). Youngblood, Laughlin, Mobley, and Meglino (1980) studied the attrition problem experienced by the US Marine Corps, by comparing stayers to leavers on certain variables; an approach similar to the one used in this study. The Generalized Expectancy Model of Organizational Behavior used by Youngblood, Laughlin, Mobley, and Meglino considered the recruits' perceptions and evaluations of both the Marine role and alternative civilian roles. It used a longitudinal design which considered both individual and organizational variables and which permitted assessment of the learning-socialization process. The Generalized Expectancy Model of Organizational Behavior, used in this US military study, very closely resembles Mobley's Expanded Turnover Process Model use in this present study.

Mobley's model could not completely explain attrition on the MARS 71A Training Program, since in addition to being a career and a job for the officers, this program is a formal training course. Therefore, a theoretical model was needed which, in addition to explaining training attrition, could provide a clear prescription for the data to be collected and then aid in the interpretation of that data.

The model adopted to address this need was Tinto's Model of Institutional Attrition (Tinto, 1975). This is a theoretical model which conceptualizes institutional attrition as a product of the student's characteristics, abilities, and goal commitments interacting with the institutional environment. This interaction can be described in terms of the academic and social integration of the students in the academic environment and the social substructure of the institution and the surrounding area (Getzlaf, Sedlacek, Kearney, & Blackwell, 1984). According to Tinto (1975) students enter a particular institution with background characteristics which, partially determine how the student will relate to an institution's social and academic systems. The nature and quality of these associations lead to varying degrees of normative and structural integration in those systems. Therefore, if assuming that external influences are held constant, the higher the level of integration into the social and academic systems of an institution the less likely the student is to drop out (Pascarella & Terenzini, 1979). Dropping out is seen as being largely the result of a lack of congruence between the individual and both the intellectual climate of the institution and the social system composed of his peers rather than the result of any specific failure on the part of the individual. Of the various factors influencing both academic and social integration, informal interaction with

other students and with the faculty staff outside of the classroom has been demonstrated to be very important. The more time faculty members give to their students, and students to each other, the more likely are students to complete their program of study (Tinto, 1975; Pascarella & Terenzini, 1977; Terenzini & Pascarella, 1977; Spady, 1971).

Recognizing the need for theory-based research in the field of student attrition and realizing that Tinto's model provided a potentially useful framework for understanding the complex process of student persistence/withdrawal behavior, many researchers have validated the major constructs of Tinto's model (Aitken, 1982; Baumgart & Johnstone, 1977; Bean, 1980, 1982; Munro, 1981; Pascarella & Chapman, 1983a, 1983b; Pascarella & Terenzini, 1979, 1980, 1983; Terenzini & Pascarella, 1977, 1978, 1979, 1980; Pascarella, Duby, & Iverson, 1983; Fox, 1986; Pascarella, Terenzini, & Wolfe, 1986; Getzlaf, Sedlacek, Kearney, & Blackwell, 1984; Terenzini, Pascarella, Theophilides, & Lorang, 1985; Nora, 1987; Thompson, 1984; and Sweet, 1986).

A Washington State University study (Getzlaf, Sedlacek, Kearney, & Blackwell, 1984) designed to test Tinto's model of attrition used 234 former undergraduate students who had been enrolled at the university during the spring semester and who had not re-enrolled for either the summer or fall semesters of 1978. This study validated the major constructs of the model. In summary, it found that those

students dropping out from higher education seem to have a lower academic ability, to perform less well at college, to be less academically and socially integrated into the college, and have a lower goal commitment and lower commitment to the institution they attend.

A path analysis validation of the Tinto model on a sample of 763 residential university freshman (Pascarella & Terenzini, 1983) explained 18.1 percent of the variance in freshman year attrition. It produced a pattern of direct and indirect effects consistent with the model's theoretical expectations, but it found that background characteristics explained less than three percent of the variance in the overall model and failed to distinguish between persisters and dropouts. This would suggest that the quality of the students' interaction with the college environment subsequent to enrollment is a more important factor in persistence than the characteristics the students bring to college (Pascarella & Terenzini, 1983). These findings regarding the limited effect of background factors were consistent with earlier efforts to validate Tinto's Model; Terenzini and Pascarella (1978), Pascarella and Terenzini (1980), and Bean (1980), and was later reaffirmed by Terenzini, Pascarella, Theophilides, and Lorang's path analytic validation of the model.

Application of Tinto's model to 2336 freshman from 11 post-secondary institutions (Pascarella & Chapman, 1983a)

also yielded results generally consistent with the model's expectations. The study, conducted at four-year residential institutions, four-year commuter institutions, and two-year commuter institutions, suggested interesting differences in the patterns of influence when the data were analyzed by institutional type. The institutions varied significantly with respect to the concepts of social and academic integration. Social integration had a much stronger influence on persistence at the four-year residential institutions, while academic integration was more influential at the two- and four-year commuter institutions (Pascarella & Chapman, 1983a).

Sweet (1986) applied Tinto's model to 356 students enrolled in university-level courses at the Open Learning Institute located in Richmond, British Columbia. This study of Tinto's model, a model developed to describe the process of attrition among 18 to 24 year-olds attending four year, residential institutions, in a non-traditional setting supported the major constructs of the model and supported Tinto's (1982) assumption that modification would be necessary to the model if it was applied in a non-traditional setting, with non traditional students. Sweet's non-traditional application of Tinto's model has been supported by Pascarella and Chapman (1983(a))(two and four year commuter colleges), Pascarella, Duby, and Iverson (1983)(commuter colleges), and Thompson (1984)(distance

education). These studies found that in commuter institutions and in distance education environments, integrative factors appeared to play less of a role than in residential setting relative to the importance of student background characteristics.

Literature on Methodology

Neither Mobley's Expanded Turnover Process Model nor Tinto's Model of Institutional Attrition used alone can accurately explain attrition on the MARS 71A Training Program. Mobley's model concentrates on factors which contribute to the reasons people leave their jobs or careers to the neglect of factors influencing why people leave training or educational institutions. Tinto's model, which is concerned with why people drop out of training or educational programs, is not applicable to identifying why people quit their jobs or careers as it does not address job-related issues. Therefore, attrition on a training program, such as the MARS 71A Training Program, where the students are paid while they are undergoing formal training, cannot be explained thoroughly by the exclusive application of only one of these models.

The combining of a model of student attrition with a work turnover model is not a new idea and is supported by both Tinto (1982) and Bean (1981). Tinto suggested the possibility of referring to existing theories of labour

mobility while Bean applied a modified version of the Price/Mueller Model of Turnover in Work Organizations to the college student dropout process at a major midwestern land grant university in the United States. This study suggested that "an attrition model, based on the Price/Mueller Model of Turnover in Work Organizations, was supported and that much could be learned about student behavior from the study of employee behavior" (Bean, 1981). In later studies, Bean (1982) modified his model by combined the Price/Mueller model with other variables of student attrition in an attempt to increase the explained variance in the college attrition process.

Tinto (1975) suggests that students come to a learning institution with a range of background traits which include race, academic achievements, family background, and so forth, and that these factors influence how well the student will interact with and become integrated into the institution's social and academic systems. Two background variables explored in this study of attrition were the "age of the student at the time of training" and his "entry plan into the Canadian Forces."

Hedl (1987) found that age, along with sex, ethnicity, and prior academic achievement to be nonsignificant as direct factors in explaining attrition from institutions of higher learning. Mobley (1982), however, cites a 1973 study by T.W. Mangione which rank ordered the strongest variables

which contributed to employee turnover. Mangione ranked age as number four after satisfaction with comfort, satisfaction with coworkers, and industry.

The candidate's "entry entrance plan into the CF" is very closely tied to his educational/academic background, thus it was very important to explore this background variable. A candidate, whose entry plan is the Regular Officer Training Plan (Civilian University), has completed an undergraduate degree program sponsored by the CF at a civilian university. A candidate, who entered under the terms of the Regular Officer Training Plan (Military College), has completed either a four-year or five-year undergraduate degree program at a military college. Under the Direct Entry Officer Training Plan, a candidate would enter the CF with an university degree which he would already have obtained on his own. Finally, a candidate who entered under the terms of the Officer Cadet Training Plan does not have a recognized degree from an university. He would have a high school diploma and may have a technical certificate, or university training towards a degree program. (There are other entry plans in the CF but they do not have a significant influence on the MARS 71A Training Program and therefore, were not investigated in this study). Thus, notwithstanding the studies which suggested that background factors do not have a significant influence on attrition, prior academic achievement may be a very

important indirect factor in this study of attrition, a study applying Tinto's model in a non-traditional setting.

Literature on the MARS 71A Attrition Problem

There is at present no shortage of hypotheses on why the Francophone attrition figure is higher than the Anglophone. Some are well thought out while others are merely conjectures. The most plausible hypotheses, as identified in a letter from NOTC to the Commander of Training Group Pacific (CTGP) dated 1986, can be grouped under four general headings:

(1) Recruiting Process - because of the pressure on the Recruiting Centers in Quebec to recruit 28 percent of the CF, the recruits are often inadequately briefed or are given false or misleading information at the time of recruiting.

(2) Naval Officer Selection Board (NOSB) - even though the NOSB operates in a bilingual format, the board is often a difficult experience for the Francophone candidate. The amount of information presented at the NOSB is considerable and not all is available in French, thus only a limited amount is absorbed by the students. Briefings are of a general nature, usually glossing over the specifics of the MARS career progression; movies stress the glorious, nice-to-see aspects of the naval life and give very little

perspective on the training that lies ahead. The not-so-nice sides of Navy life such as duty watches, time away from families, training times, and so forth are not mentioned. Thus, when the students arrive at NOTC, they are quickly disillusioned.

(3) Anglophone Environment - with bilingual courses available at the Canadian Forces Officer Candidate School (basic training), located at Canadian Forces Base (CFB) Chilliwack, it is not until the students arrive at NOTC that they encounter the "culture shock", which some are unable to overcome. This is the first occasion where they become totally immersed in the Anglophone environment and where they may perceive their cultural identity as being threatened. Throughout their training, they often see themselves pressured to assimilate and eventually, be absorbed into the English cultural milieu.

(4) MARS Training - the lack of bilingual courses and French instructors and the high-pressure approach to MARS training cause many Francophone students to become disheartened and to voluntarily withdraw from the program as they feel that they cannot keep up to their Anglophone peers. During the practical phases of the MARS 71A Training Program, the pressure is intense on

the Anglophone students; therefore, it must be doubly so for the Francophone students who must also contend with working in a second language.

These assumptions reflect NOTC's interpretation of the causes of the Francophone attrition based on the experience of the officers involved in the training program. Similar interpretations are not available for the Anglophone attrition but a 1982 study conducted at NOTC to identify reasons for the combined attrition attributed only 16.6 percent to lack of ability to do the job (lack of mental agility accounting for 13.4 percent and academic failures accounting for the other 3.2 percent) (Dalzell, 1986). This study attributed many of the training failures to lack of motivation or drive on the part of the students. Many of the students had the ability to pass the course but they did not apply themselves. They simply withdrew without going through the formal process of withdrawal and their failure may more accurately reflect the failure of the military socialization process rather than their mental deficiencies. Therefore, the attrition problem in the MARS profession cannot be simply explained. The individuals are not only leaving a training program, they are leaving a job and a career, and they may be motivated by a variety of factors.

Hypotheses

This study was a general exploration of the student attrition on the MARS 71A Training Program which proposed to examine factors relating to attrition among Francophone students as compared to Anglophone students. Therefore, in keeping with the aims and in accordance with the literature, five major hypotheses were identified. They are:

1. The model used to explore the attrition problem on the MARS 71A Training program would explain a significant percentage of the variance in the MARS attrition process.
2. Anglophone and Francophone students will differ significantly with regard to the three major variables of Mobley's model; organizational factors, extra-organizational factors, and individual factors, and the three major variables of Tinto's model; academic integration, social integration, and goal commitment.
3. Completers and dropouts will differ significantly with regard to the major variables of Mobley's and Tinto's models.
4. There will be a significant relationship between the students' age at the time of training and attrition on the MARS 71A Training Program.
5. There will be a significant relationship between

the students' entry plan into the CF and attrition on the MARS 71A Training Program.

Definitions

Completer/Persister	A student who successfully completed the MARS 71A Training Program.
Dropout	A candidate who for reasons related to medical restrictions, lack of ability, lack of motivation, or other causes, did not complete the training program.
Entry Plan	<p>The terms of service by which a candidate joined the CF. The majority of MARS candidates joined through one of four entry plans:</p> <p>Direct Entry Officer (DEO): - a candidate would enter the CF with an university degree which he would have obtained on his own.</p> <p>Regular Officer Training Plan (Civilian University) [ROTP (Civy U)] - a candidate would have completed an undergraduate degree program sponsored by the CF at a civilian university.</p> <p>Regular Officer Training Plan (Military College) [ROTP (Mil Col)] - a candidate would have completed either a four-year or five-year undergraduate degree program at a military college.</p> <p>Officer Cadet Training Plan (OCTP) - a candidate does not have a recognized degree from an university. OCTP candidates would have a high school diploma and may have a technical certificate or university training toward a degree</p>

	program. Officer Cadet Training Plan (Men) - the terms of services are the same as the OCTP except the candidates are recruited from the non-commissioned ranks.
Gunroom	The students' wardroom or mess at NOTC.
Francophone student	A student whose first language is French.
Military Occupations	The professions and trades which constitute the structure of the CF.
Naval Officer Selection Board	A week long selection process, held Periodically in Halifax, to (NOSB) determine the suitability of naval officer candidates. The board decides if the candidates, recruited by the various recruiting centers across the country, will make good naval officers.
Naval Officer Training Center (NOTC)	A training institution, which comes under the command of the Commander of Training Group Pacific, responsible for organizing, designing, and conducting all ashore phases of the MARS 71A Training Program and for the designing and monitoring of all afloat phases. NOTC is responsible for the students throughout their MARS 71A training.
Non-commissioned member (NCM)	Members of the CF not with officer status. (The rank of Private up to the rank of Chief Warrant Officer.)
Perception	An awareness of the environment through physical sensation (Merriam-Webster, 1974).

Trade Level The first phase of training in a
Three Training non-commissioned member's career,
normally follows immediately after
basic training.

Training Group The military organization respon-
Pacific sible for MARS 71A training for both
the Regular and the Reserve Forces.

CHAPTER 3

METHOD

Sample

The setting for this study was the Naval Officer Training Centre, a military training institution responsible for the initial phases of career training for junior naval officers of the Executive and Engineering branches. In addition to conducting the fifty-week MARS 71A Training Program, NOTC conducts initial phase training for both the Marine Systems Engineering and Combat Systems Engineering military occupations. NOTC trains approximately 500 naval officers annually through its various training programs, but since all training conducted at NOTC constitutes only the initial phases of training in a naval officer's career, graduates leaving NOTC normally proceed to more advanced training in preparation for future duties. For example, the graduates of the MARS 71A Training Program proceed to the Canadian Forces Fleet School located at CFB Halifax for a four-month Naval Operations Course. This is followed by one year in an operational ship, where the junior officer will be expected to complete the requirements for his Certification of Competency Level Two and his Bridge Watchkeeping Certification.

The study sample consisted of 252 subjects selected from the approximately 686 MARS 71A candidates who attended

NOTC between 1982 and 1988. To obtain a sample of graduates, the Canadian Forces Information Management Services, located at CFB Trenton, were requested to provide names and addresses of all Francophone students and a random sample of 70 Anglophone students who graduated from the MARS 71A Training Program between 1982 and 1988. Acting on this request, they provided a list of 75 Anglophone and 62 Francophone graduates. Two of the Francophone names supplied were Marine Engineering Officers and were therefore excluded from the study. Thus, the final sample of graduates consisted of 75 Anglophone and 60 Francophone subjects.

To obtain a similar sample of dropouts, the Canadian Forces Personnel Management Information Systems (CFPMIS) located in the National Defense Headquarters, Ottawa, was requested to provide the names and addresses of all Francophone students and a random sample of 70 Anglophone students who did not complete the MARS 71A Training Program but who had commence training in the period between 1982 and 1988. The lists they provided included 41 Anglophone and 28 Francophone students who did not complete the program but who were retained in the CF and 25 Anglophone and 32 Francophone students who did not complete the program and were released from the CF. From these lists provided by CFPMIS all but one of the Anglophone names had valid addresses while two of the Francophone students who were

still serving in the CF and six of the Francophone students who were released from the CF did not have valid addresses. Thus the dropout sample consisted of 65 Anglophone and 52 Francophone subjects.

Questionnaires were distributed to the 252 subjects, by mail, the last week of April, 1988 and a complete second mailing was conducted four weeks later. The overall response rate to the questionnaire survey was 81 percent. Seventy Anglophone completers, 43 Francophone completers, 50 Anglophone dropouts, and 42 Francophone dropouts responded. Table 2 provides a complete breakdown of the number of subjects use in this study with their associated response rates.

The representativeness of the sample used in this study is supported by a Chi-square goodness-of-fit analysis. This analysis indicated that the students who responded in each sample were representative of the subgroup from which they were drawn with respect to entry plan into the CF. None of the four calculated Chi-square values, as displayed in Table 3, was significant at the $p < .05$ level of significance. The Chi-square goodness-of-fit analysis could not be applied to the year the students either "graduated from the training program" or "dropped out" because of the manner in which the subjects responded to the item "Initial MQC." Many subjects read MQC to be MOC and instead of entering their MARS Qualifying Course they entered their Military Occupation

Table 2

Summary of Total Number of Subjects by Subgroup and their Response Rate.

Subgroup	Number of Subjects	Number Responding	Percentage Responding
Anglophone completers	75	70	93%
Francophone completers	60	43	72%
Anglophone dropouts	65	50	77%
Francophone dropouts	52	42	81%
Total	252	205	81%

Table 3

Chi-square Goodness-of-Fit Test for Entry Plan.

	Anglo Completers	Franco Completers	Anglo Dropouts	Franco Dropouts
CHI-square values	2.15	1.00	3.44	1.83

Note. The critical Chi-square at .05 with degrees of freedom of 3, is 7.8.

Code. This problem was not detected during the pilot study.

Thirteen subjects (seven Anglophones and six Francophones) were randomly selected for in-depth interviews from students who had recently "voluntarily withdrew" or were "ceased trained" from the MARS 71A Training Program and who were available in the Victoria area during the month of May, 1988. These students, while no longer in the training program, were still at NOTC awaiting release processing or occupation transfers to other military occupations.

All subjects in the study were males who had entered the MARS military occupation through one of three entry plans; Regular Officer Training Plan, Direct Entry Officer Training Plan, or Officer Cadet Training Plan/Officer Cadet Training Plan (Men). The subjects who had successfully completed the training program were MARS officers, with the rank of Naval Lieutenant or Sub-Lieutenant, employed throughout the fleet, either in positions at sea or in staff positions ashore in the various headquarters or training organizations. The dropouts in this study included both students who voluntarily withdrew from the program and those who were "ceased training" because of failure. The dropout subjects included both individuals no longer serving in the CF, and individuals who were still in the CF but in other military occupations. For example, they may have reverted to the non-commissioned ranks (no longer an officer) or they had transferred to military occupations in the Army, Air

Force, or to one of the support military classifications.

The 1982 study conducted at NOTC into attrition attributed only 16.6 percent of the total attrition on the MARS 71A Training Program to lack of ability. It attributed many of the failures to lack of motivation and lack of effort on the part of the students. Since this was an exploratory study to determine if the perceptions differed between students who complete the program and those who do not and between Anglophone and Francophone students, those who voluntarily withdrew and those who were "ceased training" were treated as one group; dropouts. A dropout was defined as any student who failed the training or withdrew for any reason with no intention of completing the program. A comparison of those who voluntarily withdrew and those who were "ceased training", using a Hotelling t -test, failed to show a significant difference between the two groups on any of the six dependent variables (See Table 4).

Instrumentation

The model used in this study to explore the attrition on the MARS 71A Training Program combined variables suggested by the major constructs of both Tinto's Model of Institutional Attrition (1975) and Mobley's Expanded Turnover Process Model (1982). A survey questionnaire was the primary instrument used for data collection supported by interviews with recent dropouts. The survey questionnaire

Table 4

Comparison of Students who Voluntarily Withdrew and Those who were Ceased Training on the Six Dependent Variables.

Variable	Number of cases	Mean	Standard Deviation	t-value	critical t-value

ORGFACT					
Group 1	41	4.06	0.73		
Group 2	51	4.06	0.89	0.00	1.99

ACADINT					
Group 1	41	3.73	0.71		
Group 2	51	3.99	0.70	-1.76	1.99

GOALCOM					
Group 1	41	4.43	1.52		
Group 2	51	4.11	1.63	0.96	1.99

SOCINT					
Group 1	41	3.51	0.62		
Group 2	51	3.51	0.92	-0.03	1.99

EXTORG					
Group 1	41	4.94	0.65		
Group 2	51	4.91	0.66	0.26	1.99

INDFACT					
Group 1	41	3.48	0.44		
Group 2	51	3.70	0.62	-1.85	1.99

Note. $p < .05$, $df = 90$.

ORGFACT - Organizational Factors
ACADINT - Academic Integration
GOALCOM - Goal Commitment
SOCINT - Social Integration
EXTORG - Extra-organizational Factors
INDFACT - Individual Factors

and the interview guide are presented in Appendices A and B respectively.

Questionnaire

The questionnaire consisted of variables from both theoretical models. Variables from all three of Mobley's major groups of factors were included, as follows:

1. Individual Factors:

- importance of personal life,
- importance of family and time with family,
- importance of spouse's career,
- importance of recreational activities or leisure time outside of one's professional life,
- importance of personal friendships.

2. Organizational Factors:

- attitude toward NOTC,
- perception of the accessibility and support of the staff,
- perceptions toward the support and administrative services offered by the Base.

3. Extra-Organizational Factors:

- attractiveness of civilian life compared to the military life with respect to such factors as pay, job promotions, job security, life style, opportunity to travel, and so forth.

Variables from Tinto's Model were used to establish the level of the students' integration into both the social and academic systems of NOTC and the larger social environment

of the Victoria area, as well as to determine the students' commitment to their goal of becoming MARS officers. The level of integration was determined by the degree to which students participated in the social life both at NOTC and in the civilian community. How often did they participate? With whom did they participate? How often did they go off the base? With whom did they go off the base? How well did they enjoy the social life in Victoria? Academic integration was measured by the student's perceptions of the various aspects associated with the training program while goal commitment was assessed by the student's perception of how hard he worked to attain his goal and his rating of how committed he was to becoming a MARS officer.

In addition to these variables the questionnaire collected background information on each subject. This included:

1. entry plan into the Canadian Forces,
2. MARS Qualification Course (MQC) initially assigned to,
3. age at time of graduation or withdrawal from training,
4. first official language,
5. educational background, and
6. status with respect to completing the course.

Instrument Development

The survey questionnaire used as the primary instrument for data collection was constructed specifically for this study. The questionnaire was in six sections, with one section dedicated to each of the three factors identified by Mobley (1982), two sections dedicated to the social and academic integration factors and goal commitment described by Tinto (1975) and one to the collection of background information.

Section One of the questionnaire, the background information section, consisted of six questions. The first two, "Entry Plan" and "First Official Language", required the selection of an appropriate response from those provided. The question inquiring on the "status" of the subject consisted of 10 options which were selected based on a review of the training records on all students who had not successfully completed the MARS 71A Training Program since August 1981. For the purpose of the major data analysis, these options were collapsed to two, Option A and those from B to J. The purpose of the detail in this question was to obtain the necessary data in order to compare the students who dropped out voluntarily with those who were "ceased trained". The question "Initial MQC" simply required the subject to supply the MARS Qualification Course to which he was assigned when he first arrived at NOTC. In Question 5, "age at the time of graduation or withdrawal from training,"

the subjects had a selection of four options with the ages ranging from 17 to 32 in four equal intervals. These figures were also selected based on a review of the age range of the students at NOTC from 1981 to the present. For the purpose of data analysis these four options were collapsed to two, those subjects 24 years of age and younger and those 25 years of age and older. With the exception of the OCTP(M) candidates, all students fell within this age bracket. The final question, "educational background at the time of MARS 71A training," had four options and again the options selection was based on a study of the educational background of students at NOTC.

Section Two to Section Six of the questionnaire consisted of between 15 and 18 items per section designed to measure the three variables identified by Mobley and the three specified by Tinto. The design of each item was based on the particular model with which it was associated. The content of each question was determined based on information collected from the following sources:

1. a study of the questionnaire developed by the Canadian Forces Personnel Applied Research Unit to study attrition in the Canadian Forces. This questionnaire is included in Lyon (1987);
2. an extensive review of the training documentation at NOTC, specifically the statistical records from

August 1981 to the present and the Minutes of the Training Review Boards (TRB). Each student, who is removed from course for any reason, must have a TRB. It consists of the Commanding Officer of Training Group Pacific, the Commanding Officer of NOTC, the Commanding Officer of the ship that the student failed on, the MARS Section Head from NOTC, the student's training officer, and the student himself. Each person will discuss the student's performance and make recommendations on the career action which should be taken. The student likewise gets an opportunity to present his case and to explain why he feels he did not do well or why he wishes to withdraw from the program. These minutes were valuable source of information as they provide a written record of comments made by students about NOTC and the training program. In addition, they provided Training Officers' comments on the progress of each student who was given a board;

3. discussions and informal interviews with experienced training staff at NOTC; and

4. personal experience from having graduated the MARS 71A Training Program in 1980 and having served a two-year appointment at the institution as a member of the staff.

To address the problem of set response, the items in each of these five variable sets were randomly ordered and randomly anchored. Thus negative and positive ratings were on both sides of the seven-point Likert Rating Scale.

The questionnaire was produced in both English and French with each subject receiving a questionnaire in his first official language. All Francophone subjects still serving in the CF, both graduates and dropouts, were sent the questionnaire in both languages and offered a choice of which to complete. Since all subjects in this study either spoke English or were bilingual, the purpose of having the questionnaire translated into both official languages was to encourage the Francophone subjects to respond.

The measurements from the questionnaire were based on the students' own perceptions of their broader experiences while undergoing training on the MARS 71A Training Program, as opposed to being based on an analysis of the students' grades or counting the number of times that an event occurred, such as, meetings with staff members. It is realized that some people would be against the use of the students' own perceptions, but Pace (1985) has cautioned against dismissing students' self reports as invalid and biased. He argues that "all evidence that we have indicates that students are conscientious and generally accurate reporters and that their judgments of their situation are consistent both with external evidence and with what we

might expect". Aiken and Hage (1967) have also defended the perceptual approach to the measurement of structural concepts against charges that is a form of psychological reductionism. They argue that "regardless of which method of data collection is used, psychological reductionism is more a question of the nature of the data collected than it is the way in which the data are collected." (Aiken & Hage, 1967).

Instrument Validation

Content and face validity for this questionnaire was assessed through interviews with seven subjects (four Anglophones and three Francophones) with whom the questionnaire was piloted at NOTC in April, 1988. These students, having recently dropped out of training, were extremely interested in the study and were eager to assist. Their feedback on the questionnaire was very positive. With the exception of identifying several minor omissions and errors they were generally pleased with the questionnaire. They found the instructions easy to follow and the format appealing. They also felt that all major points had been covered and that the questionnaire addressed the major concerns of the students.

The questionnaire was also reviewed by several staff members at NOTC and their comments supported those of the students. They felt that the questionnaire was comprehensive, addressing all major areas and that the

format was easy to follow and aesthetically appealing.

Factor analysis was employed to establish the construct validity of the instrument. Harman (1967) describes factor analysis as a technique used to resolve a set of variables or items into a small number of elements called factors. This resolution is accomplished through an analysis of the correlations between the items. It produces factors which provide an adequate fit to the data while maintaining the essential information of the original set of variables (Adams, 1981).

The logic of using factor analysis to support validity is to identify patterns existing among the items. If these patterns or factors relate the items which measure a single variable or concept then validity is supported. Fruchter (1954) defined an arbitrary classification scheme for factor loading as follows:

1. Insignificant: factor loading below .20;
2. Low: factor loading of .20 to .30;
3. Moderate: factor loading of .30 to .50;
4. High: factor loading of .50 to .70;
5. Very High: factor loading of above .70.

The results of the factor analysis supported the validity of the questionnaire. This analysis was conducted using six factors in order to accommodate the six dependent variables measured by the questionnaire, but as expected,

the analysis produced only three distinct factors. The items in the variable sets relating directly to the institution, NOTC; "organizational factors", "academic integration", and "social integration", loaded consistently on Factor One as displayed in Table 5. Twenty-five of the 35 items from these variable sets, which loaded at greater than 0.30, loaded on Factor One. Of the items in the other variable sets which loaded at greater than 0.30, thirteen of the 15 "individual factors" items loaded on Factor Two and six of the 12 "extra-organizational factors" items loaded on Factors Three. The two items in the variable set, "goal commitment", loaded on different factors. Item 17 loaded on Factor One and Item 18 loaded on Factor Three.

Instrument Reliability

The internal consistency of each variable sets (scales) in the questionnaire was acceptable. Cronbach's alphas (Cronbach, 1951) for the variable sets ranged between .61 and .77, well above the .50 minimum recommended by Nunnally (1967) for exploratory research. As displayed in Table 6, most of the coefficients are nearer to the .80 mark which Nunnally recommends for basic research.

Table 5

Results of Factor Analysis with Varimax Rotation.

		Factors						
Items		1	2	3	4	5	6	h ²
Academic Integration								
ACADINT	1						*	.23
ACADINT	2	*						.19
ACADINT	3			*				.27
ACADINT	4				.40			.31
ACADINT	5	.41				.32		.34
ACADINT	6	.35				.30		.31
ACADINT	7	*						.19
ACADINT	8	*						.14
ACADINT	9	.49					.31	.39
ACADINT	10	.60						.39
ACADINT	11	.65						.49
ACADINT	12	.42						.28
ACADINT	13	.36						.22
ACADINT	14			*				.13
ACADINT	15						*	.14
ACADINT	16						.39	.21
Organizational Factors								
ORGFAC	1	.58						.47
ORGFAC	2	.54						.65
ORGFAC	3	.39						.23
ORGFAC	4	.40						.24
ORGFAC	5						*	.20
ORGFAC	6	.33						.23
ORGFAC	7	.43						.29
ORGFAC	8	.42						.30
ORGFAC	9		*					.11
ORGFAC	10		.34	-.44		-.30		.43
ORGFAC	11	.30					-.30	.32
ORGFAC	12	*						.30
ORGFAC	13	.37						.17
ORGFAC	14					*		.15
ORGFAC	15	*						.15
Social Integration								
SOCINT	1	.56	.35				-.33	.63
SOCINT	2	.48						.40
SOCINT	3	.37						.27

Table 5 (con't)

Results of Factor Analysis with Varimax Rotation.

		Factors						
Items		1	2	3	4	5	6	h ²
Social Integration								
SOCINT	4	.65						.51
SOCINT	5	.42		.49	.45			.69
SOCINT	6	.31		.38	.53			.61
SOCINT	7	.46		.44	.43			.65
SOCINT	8	.42		.31	.40			.51
SOCINT	9	.63						.48
SOCINT	10						.31	.26
SOCINT	11		.31				.50	.44
SOCINT	12						.40	.27
SOCINT	13		.31			-.34	.37	.37
SOCINT	14	*						.13
SOCINT	15	.33						.28
SOCINT	16	.38	.35					.32
Individual Factors								
INDFACT	1				.40			.25
INDFACT	2		-.38					.20
INDFACT	3		-.46					.35
INDFACT	4		-.48					.34
INDFACT	5				-.32			.18
INDFACT	6		.35					.29
INDFACT	7	-.35	.64					.64
INDFACT	8		.58					.59
INDFACT	9		.68					.60
INDFACT	10		*					.15
INDFACT	11		.63					.52
INDFACT	12		.39					.42
INDFACT	13		.46			.35		.48
INDFACT	14		.59					.50
INDFACT	15		.31					.20
Extra-organizational Factors								
EXTORG	1	.44						.37
EXTORG	2	.47						.32
EXTORG	3			-.39				.27
EXTORG	4			-.41	.30	.31		.43
EXTORG	5	*						.10
EXTORG	6			-.38	-.38			.40

Table 5 (con't)

Results of Factor Analysis with Varimax Rotation.

		Factors						
Items		1	2	3	4	5	6	h ²
Extra-organizational Factors								
EXTORG	7			-.55		.32		.46
EXTORG	8			-.58				.49
EXTORG	9	.47				.32		.42
EXTORG	10	.42				.33		.38
EXTORG	11	.62						.58
EXTORG	12	*						.17
EXTORG	13	.42			-.39			.45
EXTORG	14			-.36				.21
EXTORG	15	*						.07
Goal Commitment								
GOALCOM	1			-.36				.32
GOALCOM	2	.40						.30
EIGENVALUE		8.86	5.33	3.66	3.21	2.94	2.76	
PERCENTAGE OF VARIANCE		11.2	6.7	4.6	4.1	3.7	3.5	

Note. (*) indicated that the items loaded on that factor but at less than 0.30.

Table 6

Alpha Reliability Coefficients for Each of the Variable Sets.

		Variable Sets					
		ORGFAC	ACADINT	GOALCOM	SOCINT	EXTORG	INDFACT
Alpha Values		.73	.69	.61	.77	.69	.67

Discussion of the Variables used in the Study

Background information. Studies of attrition in recent years have selected many variables in an attempt to determine those variables that most adequately describe students (Sweet, 1986). This study was more selective in choosing student background characteristics. Both demographic and personality variables selected were limited to those deemed relevant to the military training attrition situation and appropriate to a description of the MARS officer candidate. "First official language" and "status with respect to completing the course" were required in order to place each subject into one of the four groups. "Entry plan" and "age at time of graduation or withdrawal from training" were required in order to determine the relationship between these variables and attrition in accordance with the aim of this study. The student's "status with respect to completing the course" was sought in detail in order to permit the comparison within the dropout group for the reasons already discussed. The "MQC initially assigned to" was collected to provide an internal check on the data to ensure that the subjects who responded were representative of the students that attended NOTC between 1982 and 1988 and not biased toward any particular years or classes, but as already discussed this item did not provide the desired information. Therefore, the study could

not determine if the subjects who responded represented all the classes who attended NOTC between 1982 and 1988. Finally, "educational background at the time of MARS 71A training" was collected as a check on the "entry plan" data, in order to determine if there were any anomalies in the data. For example, a subject, who reports that his entry plan into the CF was Direct Entry but who reports his educational background as having a high school diploma, would be an anomaly. It would not be consistent with CF regulations and policies.

Organizational factors. Mobley (1982) stresses the importance of organizational factors as they contribute to employee turnover. Since the students undergoing training on the MARS 71A Training Program were employed by the Department of National Defence, organizational factors had to be considered in this study of attrition. The students' perceptions of the organization and facilities at NOTC and its support base, CFB Esquimalt, were explored through the use of the items in Section Two of the questionnaire.

Extra-organizational factors. Similar to organizational factors, Mobley (1982) also places emphasis on the employee's perception of his organization and his career within that organization as compared to other careers and other organizations. It was important in this study of attrition to establish the students' perception of the MARS

military occupation as it compared to other military occupations or jobs in the civilian sector of society. Their perceptions of how each compared to the other were measured through the items in Section Four of the questionnaire.

Individual factors. Differences among individuals had to be recognized as possibly contributing to attrition. Mobley (1982) states that for individuals whose central life values are not work-related, their job choices and turnover decisions will be less strongly related to organizational or extra-organizational factors. It was important in this study to determine if Francophone students on the MARS 71A Training Program had personal values with respect to their careers and professional lives different from those held by Anglophone students. In addition, it was equally important to determine if those who dropped out held personal values with respect to career and professional life different from those who remained in the program and went on to make the MARS military occupation their career. Items 1 to 15 in Section Six of the questionnaire measured the students' values toward careers and jobs.

Social integration. Tinto (1975) states that an individual's lack of integration into the social system of an institution will lead to low commitment to that social system and will increase the probability that the individual

will decide to leave the institution and pursue alternative activities. Therefore, it was necessary in this study to investigate if the four groups differed with respect to their level of social integration into both the social system at NOTC and the greater social system of the Victoria area. The students' level of integration was assessed by how well they enjoyed and valued their stay at NOTC and in the Victoria area. Did they feel at home and comfortable or displaced and discriminated against? Items of Section Four measured this variable.

Academic integration. In addition to social integration, Tinto (1975) stresses academic integration as an important factor which contributes to attrition. A lack of academic integration into the academic system of the institution will lead to low commitment to the goals and values of the institution and as with a lack of social integration will increase the probability that the individual will decide to leave the institution. Therefore, in this study it was important to measure the individuals' degree of academic integration. This was accomplished through a series of questions designed to measure the students' perception of the training program with respect to factors such as difficulty, fairness, accuracy of examinations and practical evaluations, competency and helpfulness of training personnel, and the suitability of the learning environment. This variable was measured by

Items 1 to 16 in Section Three of the questionnaire.

Goal Commitment. Related to both social and academic integration in Tinto's model is a third variable which was applicable to this study. Tinto emphasizes the importance of goal committed to the process of dropping out. The stronger a person is commitment to his or her goal of completing their program of study, the less likely that he or she will drop out and more likely that they will complete their training on time. This variable was measured by Items 17 and 18 in Section Three of the questionnaire.

Interview Questionnaire

The use of the nonscheduled standardized interview format (Denzin, 1978) in this study was ideal. It ensured that the same questions and probes were used with all subjects while at the same time it provided the flexibility which allowed the interviews to be conducted in a more natural and responsive atmosphere. The questionnaire guide, designed to structure the interviews, was loosely based on the survey questionnaire and incorporated each of the six dependent variables. The preselected lead-in questions were open-ended which encouraged the participants to elaborate on their responses. Non-planned specific questions were used to get the subjects to elaborate on a point or to develop an thought or idea further. The subjects were allowed to discuss any point they wished. The interviews

were tape recorded and later transcribed into text for the purpose of analysis. Since the interview data were not the primary source of data for this study, transcripts of the interviews are not included as appendices.

Analysis Procedure

For the purpose of analysis, a separate score was calculated for each subject for each of Sections Two to Six. This score was calculated by totalling the individual's score on each item in the section based on his response as recorded on the seven-point Likert Scale. The average section score for each of the four groups was calculated by totaling each of the individual scores. It was necessary to reflect on items in each section in order to have a high score consistently associated with a negative response. Items on the questionnaire which were reflected are marked with an asterisk.

Multiple Regression and multivariate analysis of variance (MANOVA) were the major statistical procedures used in this study. The primary concern in adopting Tinto's and Mobley's models to suit a military training program was the extent to which the model could explain the variance in the attrition process. To test the model's effectiveness at explaining variance in the MARS 71A attrition process separate regression analyses for each language group were used. In this procedure, all nine variables (three

background variables; age, education, and entry plan, three variables from Mobley's model; individual factors, organizational factors, and extra-organizational factors, and three variables from Tinto's model; academic integration, social integration, and goal commitment) were used to predict a candidate's chances of successfully completing the MARS 71A Training Program.

A 2 X 2 (language group X attrition status) MANOVA with six dependent variables (academic integration, social integration, goal commitment, individual factors, organization factors, and extra-organization factors) were used to determine differences between the groups. This was followed by an a posteriori test of differences between selected pairs of means where a significant overall difference was determined.

"Entry plan into the Canadian Forces" and "age at the time of graduation or withdrawal from the program" were analyzed using a Chi-square test of independence. Percentages were also used to analyse and explain relationship between age and attrition.

The interview data from each subject were analyzed using a checklist. Comments deemed relevant to the attrition problem were recorded, categorized, and cross tabulated with other interview data and with the quantitative data.

CHAPTER 4

RESULTS

Questionnaire Data

The data in Table 7 are the mean scores and standard deviations, by subgroup, for each of the six dependent variables. Individual mean scores were calculated for the 205 subjects on each of the six variable sets in the study and then these scores used to compute mean scores for the four subgroups on each of the six variables. Both the regression analysis and the multivariate analysis of variance were based on these descriptive statistics.

Hypothesis One

The results of the multiple regression analysis, performed to determine the total percentage of the variance in the completion/dropout process explained by the study's attrition model, are presented in Table 8. The nine variables used in the regression analysis explained 28.7 percent of the total variance in the MARS 71A attrition process using the status variable (completion/dropout) as the criterion. When the groups were examined separately they explained 30.8 percent of the variance in the Anglophone completion/dropout process and 31.2 percent of the variance in the Francophone completion/dropout process.

Table 7

Means and Standard deviations for each Dependent Variable by Subgroup.

Variable	Subgroup							
	Anglo Comp		Anglo Drop		Franco Comp		Franco Drop	
	M	SD	M	SD	M	SD	M	SD
ORGFACT	3.99	0.77	4.13	0.85	4.04	0.66	3.98	0.78
ACADINT	3.41	0.56	3.97	0.74	3.52	0.59	3.77	0.68
GOALCOM	3.01	1.37	4.07	1.58	3.02	1.51	4.46	1.58
SOCINT	3.16	0.67	3.42	0.90	3.42	0.75	3.62	0.66
EXTORG	4.45	0.51	5.00	0.71	4.50	0.63	4.84	0.58
INDFACT	3.56	0.62	3.65	0.59	3.63	0.49	3.54	0.52

Table 8

Multiple Regression Analysis of Attrition on the MARS 71A Training Program.

Variable	Groups					
	Anglophone		Francophone		Total	
	Beta	t	Beta	t	Beta	t
INDFACT	.13	1.63	-.05	-0.53	.06	0.90
ACADINT	.23	2.33*	.23	2.04*	.21	2.93**
SOCINT	.04	0.40	.09	0.74	.06	1.04
ORGFAC	-.16	-1.61	-.29	-2.42*	-.21	-2.80**
EXTORG	.31	3.25**	.15	1.42	.24	3.45**
GOALCOM	.17	1.96*	.36	3.35**	.28	4.29**
AGE	.14	1.39	.16	1.50	.14	2.05*
EDUCATN	.03	0.19	.16	1.34	.06	0.68
ENTPLAN	.02	0.18	-.22	-1.49	-.03	-0.67
R Square	.308		.312		.284	
F-value	5.46**		3.78**		8.63**	
df	194		75		110	

Note. *p < .05 n = 205 (120 Anglophones, 85 Francophones).
**p < .01

No one theoretical model can be expected to account for most of the variance in dropouts rates either within or across institutions (Spady, 1970). The percentages of explained variance in this study are comparable to, or better than, the percentages achieved by models used in other studies attempting to explain attrition. Pascarella, Terenzini, and Wolfe (1986) explained 19.6 percent of the variance in freshman year persistence/voluntary withdrawal behavior. In other similar studies of college attrition, Pascarella and Terenzini (1979) explained 18.1 percent of the variance while Pascarella and Terenzini (1983) explained 19 percent, and Terenzini, Pascarella, Theophilides, and Lorang (1985) explained 11.5 percent. Pascarella, Duby, and Iverson's (1983) test of the predictive validity of Tinto's Model on a sample of freshman in a large, urban, commuter institution, explained 28 percent of the variance while Munro's (1981) test of the Tinto's Model explained 15 percent. In other studies, Bean (1980) accounted for 21 percent and 12 percent of the variance in college attrition behavior among women and men respectively. In non-traditional settings, Fox's (1975) test of Tinto's Model among disadvantaged students at an urban, primarily non-residential university explained 31 percent of the variance, while Nora's (1987) test of the same model on a Chicano student population in two year colleges explained 42 percent of the variance. Finally, Sweet's (1986) non-traditional

application of Tinto's Model to distance education at the Open Learning Institute of B.C. accounted for 32 percent of the variance in the attrition process.

As Table 8 indicates, the variables significantly associated with the completion/dropout process were goal commitment, extra-organizational factors, academic integration, organizational factors, and age. The multiple regression analysis failed to detect an association between attrition and the variables of social integration, individual factors, and the background variables of education and entry plan. Separate applications of multiple regression analysis to each language group did identify several variables which related to the completion/dropout process in each group differently. Extra-organizational factors were significantly associated with attrition among Anglophone students but did not relate to attrition among Francophone students. In contrast, organizational factors were significantly associated with the Francophone completion/dropout process but were not significantly related to attrition among Anglophone students. The individual factors variable and the background variables of education and entry plan, while not being significantly associated with either group, were more strongly related to attrition in one group than the other. Individual factors were most strongly related to the Anglophone completion/dropout process while education and entry plan

were most strongly associated with attrition among the Francophone students.

Hypotheses Two and Three

A 2 X 2 multivariate analysis of variance (MANOVA) was performed on the six dependent variables to analyze differences with respect to the independent variables; group (Anglophone versus Francophone) and status (completers versus dropouts) (See Table 9). The multivariate test of significance revealed a significant main effect for the status variable, $F(6,196) = 11.27, p < .01$, but failed to detect a significant main effect for language group or a significant interaction effect.

For the effects of status, univariate F tests performed on all six dependent variables, revealed that the differences were significant on four of the six dependent measures; academic integration $F(1,201) = 19.46, p < .01$, goal commitment $F(1,201) = 34.33, p < .01$, extra-organizational factors $F(1,201) = 26.17, p < .01$, and social integration $F(1,201) = 4.58, p < .05$.

Post-hoc analysis on the four dependent measures found to be significantly different for the status effect, disclosed that Anglophone completers differed significantly from Francophone dropouts on all four variables while they differed from Anglophone dropouts on only three of the four

Table 9

Multivariate Analysis of Variance.

Multi- variate F score	Univariate F-test					
	ORGFACT	ACADINT	GOALCOM	SOCINT	EXTORG	INDFACT

Status Effect						
11.27**	0.08	19.46**	34.33**	4.58*	26.17**	0.00

Group Effect						
1.67	0.23	0.24	0.89	4.63*	0.43	0.04

Interaction Effect						
1.21	0.84	3.14	0.82	0.09	1.44	1.40

Note. * $p < .05$ ** $p < .01$

Multivariate tests of significance $df = 196$

Univariate F-test $df = 201$

variables; academic integration, goal commitment, and extra-organizational factors. The analysis also revealed that Francophone completers were significantly different from Anglophone dropouts on all but the social integration variable but that they differed from Francophone dropouts only on the goal commitment variable. Anglophone completers did not differ significantly from Francophone completers on the four dependent measures nor did Anglophone dropouts differ from Francophone dropouts. All statistically significant differences in the Scheffe Post-hoc analysis were calculated at the $p < .05$ level of significance.

Hypothesis Four

The Chi-square test of independence used to determine the association between "age" and "entry plan" and the attrition rate, failed to detect a significant association between age and attrition in the total sample, but it did reveal an association between age and attrition on the Anglophone sample $X^2(1, N = 120) = 4.65, p < .05$ (corrected for continuity). In the Anglophone samples (completers and dropouts), which were separately selected at random, 34 percent of the subjects under the age 25 had not completed the training program compared to 56 percent of the subjects 25 years of age and older. Thus, the results imply that older Anglophone students are less likely than younger students to complete the program. While the lack of significant association between age and attrition in the

overall sample precludes the making of similar statements with respect to the combined sample, the percentages of dropouts in each group is worthy of note. In the overall sample, 40.2 percent of the subjects under the age of 25 had not completed the program compared to 54.4 percent of the subjects 25 years of age and older, thus again giving the indication that older students are less likely to complete the training program than younger students. In addition, 35 of the 68 (52 percent) students 25 years of age or older had entered the CF under the DEO entry plan (72 percent of those entering under this entry plan). Of these 35 students, 19 (54 percent) had not completed the program. This compares to 22 percent of the OCTP and 16 percent of the ROTP being over the age of 25. Of these, 10 of the 19 OCTP students and six of the 11 ROTP students did not complete the training program.

Hypothesis Five

The Chi-square tests for independence used to establish the relationship between entry plan and attrition on the MARS 71A Training Program did not utilize the sample data but instead used the total population from which the sample was drawn (See Table 10). The test applied to the whole population failed to reveal a statistically significant relationship between entry plan and attrition as did the test applied separately to the Anglophone population. The

Table 10

Total Training Statistics for the MARS 71A Training Program
from the 30th MQC through to the 47th MQC.

Entry Plan	Groups				Total
	Anglophone		Francophone		
	Completers	Dropouts	Completers	Dropouts	
ROTP	143	88	19	28	278
DEO	51	36	9	18	114
OCTP	146	78	37	22	283
OTHER	9	2	0	0	11
TOTAL	349	204	65	68	686

Chi-square test investigating the relationship between attrition and entry plan among the Francophone population did, however, find a statistically significant association between the two $X^2(3, N=133) = 8.08, p < .05$. This significance may be attributed to the greater tendency for Francophone students entering the CF through the ROTP and DEO entry plans not to complete the MARS 71A Training Program as compared to those entering through the OCTP entry plan. In the study's Francophone population, 60 percent of all ROTP candidates and 67 percent of all DEO candidates never completed the training program compared to only 37 percent of the OCTP candidates not completing. The percentage of non-completers among the same three groups (ROTP, DEO, and OCTP candidates) in the Anglophone population were separated by only six percentage points.

Interview Data

The relevant comments made three or more times in the thirteen student interviews are summarized in Table 11 while relevant comments voluntarily supplied by the subjects who responded to the questionnaire survey are summarized in Table 12. The students' comments presented in these tables and those discussed in this section may appear to be unduly negative toward NOTC and the MARS 71A Training Program, but this is not intentional and is a direct consequence of the approach taken to analyze the qualitative data in order to

Table 11

Point Summary of Important Issues Addressed by the Dropouts During the Interviews.

Issue	Number of times and by whom it was mentioned	
	Anglos	Francos
1. Demanding way of life with a difficult life style.	7	5
2. Lack of an opportunity for a close family life.	6	6
3. Students not treated as adults.	6	5
4. Poor instruction.	6	5
5. Poor facilities/equipment.	4	6
6. Extreme length of training program.	5	4
7. Cliquishness of students.	5	4
8. Poor training/learning atmosphere.	6	2
9. Unfair subjective evaluations.	5	3
10. Importance of job satisfaction.	4	4
11. Rigid rules and regulations.	2	6
12. Unfamiliarity with the MARS officers' life style.	4	3
13. Lack of a general feeling of belonging.	3	4
14. Uninvolvement of non-instructional staff.	3	3
15. Non Canadian Traditions/Customs.	1	5
16. Lack of professionalism.	3	2
17. Lack of camaraderie/social life.	1	4

Note. 13 dropouts were interviewed (7 Anglos, 6 Francos).

Table 12

Point Summary of the Important Issues Addressed by Students
in Their Narrative Comments on the Questionnaire.

Issue	Number of times and by whom it was mentioned.	
	Anglos	Francos
1. Students not treated as adults.	19	2
2. Unfair subjective evaluations.	7	6
3. poor training/learning atmosphere.	9	2
4. Poor facilities/equipment.	8	2
5. Demanding way of life with a difficult life style.	4	6
6. Poor instruction.	5	4
7. Lack of professionalism.	6	2
8. Lack of an opportunity for a close family life.	2	5
9. Uninvolvement of non-instructional staff.	2	1
10. Non Canadian Traditions/Customs.	1	2

achieve the aim of this study. There were many very positive and flattering comments made concerning NOTC and its dedicated training staff, but the aim of this study was to investigate factors contributing to the attrition process. Therefore, only comments which was deemed potentially important to discovering an explanation for the high attrition on the training program were selected for display and discussion in this paper.

Both the students interviewed and those who provided narrative comments on the questionnaire felt that they had not been treated as mature adults while under going training at NOTC. Many DEO students arriving at NOTC are in the mid to late twenties age bracket. They have completed an university degree program on their own initiative and many have held responsible positions in the public or private sectors of society prior to choosing to serve their country. But at NOTC, these students reported that this is ignored and they are treated as irresponsible children. Likewise, their ROTP (military college) peers experiences the same frustrations. During their final year at military college, many of them had held very responsible positions of authority in the military college structure, but like the DEO students, once they arrive at NOTC they are back to being treated as first year recruits, having room inspections and having their meals supervised by the Chief Steward.

The students interviewed also held definite perceptions concerning the institution, NOTC. Some commented on the perceived lack of professionalism. They arrived from basic training or military college filled with pride having just completed a very difficult phase of training and with visions of a training institution with very rigorous standards, but they were quickly disillusioned to find a training institution with less stringent standards. They saw peers given second and third rewrites on examinations and two or more recourses on the practical phases. Instead of seeing students fighting to stay in the training program, they found students, who wanted to get out, retained against their wishes. Students whose contribution to the training program was to lower the morale and to spread discontent among other students.

Students interviewed further felt that much of the instruction at NOTC was ineffective as many instructors simply read the master lesson plans precisely as written. Students claimed that instructors taught to the examinations and arbitrarily disregarded information in the lesson plans, which they considered unimportant. While the students generally felt that their Course Training Officers (CTOs) were helpful, friendly, and approachable, they felt that the non-instructional staff members were very distant and gave the impression that they did not care about what was happening on the training program. The facilities at NOTC

were consistently noted for their poor quality. From the accommodation, where students lived four to a room and shared two desks, to the state of the Gunroom and the television lounge, the students generally felt that the facilities were far below standard and definitely sub-standard compared to what they had become use to in military colleges, at basic training at CFB Chilliwack, and on second language training at CFB St Jean, Quebec.

Commenting on the training program, the students interviewed referred to the negative learning atmosphere, in which students were constantly under pressure during the practical training phases. They were screamed at and made to feel incompetent and inadequate. They received little respect from either the ships' officers or the crew and generally felt that they were treated as "brainless zombies". Thus their motivation and self confidence were slowly eroded until they reached a point where they simply did not care if they passed or failed, and saw failure and/or voluntary withdrawal as an escape from the intolerable and frustrating situation they perceived themselves to be in. During the practical phases, many felt that they had not had time to learn new material or to consolidate the knowledge they had learned during the shore phases because they were constantly being evaluated and forced to perform for assessment purposes. They felt they could not let their guards down and admit that they were

unsure of something because it would be a mark against them. At NOTC, the students' perceptions of being treated as children, and their perceptions of the lack of professionalism, caused the academic training to be perceived as an unpleasant stint which had to be completed in order to get to the sea phases. Students reported feeling that the evaluation process was too subjective and thus unfair to many students. They felt that the standards between the ships were different and that even on the same ship, different standards were used with different students. Several of the people interviewed stated that students were usually evaluated during their first five minutes on their new ships. If the ships' officers pre-judged that an individual would make a good naval officer then that individual would pass without any difficulty, but if an individual was pre-judged to not have the "right stuff", then he would have to constantly fight an uphill battle to prove himself worthy of becoming a MARS officer.

The length of the training was also perceived as being a negative factor. Many students reported standing on the bridge of a ship being screamed at, and realizing that the training did not end at the completion of the MARS 71A Training Program. It would continue, uninterrupted for another 18 to 24 months, while the student acquired his Certification of Competency Level II and his Bridge Watchkeeping Certificate. Several students also realized,

through conversations with friends who had already completed the training, the fact that after their Naval Operations Course, they would be on their first operational ship redoing the same Officer of the Day and Bridge Watchkeeping requirements that they were now completing during MARS 71A training. They failed to see any real or planned progress.

When asked for their opinions on why the attrition rate at NOTC was so high, several issues were consistently mentioned. Many students, especially among the Francophone subjects, felt that the naval "life style" and an individual's desire for family/home life were factors which played an important role in many students' decision to voluntarily withdraw, or in their loss of motivation and thus eventual failure. They stated that they believed the MARS career was not just a job but a way of life with a very demanding life style. It requires much dedication and affords little time for home or family life. They stated that when students eventually realize just how very demanding the MARS career really is, many decide that it is not for them and thus either request voluntary release, or they lose motivation and eventually fail. Many of the students who were interviewed, reported that, for them, job satisfaction was the most important ingredient in any career and they felt they could not achieve job satisfaction as a MARS officer simply because they did not like the job or the type of work. Many joined the MARS military occupation

without really understanding what the job and the career involved. The information provided at the Recruiting Centres and at the NOSB, while very good, did not accurately or comprehensively portray the life style and duties of a MARS officer to a level that allowed the candidate to visualize what his life style would be like as a MARS officer. So for most, it was not until they arrived that NOTC and commenced training that they really started to understand the MARS military occupation and to realize that this is not what they want to do for a career. All but one of the students reported that when they started their MARS training, they were certain they wanted to be MARS officers but as their training progressed and as they spent time at sea, their attitudes changed.

The Francophone students interviewed reported that they did not feel at home in the Navy. They reported being constantly aware that it was an English institution with its roots and traditions in England. Coming from a free society, such as exists in Quebec, they described experiencing difficulties adjusting to the many rigid formalities of naval life, such as all the commotion that is caused if the "flag" is hoisted incorrectly. "It is only a piece of cloth. Why not simply take it down and fix it. It is very easy, why make so much fuss." or all the excitement that is created if Hands to Dinner is piped too fast, "Everybody knows it is dinner time anyway." They

perceived many of the traditions and customs as simply useless and a waste of valuable time. They have difficulty understanding why so much emphasis is placed on them.

Many students, both Anglophone and Francophone, commented on the cliquishness of the Francophone students but most accepted this as being natural. They realized that the Francophone students have been through both basic and second language training together, therefore, it is natural that when they first arrive at NOTC they would continue to associate with friends made during this prior training. Many pointed out that Anglophone students likewise tend to associate with the friends made prior to NOTC. The students did not feel that it affected training in anyway.

CHAPTER 5

DISCUSSION

An individual's perceptions of the world establishes his/her reality. For the MARS candidates, their perception of NOTC and the MARS 71A Training Program is their comprehension of how things actually are at NOTC. Their impression that the non-instructional staff is both socially distant and unconcerned about the training is their understanding of the situation, and it is irrelevant, that in the reality of the school, the staff is both dedicated and deeply concerned about the training. The students comprehend NOTC experiencing an indisputable problem of having a staff not dedicated to the school's primary objective; training junior naval officers. Thus, what may verifiably be a communication problem (the staff not communicating their concerns to the students), is perceived as a more serious staffing problem.

These students' perceptions cannot and must not be simply dismissed as being misunderstandings and therefore irrelevant. A training institution could theoretically design an excellent training program but if it is perceived by the students as being inferior, for all intent and purposes it is inferior as it will experience the same consequences as an ineffective program; students will drop out because of the shortcomings (perceived may they be).

The non-significant language effect in this study

suggests that the student's primary language is not as important in predicting dropouts on the MARS 71A Training Program as other factors, such as the student's age, his entry plan into the CF, his level of integration into the academic and social systems of NOTC and the social environment of the Victoria area, and how positively he perceives his career and life style compared to those in other organizations both within the CF and in the civilian sector. Therefore, the higher attrition among Francophone subjects must be attributed to non-institutional, non-training related issues. The Francophone students are a minority in a primarily Anglophone institution and as Bynum and Thompson (1983) discovered, the minority of any group are much more likely to drop out than are the majority. The substantial difference in attrition between Anglophone and Francophone students (51 percent compared 37 percent) may also be attributed partially to the very small Francophone population compared to the much larger Anglophone population. The total population of Francophone DEO and ROTP students is only 27 and 47 respectively, with the norm being less than five Francophone students per MQC. These small numbers linked with the fact that Francophone students associated with other students of their language group results in a "snowball effect". One or two students' requests for voluntary release or their lost of motivation usually have a significant influence on the other students

and prompts them to question their own decision concerning a MARS career.

This study further suggests that older students, especially among the Anglophone population, are more liable to drop out than are younger students. There are several plausible explanations for this effect. First, the majority of the older students join through the DEO entry plan. They have university degrees and no obligatory commitment to the CF. Perceiving themselves to be more marketable both within the CF when shopping around for another military occupation and/or in the civilian sector when seeking an alternative career, they are more likely to consider other career options. Second, the older students, being more mature and established in their life style, are less willing to tolerate an unacceptable situation, such as being treated as children, than are younger students. Most students in their late teens or early twenties would not have had any real responsibility prior to joining the CF thus would be more accepting of authority. Finally, the older students have more experience and contact with other organizations, both military and civilian, with which to compare their present career and life style.

Multiple regression analysis revealed that student's entry plan is not associated with the MARS 71A attrition process, but the Chi-square test of independence did find a statistically significant relationship between entry plan

and attrition among Francophone students. A Francophone ROTP or DEO candidate is much more likely to drop out than an OCTP candidate. This again can be attributed to the DEO and ROTP candidates' perception that they have marketable skills and to the age factor as already discussed. While entry plan were not significantly associated with attrition in the Anglophone population, there is a greater tendency for ROTP and DEO candidates not to complete the training program. Thirty-eight and 41 percent of the ROTP and DEO candidates respectively failed to complete the program compared to 35 percent of the OCTP candidates.

The students who complete the MARS 71A Training Program differ significantly from those who drop out with respect to their level of integration into the academic system at NOTC. While all students, completers and dropouts, feel that the evaluation system fail to accurately measure the students' ability to perform the duties of a naval officer and that the practical assessments at sea are not equitable for all students, dropouts rate the evaluation system considerably lower than do completers. They feel that the standards varies significantly between the ships and that even within the same ship the standards are applied unequally. They suspect that students are often pre-judged by the training staff and that those perceived to have the right qualities to be a MARS officer are evaluated less stridently than those perceived as not having the "Right Stuff". Dropouts

also see the training officers as being less supportive and less concerned with their progress and professional development than do students who successfully complete the training program. They see the quality of the instruction as being sub-standard with many instructors simply reading the master lesson plans verbatim. They feel that students are placed under too much pressure during the practical training phases and because of this pressure and the constant anxiety of being evaluated, many feel that they are denied opportunities to learn new skills or to consolidate the knowledge they learn in the shore training phases.

The results of this study furthermore reveal that dropout students are less securely integrated into the social environment of NOTC and the Victoria area than are students who successfully complete the training program. Dropouts are more apt to report that they do not enjoy the social life at NOTC. They do not value the general camaraderie and/or their own friendships as highly as do completers and are more inclined to feel that students do not socialize well together and that the relationship between the staff and the students is lacking. Dropouts are also more apt to believe that there is discrimination among and toward students because of their cultural background thus resulting in the students socializing mainly with individuals of their own language or cultural group. Additionally, the students who do not complete the training

program use the night clubs, pubs, and restaurants of Victoria less frequently than do completers and are less likely to state that they enjoy the sports events at NOTC.

Dropouts are less committed to the goal of becoming MARS officers than are completers. They usually have more doubts during training concerning their desire to be MARS officers and they do not strive as arduously as completers to attain their goal. The majority of dropouts commence training certain that they want a career as a MARS officer but as they complete the early phases of their training and come to realize how very demanding the MARS career really is and to better understand the naval life style, many change their minds. They are not negative or bitter toward the Navy or NOTC, they simply come to realize that the life style and the type of work are not compatible with their personal and career goals.

Finally, dropouts' perceptions of the MARS career compared to other military occupations and jobs in the civilian sectors differ from those of completers. The dropouts tend to see more career opportunities, more job satisfaction, and better fringe benefits in other careers. They believe that other jobs have less discrimination and more acceptable and realistic discipline and rules of the work place. They maintain that the life styles associated with other careers are more preferable and that there are more opportunities to make good, lifelong friendships. They

contend that other jobs have more professional responsibilities and that there are more intrinsic rewards associated with the careers.

The failure of the organizational factors variable to show a significant difference between completers and dropouts may be attributed to the phenomenon of "sticking it out". Both completers and dropouts rate the organization very negatively with respect to the treatment of the students, the social atmosphere, and the facilities but completers may simply adopt an attitude that the training program is only for twelve months, after which time they would no longer be associated with NOTC.

Completers and dropouts also do not differ significantly with respect to the individual factors variable. Both groups rate life style and personal factors as being more important in their career decisions than work related factors such as pay, career advancement, work environment, and so forth. This would suggest that the differences between completers and dropouts are not in what they value with respect to a career but in their perceptions of where those values are best found. Completers perceive the MARS military occupation as having better opportunities for a rewarding family life and a enjoyable life style than do dropout, as indicated by the significant difference on the variable, extra-organizational factors.

Implications for Training Institutions

The exploratory nature of this study permitted a global investigation of factors contributing to attrition on the MARS 71A Training Program, but this approach precluded the in-depth analysis of those factors found to be statistically significant. The aim of this study was achieved as the major factors contributing to attrition were discovered and their relationships with the Anglophone and Francophone groups identified, however one must exercise caution when discussing the implications of this study and drawing recommendations from it so as not to make specific statements for which there is insufficient empirical support.

The results reveal that training institutions, such as NOTC, striving to lower attrition must consider the differences between completers and dropouts, discovered in this and other studies, when developing policies and programs to address the attrition problem. Deficiencies and shortcomings associated with both the institution and the training programs must be addressed, especially those identified as problems by the students themselves. It is important that students perceive their training institution as being a professional organization, with uncompromising standards which are impartial applied to all students. The staff must be seen as being highly professional and must

serve as role models for the students. They must be dedicated to their profession and sincerely interested in the progress and professional development of their students. Van Maanen and Schein (1977) and Lefroy (1980) stress that any socialization strategy, designed to socialize individuals into an organization, depends heavily upon the relationship between the instructor and the student. Positive feelings (admiration, respect, etc.) will more likely encourage the individual to accept the skills, beliefs, and values of his/her instructor. If the feelings are negative between instructor and student the desired change may never be achieved. The training staff must also be competent instructors, which would both serve to enhance their professional image and to ensure a high quality of training.

Training institutions must be sensitive to the social atmosphere within the organization and the social lives of their students. The results of this study suggest that students securely integrated into the social systems of the institution are more likely to complete their training program than are students who feel socially segregated from the organization. Results of earlier studies support the finding that informal interaction with other students and with staff members outside of the classroom is very important in the attrition process. Institutions must therefore not ignore the social systems operating under

their control and must be concerned with how successfully the students interact with each other and with the staff. They must actively encourage constructive interaction between staff and students and among the students themselves and they must provide opportunities for this to occur.

Goal commitment and extra-organizational factors were also significantly related to attrition. Institutions must recruit candidates sincerely committed to the goal of achieving a career within that organization but more importantly they must ensure that the candidates thoroughly understand what that goal involves, both for the short and long term. Youngblood, Laughlin, Mobley, and Meglino (1980) stress that many candidates may experience an euphoria and unrealistic expectations about future experiences and opportunities available to them in the new organization. When they realize that these opportunities and experiences are not forthcoming they become disillusioned and frequently drop out. Therefore candidates must be made aware of all career implication prior to committing themselves to the training. They must be conversant with the social aspects of lifestyle, demands on one's personal life, pressures on the family, and so forth, in addition to the job related factors of pay, promotion, working hours, pressures on the job, and fringe benefits. Individuals must be provided sufficient information prior to making their final decision so as to make an objective comparison between this career

and others in which they may be interested. No institution should expect to eliminate its voluntary attrition through simply ensuring their candidates thoroughly understand the implications of their career decisions as individual career goals will change over time. However, efforts in this area would certainly reduce the short term attrition, thus reducing organizational costs, both financially and in terms of labour expended.

In addressing the results of this study, NOTC must respond more specifically to the factors discovered to be associated with the attrition process. Through better communications and more interaction between staff and students, the institution must ensure that the students realize that the staff is very dedicated to the training and is deeply concerned about their progress and professional development. Through briefings and the professional, impartial implementation of the standards, the students must come to understand and to believe in the evaluation system. They must see that the standards are being applied equally in all training units and to all students, and not feel that they are pre-judged on appearances alone. NOTC must also continue their efforts to boost the caliber of the instruction if it is to increase the students' integration into the academic system of the institution. Steps should be taken to implement an instructional monitoring systems which would require participation by all instructor

supervisors, ensure the masters lessons are utilized as guides for the instructors, as they were intended, and not used as polished, personalized lesson plans, and they should ensure that all instructors have a classroom instructors' course prior to commencing instructional duties.

NOTC administrators must also address the issue of the students' integration into it's social systems and those of the surrounding area. The institution must encourage more social functions so as to provide opportunities for the staff and students to interact, which in addition to enhancing the students' level of social integration, would aid in their socialization into the CF. These events should include both formal and informal functions so the students could learn to relate to each other and to the staff on both a professional and a personal level. The Francophone and Anglophone students should be encourage to interact and NOTC should place more emphasis on developing and encouraging camaraderie and esprit de corps among the students. This could be achieved through reducing competition among students and encouraging it between classes and/or divisions. Honoring students' requests for voluntary release or occupational transfer would also aid in this endeavor, as it will remove disgruntled and unmotivated students from the training system. Students whose constant complaining only serve to demotivate those students interested in a MARS career. Students awaiting release or

occupational transfers should not be associated with the students still on course as it only serves to spread discontent and dissatisfaction. NOTC should take an more active interest in the students' personal lives, especially when they first arrive at NOTC. They should arrange briefings and social events to assist the families of married candidates to integrate into both the unit and the community.

Finally, the CF, in conjunction with Maritime Command and NOTC, must continue to improve the recruiting program and the NOSB format. Since naval officer candidates are entering a total, authoritarian organization from a relatively free society, there will always be some attrition but such attrition could be reduced if the candidates better understood the military career they are entering. Therefore, potential MARS candidates must understand all aspects of the MARS career, including the length of the training. Recruiters must not only emphasize the alluring side of naval life but must likewise stress the not-so-nice sides, such as long training period, extended period away from home and family, duties watches, and so forth. It is realized that recruiters are experiencing difficulties achieving their recruiting quotas, especially in specific areas of the country, but this must not inhibit ensuring that MARS candidates thoroughly understand the career on which they are about to embark. To recruit candidates by

filling them with very grand illusions concerning the MARS military occupation is counter-productive, as most will quickly become disenchanted with the career and fail to complete the initial training program.

The NOSB should adopt an early warning system, such as suggested by Bulter (1981), which would identify potential attritors among potential candidates. Techniques could be developed and/or refined to identify qualified candidates who needs and abilities would not be compatable with the MARS environment. This system would include a method of establishing how motivated a candidate really is for a MARS career.

CHAPTER 6

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Considerable effort has been made in the last decade in the areas of college attrition and employee turnover to better understand why people quit and/or drop out. In the study of college attrition, much of this research has been generated by Tinto's Model of Institution Attrition which is based upon the conception that the completion/withdrawal process is critically dependant on the degree of fit between the student and the institutional environment (Gilbert and Gomme, 1986). In the related field of employee turnover, Mobley's Expanded Turnover Process Model has been used extensively in both the CF and the US Armed Services to investigate attrition among military personnel. Mobley suggests that an individual's values, attitudes, and perceptions about the existing job and labour market create expectations about his/her own job and about alternative employment which, in turn, influence the levels of satisfaction and attraction to the present job and to possible alternatives (Lyon, 1987).

The model used in this exploratory study of attrition on the MARS 71A Training Program combined variables suggested by the major constructs of both of these models. All three of the major variables from Mobley's model were

used; individual factors, organizational factors, and extra-organizational factors. In addition, "age at the time of training" was added partially as a result of Mobley's support for this variable. From Tinto's model, the background variables of education, entry plan, and age at the time of training were selected, in addition to the major variables of academic integration, social integration, and goal commitment.

With some few exceptions, the results of this study support the major constructs of the model. Multiple regression analysis established that the model explains 28.7 percent of the total variance in the MARS 71A attrition process, with separate applications of the regression analysis revealing that the model explains 30.8 percent of the variance in the Anglophone completion/dropout process and 31.2 percent in the Francophone completion/dropout process. Five variables were identified as being significantly associated with the attrition process; goal commitment, organizational factors, extra-organizational factors, academic integration, and age. The separate application of the analysis on each language group did identify several variables which related to the Anglophone and the Francophone completion/dropout processes differently. Extra-organizational factors were identified as being associated with attrition among the Anglophone students but did not relate to attrition among Francophone

students, in contrast, organizational factors associated primarily with the Francophone completion/dropout process and did not significantly relate to the attrition process among Anglophone students. As predicted by several prior applications of Tinto's model, the background variables were not significantly associated with the attrition process, suggesting that the students' experiences during training is more important than the characteristics which they bring to the training institution.

The 2 X 2 MANOVA conducted on the six dependent variables (academic integration, social integration, goal commitment, organizational factors, extra-organizational factors, and individual factors) to analyze the difference with respect to the independent variables of group (Anglophones - Francophones) and status (completers - dropouts) revealed a significant main effect for status but failed to identify a significant main effect for group or a significant interaction effect. Univariate F tests on the status effect revealed that the differences were statistically significant on four of the six variables; academic integration, social integration, goal commitment, and extra-organizational factors.

Chi-square test of independence between age at the time of training and attrition failed to find a significant association between age and the attrition rate in the overall sample. The test did find a statistically

significant association between age and attrition in the Anglophone sample thus implying that there is a much greater tendency for older Anglophone students not to complete the MARS 71A Training Program than there is for younger students. A similar test to determine the association between entry plan and attrition also failed to find a significant relationship between entry plan and attrition in the overall population but did find a statistically significant relationship between entry plan and attrition in the Francophone population. This implies that Francophone ROTP and DEO candidates are less likely to complete the training program than are OCTP candidates.

Interviews with recent dropouts identified several areas of concern which supported the quantitative data. The students' comments, as summarized in Table 11, support the results that dropouts feel less integrated into the social and academic systems of NOTC, that they are less committed to their goal of becoming MARS officers, and generally see other careers as more desirable.

Conclusion

It must be emphasized that all attrition is not bad, as there may be very legitimate reasons for students not completing their training programs. This, however, does not absolve training institutions from striving to reduce their training costs through lower attrition. The significance of goal commitment and extra-organization factors in this study

demonstrates both the importance of recruiting personnel committed to the goal of attaining a career in that profession, as well as, the importance of candidates thoroughly understanding all aspects of the career they are entering. Failure in these areas will quickly result in the students becoming disillusioned and dissatisfied with their career choice and will eventually lead to their dropping out. In addition, the importance of social and academic integration suggests that what happens to the students after they enter the institution is more important than the attributes the students bring with them, thus clearly demonstrating the very important role training institutions have to play in keeping their students committed to their goal of completing training. The training programs must be perceived as being very professional with high standards applied impartially to all students, and as having a dedicated training staff committed to the progress and the professional and personal development of their students. Training institutions must ensure the students' integration into the social system of the organization. This may be achieved through encouraging more interaction between staff and students and among the students themselves. Through the implementation of these measures and the following recommendations, training institutions can expect to reduce their training attrition and thus their training costs.

Recommendations

General Recommendations

The results of this study have many implications for training institutions and organizations involved in conducting career training programs. Training institutions should:

1. increase emphasis on recruiting to ensure the selection of personnel committed to a career in that profession. To achieve this, less emphasis should be placed on background characteristics, and more on the candidate's desire and motivation;
2. expand their recruiting procedures to ensure that personnel being considered for selection thoroughly understand all aspects of the career prior to making their final decision;
3. encourage academic integration by improving the training programs through the correction of deficiencies and shortcomings associated with both the institution and the training programs, especially those identified by the students themselves;
4. select training personnel who are competent instructors, sincerely committed to the training and dedicated to the professional and personal development of the students;

5. take steps to encourage social integration through more frequent interaction between staff and students and among the students themselves; and
6. take a more personal interest in the lives of their students especially during the early phases of training when they are still adapting to the many changes associated with their career decisions.

Recommendations Specific to NOTC

In addressing the results of this study NOTC should respond more specifically to the findings. NOTC should;

1. address the students' perception that the non-instructional staff is both distant and unconcerned about training, by increasing the interaction between staff and students on a daily basis;
2. implement a graduated system of privileges with associated increases in responsibilities to provide students with a sense of accomplishment and increased responsibility as they advance in their training;
3. ensure that a more careful screening and selection process is implemented for personnel posted to the instructors/course training officers positions;

4. implement monitoring procedures to ensure that training standards are implemented equally in all units and that all students are evaluated fairly;
5. implement an instructor monitoring system which would require the participation of all instructor supervisors;
6. encourage a greater level of student integration into the social systems of NOTC through more frequent interaction of staff and students. This may be achieved through more social and sports functions both formal and informal;
7. take steps to increase esprit de corps and camaraderie among the students through supervised recreational activities and team building exercises;
8. quickly act on students' requests for voluntary withdrawal or occupational transfer as it will serve to heighten morale by removing the disgruntled and unmotivated students from the training program;
9. take a more active interest in the personal lives of their students especially when they first arrive at NOTC; and
10. continue to improve the NOSB format to ensure the recruiting of students genuinely interested in a MARS

career and to ensure that these potential candidates understand all aspects of the career prior to entering the CF.

Recommendations for Future Research

The model used in this study was tested and found to be useful for the exploratory investigation of the attrition process on the MARS 71A Training Program, but this was the first application of the model, and future research is required to further validate its major constructs. While this study did identify several important factors in the attrition process, it is recommended that future studies be longitudinal, in order to investigate more precisely specific aspects of training contributing to higher levels of such concepts as academic integration, social integration, and goal commitment. A longitudinal study would also enable the investigation of exactly where in the program that candidates commence to become dissatisfied.

Future studies should also more precisely refine the definition of dropout in order to further investigate the differences and similarities between students who drop out voluntarily and those who fail, and between those who leave the organization completely and those who transfer to other positions within the organization. Do their perceptions and attitudes toward the organization differ significantly?

Finally, further investigation should be conducted into

the benefits of "high stress" training. Lefroy (1980) cites an US military study (Wamsley, 1972) which questions the advantages of high stress training, since the graduates of low stress training gave comparable on the job performance under peace time conditions of service at a considerable saving in attrition.

Limitations of Study

The research reported in this thesis must be considered exploratory. The principle elements of the model used in the study were tested and found to be adequate for the job, but this was the first application of the joint model and certain portions of it may require redefinition while others may require additional validation through future research.

The study was also limited to the initial phases of training in a MARS officer's career, a period within which the ROTP candidate is still under obligatory service contract and thus restricted from requesting voluntary release. The only options available to ROTP students who are dissatisfied with the MARS military occupation is to request a voluntary occupational transfer or to fail and take a compulsory occupational transfer. These restrictions are not applicable to the DEO or the OCTP candidates and it is unknown how this prejudices the ROTP candidates' perception of NOTC and the MARS 71A Training Program.

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APPENDIX A
SURVEY QUESTIONNAIRE

MARS 71A ATTRITION QUESTIONNAIRE

 =====
 SECTION ONE
 Background Factors

ENTRY PLAN: (Circle one) ROTP(CIVY U) ROTP(MIL COL) DEO OCTP OTHER

FIRST OFFICIAL LANGUAGE: (Circle one) ENGLISH FRENCH

STATUS: (Select one most appropriate response.) INITIAL MOC: _____.

- A. GRADUATED FROM THE COURSE.
- B. VOLUNTARILY WITHDREW FROM THE PROGRAM AND TRANSFERRED TO ANOTHER MILITARY OCCUPATION.
- C. VOLUNTARILY WITHDREW FROM THE PROGRAM AND RELEASED FROM THE CANADIAN FORCES.
- D. VOLUNTARILY WITHDREW FROM THE PROGRAM AND REVERTED TO THE RANKS.
- E. WAS CEASED TRAINING DUE TO FAILURE AND RELEASED FROM THE CANADIAN FORCES.
- F. WAS CEASED TRAINING DUE TO FAILURE AND WAS RECLASSIFIED TO ANOTHER MILITARY OCCUPATION.
- G. WAS CEASED TRAINING DUE TO FAILURE AND WAS REVERTED TO THE RANKS.
- H. WAS CEASED TRAINING DUE TO MEDICAL REASONS AND RECLASSIFIED TO ANOTHER MILITARY OCCUPATION.
- I. WAS CEASED TRAINING DUE TO MEDICAL REASONS AND RELEASED FROM THE CANADIAN FORCES.
- J. WAS CEASED TRAINING DUE TO OTHER REASONS.

AGE AT TIME OF GRADUATION OR WITHDRAWAL FROM TRAINING: (Circle one)

17-20 21-24 25-28 29-32

EDUCATIONAL BACKGROUND AT TIME OF MARS 71A TRAINING: (Circle one)

- A. COMPLETED A UNIVERSITY DEGREE PROGRAM.
- B. HAVE TWO OR MORE YEARS TOWARD AN UNIVERSITY DEGREE PROGRAM.
- C. COMPLETED A TECHNICAL DIPLOMA PROGRAM AT A TECHNICAL COLLEGE.
- D. HIGH SCHOOL DIPLOMA.

SECTION TWO
Organizational Issues

Directions: Below are a list of statements relating to the Naval Officer Training Center. For each statement, please indicate the degree to which you agree or disagree with these statements. (BLACKEN ONE CIRCLE PER ITEM.)

STRONGLY AGREE 1	AGREE 2	SLIGHTLY AGREE 3	NEUTRAL 4	SLIGHTLY DISAGREE 5	DISAGREE 6	STRONGLY DISAGREE 7

1 2 3 4 5 6 7						

1. NOTC provided a supportive learning atmosphere.....	0	0	0	0	0	0
2. NOTC provided a pleasant social atmosphere.....	0	0	0	0	0	0
3. The students were not treated as mature adults.....*	0	0	0	0	0	0
4. The regulations and discipline were not fair.....*	0	0	0	0	0	0
5. The regulations and discipline were equal for all.....	0	0	0	0	0	0
6. There were sufficient recreational facilities.....	0	0	0	0	0	0
7. The senior staff at NOTC was not approachable.....*	0	0	0	0	0	0
8. The support staff at NOTC was helpful.....	0	0	0	0	0	0
9. The support facilities at CFB Esquimalt were helpful....	0	0	0	0	0	0
10. The accommodations facilities at NOTC were satisfactory.	0	0	0	0	0	0
11. The Messing facilities at NOTC were unsatisfactory.....*	0	0	0	0	0	0
12. The Gunroom Mess facilities were satisfactory.....	0	0	0	0	0	0
13. The accommodations in the ships for the sea phases were unsatisfactory.....*	0	0	0	0	0	0
14. The work and study areas at NOTC were satisfactory.....	0	0	0	0	0	0
15. The work and study areas in the ships were satisfactory.	0	0	0	0	0	0

SECTION THREE
Academic Issues

Directions: Below are a list of statements concerning the MARS 71A Training Program at NOTC. For each statement, please indicate the degree to which you agree or disagree with it. (BLACKEN ONE CIRCLE PER ITEM.)

STRONGLY AGREE SLIGHTLY AGREE SLIGHTLY DISAGREE STRONGLY DISAGREE
1 2 3 4 5 6 7

	1	2	3	4	5	6	7
1. The shore phases of training were demanding.....	0	0	0	0	0	0	0
2. The examinations during the shore phases did not accurately measure the students' knowledge.....*	0	0	0	0	0	0	0
3. The examinations were fair and equal for all students...	0	0	0	0	0	0	0
4. The practical (sea) phases of training were demanding...	0	0	0	0	0	0	0
5. The practical assessments at sea accurately measured the students' ability to perform the duties of an Officer...	0	0	0	0	0	0	0
6. The practical assessments at sea were not fair and equal for all students.....*	0	0	0	0	0	0	0
7. The material presented during the MARS 71A Training Program was not easy to understand.....*	0	0	0	0	0	0	0
8. The Training Officers knew their material well.....	0	0	0	0	0	0	0
9. The Training Officers presented the material in an easy to understand manner.....	0	0	0	0	0	0	0
10. The Training Officers took a strong interest in the progress and professional development of the students...	0	0	0	0	0	0	0
11. The Training Officers did not take an interest in the personal welfare of the students.....*	0	0	0	0	0	0	0
12. The Training Officers at sea were supportive of the students.....	0	0	0	0	0	0	0
13. The students were placed under too much pressure during the MARS 71A Training.....*	0	0	0	0	0	0	0
14. MARS 71A Training can be successfully completed by all students who have the motivation.....	0	0	0	0	0	0	0
15. MARS Training passes only the students who will be good MARS Officers.....	0	0	0	0	0	0	0
16. MARS 71A Training fails those who do not have the ability or the disposition to be good MARS Officers.....	0	0	0	0	0	0	0
17. I worked very hard to attain my goal of having a career as a MARS Officer.....	0	0	0	0	0	0	0
18. During training I was 100 percent certain that I wanted to have a career as a MARS Officer.....	0	0	0	0	0	0	0

=====

SECTION FOUR
Social/Recreational Issues

Directions: Below are a list of statements relating to the social life at NOTC. For each statement, please indicate the degree to which you agree or disagree with it. (BLACKEN ONE CIRCLE PER ITEM.)

STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE
1	2	3	4	5	6	7

						----- 1 2 3 4 5 6 7 -----
1. I found the social life at NOTC to be enjoyable.....						0 0 0 0 0 0 0
2. I highly valued the camaraderie and friendships I formed at NOTC.....						0 0 0 0 0 0 0
3. The students did not get along well with each other.....*						0 0 0 0 0 0 0
4. There was a good social relationship between staff and students.....						0 0 0 0 0 0 0
5. There was no discrimination <u>among</u> the students because of cultural background.....						0 0 0 0 0 0 0
6. There was no discrimination <u>among</u> the students because of language.....						0 0 0 0 0 0 0
7. There was no discrimination <u>toward</u> the students because of cultural background.....						0 0 0 0 0 0 0
8. There were no discrimination <u>toward</u> the students because of language.....						0 0 0 0 0 0 0
9. I did not feel comfortable at NOTC.....*						0 0 0 0 0 0 0
10. For me, the social life in the Victoria Area, outside of the military environment, was boring and not enjoyable..*						0 0 0 0 0 0 0
11. I frequently went into Victoria shopping.....						0 0 0 0 0 0 0
12. I frequently went into Victoria to visit night clubs, pubs, and restaurants.....						0 0 0 0 0 0 0
13. I felt comfortable in Victoria.....						0 0 0 0 0 0 0
14. The students socialized mainly with individuals of their own language.....*						0 0 0 0 0 0 0
15. The students socialized mainly with individuals of their own cultural background.....*						0 0 0 0 0 0 0
16. I enjoyed the sporting events at NOTC.....						0 0 0 0 0 0 0
=====						

=====
SECTION SIX
Individual Issues

Directions: Below are a list of personal factors that play a role in career decisions. For each statement, please indicate the degree of importance each factor has in your career decisions. (BLACKEN ONE CIRCLE PER ITEM.)

VERY IMPORTANT 1	IMPORTANT 2	SLIGHTLY IMPORTANT 3	NEUTRAL 4	SLIGHTLY UNIMPORTANT 5	NOT IMPORTANT 6	NOT EVEN CONSIDERED 7
------------------------	----------------	----------------------------	--------------	------------------------------	-----------------------	-----------------------------

							1	2	3	4	5	6	7

1. Career advancement.....*							0	0	0	0	0	0	0
2. Fringe benefits of the job.....*							0	0	0	0	0	0	0
3. Work environment.....*							0	0	0	0	0	0	0
4. Salary.....*							0	0	0	0	0	0	0
5. Opportunity for a personally rewarding career.....							0	0	0	0	0	0	0
6. Personal friendships.....							0	0	0	0	0	0	0
7. Opportunity to have time with family.....							0	0	0	0	0	0	0
8. Opportunity to share home tasks.....							0	0	0	0	0	0	0
9. Time for a personal life.....							0	0	0	0	0	0	0
10. Life style.....							0	0	0	0	0	0	0
11. Opportunity for recreational activities/leisure time....							0	0	0	0	0	0	0
12. Opportunity to live near extended family.....							0	0	0	0	0	0	0
13. Opportunity for community involvement.....							0	0	0	0	0	0	0
14. Spouse's career.....							0	0	0	0	0	0	0
15. Opportunity to work in first language.....							0	0	0	0	0	0	0

=====

APPENDIX B
INTERVIEW QUESTIONNAIRE

**MARS 71A ATTRITION STUDY
-INTERVIEW QUESTIONNAIRE-**

=====

Background Factors

ENTRY PLAN: (Circle one) ROTP(CIVY U) ROTP(MIL COL) DEO OCTP OTHER

FIRST OFFICIAL LANGUAGE: (Circle one) ENGLISH FRENCH

STATUS: (Select one most appropriate response.) **INITIAL MQC:** _____.

- A. GRADUATED FROM THE COURSE.
- B. VOLUNTARILY WITHDREW FROM THE PROGRAM AND TRANSFERRED TO ANOTHER MILITARY OCCUPATION.
- C. VOLUNTARILY WITHDREW FROM THE PROGRAM AND RELEASED FROM THE CANADIAN FORCES.
- D. VOLUNTARILY WITHDREW FROM THE PROGRAM AND REVERTED TO THE RANKS.
- E. WAS CEASED TRAINING DUE TO FAILURE AND RELEASED FROM THE CANADIAN FORCES.
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- G. WAS CEASED TRAINING DUE TO FAILURE AND WAS REVERTED TO THE RANKS.
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- I. WAS CEASED TRAINING DUE TO MEDICAL REASONS AND RELEASED FROM THE CANADIAN FORCES.
- J. WAS CEASED TRAINING DUE TO OTHER REASONS.

AGE AT TIME OF GRADUATION OR WITHDRAWAL FROM TRAINING: (Circle one)

17-20 21-24 25-28 29-32

EDUCATIONAL BACKGROUND AT TIME OF MARS 71A TRAINING: (Circle one)

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- B. HAVE TWO OR MORE YEARS TOWARD AN UNIVERSITY DEGREE PROGRAM.
- C. COMPLETED A TECHNICAL DIPLOMA PROGRAM AT A TECHNICAL COLLEGE.
- D. HIGH SCHOOL DIPLOMA.

1. While undergoing your MARS 71A training, what were your impressions of the training institution, NOTC?

Prompts: learning atmosphere, social atmosphere, student treatment and relationship with staff, regulations and discipline, facilities, ashore training, afloat training, base facilities.

2. Did you feel that you were a part of and involved in NOTC while undergoing training?

3. Did you enjoy the social life at NOTC while under training?

PROMPTS: Was there any discrimination?, What was the relationship among the students like?, Did the students mix well socially?, How would you rate the social functions?, Was there good camaraderie among the students?, Was the morale generally high?

4. What were your general impressions of the training program?

PROMPTS: degree of difficulty, instruction, evaluations, staff, facilities, training materials, etc.

5. During your MARS 71A training, how certain were you that you wanted a MARS career?

6. In your opinion, did you give your best effort to achieve your goal of having a MARS career?

7. During training, did you consider reclassifying?

PROMPTS: why?, how often?, when?

8. Weighing the PROS and CONS, in your opinion, how does the MARS classification rate against other military occupations or against jobs on civy street?

PROMPTS: career opportunities, fringe benefits, working hours, time for family, life style, professional responsibilities, discipline, friends, etc.

9. In your career decisions, are job factors such as pay and promotion more important than personal factors such as having a job which would allow you to have the life style you want, or to have time for personal interests, such as sports, family. etc.?

10. In your opinion, what are the major causes of the high attrition rates on the MARS 71A Training Program?

APPENDIX C

DESCRIPTIVES STATISTICS

Means Scores and Standard Deviations
for each Item by Subgroup.

Table 13

Means and Standard Deviations for each Item by Sub-Group.

Item	Subgroup							
	Anglo Comp		Anglo Drop		Franco Comp		Franco Drop	
	M	SD	M	SD	M	SD	M	SD
Organizational Factors								
1	3.59	1.57	3.96	1.67	3.26	1.58	4.00	1.67
2	4.30	1.67	4.18	1.76	3.51	1.58	3.88	1.80
3	5.31	1.52	5.28	1.85	5.30	1.61	4.52	1.84
4	3.76	1.58	3.90	1.63	3.30	1.37	3.50	1.24
5	3.69	1.63	3.74	1.72	3.14	1.52	3.41	1.73
6	3.49	1.86	3.70	1.82	4.11	2.06	4.43	1.92
7	3.91	1.69	3.96	1.71	4.54	1.62	4.12	1.60
8	3.30	1.33	3.40	1.53	4.40	1.69	2.91	1.38
9	3.60	1.59	3.34	1.30	3.09	1.19	3.05	1.10
10	5.06	1.79	4.80	1.90	4.05	2.19	3.52	2.03
11	4.54	1.77	4.18	1.87	5.12	1.50	4.76	1.83
12	4.20	1.86	4.28	1.95	4.86	1.73	4.50	1.88
13	2.93	1.47	3.68	1.74	3.33	1.29	3.81	1.55
14	3.70	1.73	4.36	1.86	4.23	1.65	3.93	1.66
15	4.53	1.64	5.14	1.46	5.40	1.45	5.26	1.38
Academic Integration								
1	3.61	1.41	3.72	1.54	3.56	1.59	4.26	1.62
2	3.39	1.35	3.70	1.64	3.44	1.53	3.07	1.35
3	2.57	1.10	2.94	1.70	3.30	1.71	3.36	1.81
4	1.94	1.05	2.00	1.13	2.16	1.33	3.10	1.69
5	3.63	1.70	4.88	1.67	3.91	1.76	4.50	1.71
6	4.00	1.91	4.78	1.72	4.12	1.64	4.26	1.78
7	2.90	1.22	3.44	1.53	3.88	1.56	4.05	1.36
8	2.96	1.42	3.08	1.60	3.00	1.25	2.69	1.30
9	3.24	1.28	3.88	1.62	3.44	1.20	3.52	1.47
10	3.07	1.58	3.88	1.72	3.51	1.42	3.74	1.55
11	2.97	1.44	4.20	1.69	3.00	1.35	3.81	1.47
12	3.16	1.51	4.16	1.73	3.02	1.17	3.71	1.60
13	3.37	1.59	3.60	1.46	3.47	1.53	3.93	1.57
14	4.07	2.04	4.52	2.18	3.26	1.90	2.98	1.85
15	5.30	1.41	5.76	1.41	5.12	1.80	4.98	1.62
16	4.30	1.50	4.94	1.73	4.16	1.77	4.24	1.85
Goal Commitment								
1	2.23	1.17	3.22	1.79	3.19	1.30	3.83	2.01
2	3.80	2.11	4.92	1.82	3.86	2.27	5.10	1.81

Table 13 (con't)

Means and Standard Deviations for each Item by Sub-Group.

Item	Subgroup							
	Anglo Comp		Anglo Drop		Franco Comp		Franco Drop	
	M	SD	M	SD	M	SD	M	SD
Social Integration								
1	4.24	1.77	4.34	1.91	3.86	1.64	4.67	1.88
2	2.40	1.31	2.94	1.77	2.47	1.32	2.86	1.60
3	2.93	1.23	3.28	1.39	3.12	1.53	3.36	1.54
4	3.84	1.69	4.22	1.57	3.79	1.54	3.88	1.53
5	2.73	1.55	3.00	1.58	4.19	1.69	4.86	1.57
6	3.51	1.66	3.70	1.69	4.79	1.66	4.76	1.59
7	2.69	1.31	3.20	1.76	4.14	1.63	4.52	1.50
8	3.57	1.74	3.56	1.90	4.63	1.79	4.41	1.61
9	3.23	1.70	3.72	1.90	3.37	1.60	4.14	1.96
10	2.79	1.64	2.48	1.50	2.67	1.73	1.98	1.22
11	2.41	1.22	2.40	1.23	2.07	1.10	1.88	0.97
12	2.11	0.89	2.84	1.67	2.00	1.00	1.98	1.16
13	2.56	1.50	2.26	1.43	1.93	1.10	1.83	0.79
14	4.69	1.68	5.36	1.63	4.72	1.20	4.93	1.75
15	3.91	1.51	4.30	1.66	4.12	1.69	4.62	1.62
16	2.94	1.71	3.12	1.78	2.88	1.65	3.21	1.63
Extra-organizational Factors								
1	3.96	1.65	5.36	1.41	4.58	1.65	5.26	1.48
2	3.43	1.45	4.64	1.77	3.81	1.69	4.74	1.47
3	5.99	1.16	5.48	1.31	5.02	1.93	4.86	1.57
4	6.06	1.21	6.10	1.07	6.05	1.36	5.95	1.15
5	4.10	1.00	4.54	1.27	4.16	1.36	4.18	1.15
6	5.87	0.98	5.66	1.29	5.86	1.34	5.38	1.46
7	5.63	1.17	5.52	1.36	5.26	1.56	5.19	1.45
8	5.77	1.17	5.96	1.16	5.63	1.45	5.29	1.40
9	3.69	1.43	4.54	1.69	3.81	1.31	4.91	1.56
10	4.03	1.30	5.02	1.33	4.40	1.24	4.91	1.50
11	3.61	1.58	4.74	1.59	3.74	1.65	4.86	1.35
12	2.91	1.38	3.50	1.47	3.70	1.61	4.07	1.40
13	2.04	1.04	4.02	1.90	2.05	1.21	3.48	1.67
14	5.24	1.15	5.38	1.32	5.09	1.62	4.74	1.59
15	4.43	1.58	4.46	1.73	4.30	1.77	4.74	1.58

Table 13 (con't)

Means and Standard Deviations for each Item by Sub-Group.

Item	Subgroup							
	Anglo Comp		Anglo Drop		Franco Comp		Franco Drop	
	M	SD	M	SD	M	SD	M	SD
	Individual Factors							
1	6.04	0.79	5.90	1.25	6.12	0.79	5.98	1.30
2	5.20	1.11	5.14	1.18	5.60	0.98	5.33	1.16
3	5.63	1.05	5.94	1.04	6.14	0.71	6.29	0.94
4	5.53	1.09	5.44	1.15	5.91	0.87	5.62	0.85
5	1.74	0.94	1.46	0.54	1.49	0.80	1.55	0.80
6	2.27	0.98	2.28	0.86	2.26	1.22	2.64	1.43
7	2.53	1.51	2.30	1.46	2.14	1.47	1.69	0.78
8	3.09	1.56	2.94	1.52	2.98	1.55	2.91	1.30
9	2.27	1.32	2.22	1.22	2.00	1.05	1.79	0.81
10	2.00	0.82	2.24	0.89	2.12	1.24	2.07	1.02
11	2.46	1.16	2.66	1.33	2.14	0.71	2.33	1.03
12	3.90	1.75	4.48	2.00	4.63	1.89	4.05	1.51
13	3.93	1.63	4.20	1.78	3.93	1.28	3.88	1.88
14	2.93	1.58	3.56	1.81	2.72	1.53	2.67	1.68
15	3.86	2.00	4.02	2.08	4.37	1.89	4.33	1.98

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Author:  .

THOMAS FRANCIS MANNING

4 November 1988

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