Leaving Seats Empty:

Exploring Student Attrition in an

Undergraduate Health Sciences Program

by

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ABSTRACT

Using qualitative research methodology, this study explores reasons why students leave an undergraduate health science professional education program before completion. The study focused on the Dalhousie University Bachelor of Health Science degree program encompassing the professional streams of Diagnostic Cytology, Radiological Technology, Respiratory Therapy, Diagnostic Medical Ultrasound and Nuclear Medicine Technology. Attrition was specifically examined from the students' perspective, explicating former students' experiences and reasons for leaving the program.

The thesis provides a review of the literature in the area of student attrition and, supported by narrative from the participants, offers a thematic analysis of the experiences and reasons former students left a health sciences program. Five themes surfaced through the interview process; these include: wrong career choice, unable to see career pathways, lack of support or connection with faculty, not ready for the demands of university, and stress. Results suggest that some students' leaving may be preventable with sufficient preparation for their experience and effective interventions. Recommendations are made to improve student retention thus reducing student attrition in health sciences.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

Introduction

"A paucity of information exists on attrition and retention in allied education programs" (Gupta, 1991, p. 964).

Student attrition from health professional post-secondary education programs is a concern for not only students but also institutions, professions and the general public. With negative psychological and employment consequences to individuals, student attrition represents an expenditure of valuable educational resources and personal funds (Laudicina, 1997). Costs are incurred for faculty and the institution in the terms of time, energy, resources and lost tuition dollars (Bennett, 2003).

Health professions require continued maintenance of adequate numbers of registered staff to work in the professions (Harvey & McMurray, 1997). When health professional students leave educational programs of study before completion, their seats remain empty for the duration of their program. With fewer graduates, there is a ripple effect on the workforce which needs a continuous healthy supply to fill the growing need for qualified health care professionals. Having fewer graduates to fill positions, health care services for the general public may be affected.

Currently, there is a growing need for qualified health science professionals and of particular concern is the magnitude and length of the current shortages of qualified staff (Naomi, 2004). Health care professionals are in high demand and shortages are

estimated to become even more severe as retirements occur within the current workforce over the next ten years (Health Care Human Resource Sector Council, 2003).

A common suggestion to alleviate shortages in qualified health professionals is to increase enrolments in health professional programs. Many baccalaureate health professional programs have limited enrolments because they are limited by the number of clinical placement positions available for students (Naomi, 2004). As admission seats in most baccalaureate health profession programs are limited, it is desirable to fill seats and move full cohorts of students through educational programs (Sadler, 2003; Holt, 2005).

A major concern is the number of students who leave health professional programs because student attrition rates negatively impact on the needed requirement for health care professionals. There is a need to stem health professions' shortages by retaining greater numbers of students (Wharrad, Chapple & Price, 2003). With the growing need for health science professionals, the opportunity exists for a "renewed and critical focus on student attrition" (Wells, 2007).

"Institutions are closely monitoring student attrition rates and taking measures to reduce wastage" but these measures may only be successful when the reasons why students leave are better defined (White, Williams & Green, 1999). This thesis study uses a qualitative research approach to examine why a sample of undergraduate health science students in Halifax, Nova Scotia withdrew from their program of study. It attempts to understand the nature and causes of student attrition experienced in health professional education programs. It is hoped that the findings generated from this study will be used to

put measures in place that will reduce future student attrition in health professions' programs.

Research Context

Overview of the Health Sciences Program

Prior to 1999, Nova Scotia had five separate Schools of Allied Health that included the following disciplines: Diagnostic Cytology, Diagnostic Medical Ultrasound, Nuclear Medicine Technology, Radiological Technology and Respiratory Therapy. These programs ranged from one to three years in length. The Schools granted diplomas in their respective fields and students were then eligible to write professional registration examinations.

The Health Sciences Education Partnership project steering committee (Allied Health Schools- QEII Health Sciences Centre, Faculty of Health Professions- Dalhousie University, Nova Scotia Community College- Institute of Technology, Nova Scotia Society of Diagnostic Medical Sonographers, Nova Scotia Association of Medical Radiation Technologists, the Respiratory Therapy Society of Nova Scotia and the Nova Scotia Health Record Association) developed a new model of education for health sciences in Nova Scotia (Nova Scotia Department of Health, 1996). This model was developed to improve resource utilization, gain baccalaureate recognition for health sciences professions and respond to changes in health care and education.

With a new education model for health sciences in place, the QEII Health Sciences Centre partnered with Dalhousie University to offer the Bachelor of Health

Science program, which began in September, 1999. The Bachelor of Health Science (BHSc) program encompasses the professional streams of Diagnostic Cytology (DCYT), Diagnostic Medical Ultrasound (DMUT), Nuclear Medicine Technology (NUMT), Radiological Technology (RADT) and Respiratory Therapy (RSPT). Providing a broader curriculum framework, this new university program was the first of its kind in North America. The Health Sciences program is a three- year diploma/ four- year degree program that provides students with an interdisciplinary integrated course of study including both theory and practice in one of the chosen professions. Students challenge professional certification examinations upon completion of their program of study and are ready for the workplace in their specific discipline.

Health Sciences Admissions Process

Approximately forty to fifty health science students are accepted into the BHSc program each September. Applicants for admission to the health sciences program may have just completed high school; however, many applicants have some prior university/ college experience or have completed degrees. High school applicants must meet the minimum requirement of an overall average of 75% in five university preparatory courses. These grade twelve university preparatory courses must include English, math and two sciences. Applicants with previous university experience must have a grade point average (GPA) of 2.75 in their most recent year of full time studies and no grade lower than C in pre-requisite courses.

Priority consideration is given first to applicants who are permanent residents of the Maritime Provinces, then to applicants who are permanent residents of other Canadian provinces, and finally to international applicants. Applicants are ranked

according to an academic score, which is calculated based on the applicant's last full year of study, and a letter of intent, which is graded by a faculty member in the discipline for which the applicant applies.

The letter of intent must address the following questions:

1. Why did you choose this professional program as your area of study?
2. What qualities, skills and assets make you a good candidate for this profession?
3. What is your understanding of the duties and responsibilities of a person working in this profession? How did you research this field before making your choice? (Dalhousie University, 2007).

Contextualizing Myself

I was a member of the original Health Sciences Education Partnership Project steering committee from 1995-1998, that helped launch this new program. I was also a member of the Nova Scotia Allied Health Professions Human Resources Planning Project Advisory Committee from 1996-1998, that examined the predicted future needs of allied health professionals.

I developed a special interest in the topic of student attrition through a variety of roles. I am a faculty member teaching within the discipline of Diagnostic Medical Ultrasound in the School of Health Sciences. I have acted as the School of Health Sciences' first year academic advisor for the past three years. Currently, I am the chair of the BHSc Admissions committee that develops entry requirements and makes student admission choices.

It is important to note that I am a faculty member within the School of Health Sciences but I did not teach any of the participants interviewed in this research study. Also, I did not have an academic advising role at the time participants were in their program of study.

In addition to faculty responsibilities within the BHSc program, I am also a BHSc alumna. With these broad experiences, I bring an in depth knowledge of the health sciences curriculum, the setting and student life.

As a qualitative researcher, I realize I have filtered the data through my personal lens and with this I cannot escape the personal interpretation brought to the qualitative data analysis. Systematically throughout the process, I have reflected on who I am in the inquiry. I have been particularly sensitive to my personal biography and how it has shaped the study. As a researcher, I feel I was able to "bracket" my own experiences in order to understand those of the participants (Creswell, 2003).

I became increasingly interested in the topic of student attrition through my coursework in the Master of Arts in Education program. In studying this topic of student attrition, I began to take notice of an alarming increasing trend in the student attrition rates in the Health Sciences program. The first health sciences' class intake in 1999 had an attrition rate of 18%. The class intake for 2000 had an attrition rate of 21 %. The class intake for 2001 reported an attrition rate of 35% (Table 1). This seemed troubling to me. Of particular concern was the consistently increasing attrition rate in these first three years of the program. I asked myself, "Why are these students leaving?" I felt the issue needed to be further explored.

Table 1

Dalhousie University School of Health Sciences Attrition Rates

2001			
PROGRAM	NUMBER OF STUDENTS ENROLLED	NUMBER OF STUDENTS WHO LEFT	ATTRITION RATE
DCYT	9	3	33%
DMUT	5	0	0%
NUMT	8	2	25%
RADT	12	6	50%
RSPT	15	6	40%
TOTAL	49	17	35%
2000			
PROGRAM	NUMBER OF STUDENTS ENROLLED	NUMBER OF STUDENTS WHO LEFT	ATTRITION RATE
DCYT	3	1	33%
DMUT	5	0	0%
NUMT	8	0	0%
RADT	8	3	38%
RSPT	15	4	27%
TOTAL	39	8	21%
1999			
PROGRAM	NUMBER OF STUDENTS ENROLLED	NUMBER OF STUDENTS WHO LEFT	ATTRITION RATE
DCYT	7	1	14%
DMUT	5	0	0%
NUMT	8	1	12%
RADT	11	4	36%
RSPT	13	2	15%
TOTAL	44	8	18%

Purpose of the Study

There is a body of literature addressing the issue of student attrition in postsecondary education. There are many reasons why students may leave a program of study. However, there is a minimal amount of research that exists in health science student attrition. The picture is not clear in terms of student attrition and retention issues specific to health sciences' programs. The purpose of this qualitative study is to understand the factors that influence attrition among Dalhousie University BHSc students.

Dalhousie's School of Health Sciences Admissions Officer, Marlene Hubley, tracks the student attrition rates for the school. She has calculated an average attrition rate of 25 % for the classes beginning in 1999, 2000 and 2001 (personal communication, July 25, 2007). Although this new program overall seems to be a success, there are a number of students who are leaving the program.

Students in the Faculty of Health Professions, Dalhousie University, are required to complete their undergraduate studies within six years of first registration in professional classes. I chose to study the intake years of 1999, 2000 and 2001 as the students from these cohorts would have been expected to have completed their undergraduate studies.

This research study specifically considers the perspective of former students who are the participants in the research study (Creswell, 2005). This thesis provides an in-depth analysis of attrition from former health science students' perspective. The thesis focuses on the experiences of these former students, discussing their experiences as students, their leaving an educational program before completion and their thoughts on

why this occurred. Through this study, I hoped to learn more about why these students left the program and investigate potential ways this could be prevented.

Through this research, I hope to inform admission practices, the planning of interventions and resources for at risk students and make recommendations for measures to reduce attrition in the BHSc program. This study contributes to the literature on health science student attrition and the further understanding for health professions' programs for whom initiatives could be developed.

Research Questions

To understand the issue of student attrition experienced in health professional education programs, the following questions in the context of the QEII/Dalhousie Health Sciences program are explored:

1. What are the factors that influence attrition among the BHSc students?
2. When in the academic program is attrition most likely to occur?
3. Can identifying critical points for intervention minimize student attrition rates?
4. Do pre-entry requirements affect academic outcomes?

Definition of Terms

Attrition - Attrition in this study will refer to the withdrawal and/or academic dismissal of students from the School of Health Sciences diploma/degree program prior to completion or graduation within six years, resulting in ineligibility to write certification examinations and work in the field.

Health science professions- health science professions in this study will refer will include the following five professions: Diagnostic Cytology (DCYT), Diagnostic Medical Ultrasound (DMUT), Nuclear Medicine Technology (NUMT), Radiological Technology (RADT) and Respiratory Therapy (RSPT).

Allied health professions- a cluster of health related professions that fulfill necessary roles in the health care system. These professionals assist, facilitate and complement the work of physicians and other health care specialists (Gupta, 1991).

Overview of the Thesis

Chapter 1 has presented an overall introduction to the context and the problem. The research questions are defined along with the purpose, relevance of the study and definitions of terms.

Chapter 2 presents the literature review. It begins with a review of the literature on post-secondary student attrition and then focuses on the literature specific to health professions' student attrition.

Chapter 3 describes the methodology used in this research. This chapter includes the design of the study, sample, data collection, and ethical considerations.

Chapter 4 includes the findings and an analysis of the data in relation to the research questions.

Chapter 5 discusses health science student attrition and provides specific suggestions or recommendations. This final chapter concludes with a discussion of the

findings, implications for educational programs, implications for future research and limitations.

CHAPTER 2

Literature Review

Attrition Theory: A Brief Overview

The bulk of literature on the topic of attrition in general higher education offers some interesting findings regarding the factors that influence attrition. Tinto theorized that a student enters higher education with a set of background characteristics, intentions and expectations; the student's decision to depart a program of study may be in part a function of how well the student integrated into the institution both socially and academically (1987).

In 1990 Bean (as cited in Titus, 2004) developed a student attrition model which contained concepts of academic and social integration and institutional commitment. This model also incorporates paralleling external variables (e.g., financial difficulty, separation from significant other, opportunity to transfer to another program, employment obligations and family responsibilities) that may influence a student's decision to leave an institution (Titus, 2004).

Noel identified seven themes of attrition and these included: academic boredom, academic uncertainty, transition and adjustment problems, limited and/or unrealistic expectations about college, academic under-preparedness, incompatibility and irrelevancy (Laucidina, 1997).

It seems that the personal characteristics of a student, the academic environment and the social environment of the institution all play important parts in determining whether a student will successfully complete a higher education program (Laudicina, 1997). Negative experiences of the institution may lead to diminished academic and

social integration; a student may perceive that the costs of continuing (academic, social emotional and financial) outweigh the benefits, resulting in student withdrawal (Yorke, 1999).

It is important to know whether an institution has contributed in any way to a student's leaving. Was the information given to students clear as to the nature of the program of study? Was the learning environment of acceptable quality? There exists a growing diversity in the student population (Seymour & Hewitt, 1997); was this considered? Did the culture of the disciplines (as reflected in attitudes and practices of the academic staff) contribute in any way to attrition? (Yorke, 1999).

Equally important to understand is how students contribute to the situation. Were they prepared for university life? Were their study habits effective? What was their level of commitment? Was their program selection compatible with their personal attributes; did they make appropriate program choices?

Yorke (1999) draws some themes from the literature on student attrition in undergraduate higher education suggesting that the following may make leaving more probable:

> the students' expectations are not met; students find that they have chosen 'the wrong programme'; the student lacks commitment to, or interest in, the subject; the quality of teaching is poor; the academic culture is perceived by students as unsupportive (or even hostile); students find themselves in financial difficulty; the demands of other commitments- particularly the need to undertake employment- detract from studies; the student is male; the student comes from a working class background; and the student enters with low academic grades. (p. 26)

Health Profession Student Attrition

The literature review continues with a particular focus on undergraduate health professional students. While there has been a significant amount of published research about attrition in the general higher education student population, there is currently little published research dealing specifically with student attrition in allied health or health sciences programs (Laudicina, 1997). Much of the relevant health professional research literature seems to focus on students withdrawing from medicine or nursing and not other health science professions (Stewart, 1990). I have found that in my review of the literature, this continues to be the case.

Ehrenfeld and Tabak (2000) found an overall calculated rate of attrition of 30.3% for an undergraduate nursing program between 1989 and 1995. Laudicina (1995) reported that clinical laboratory science education programs in the United States lost up to 21% of their students. Students left clinical laboratory science programs in approximately equal numbers for both voluntary and nonvoluntary reasons (Laudicina, 1997). In their study, Last and Fulbrook (2003) found that 20% of student nurses in the United Kingdom (UK) who began a nursing program failed to complete the requirements. Gupta (1990) reported an overall attrition rate of 15.7% for all Committee on Allied Health Education and Accreditation (CAHEA) accredited programs. Clearly there is a problem with attrition in health professional programs and the problem remains to be resolved.

Health science students choose their discipline of study before entering their program; therefore, they experience far less uncertainty of career goals than general higher education students (Laudicina, 1997). Tinto (1987) found that students who enter a

four year undergraduate program as a prerequisite for occupational entry are more likely to complete their degrees. Therefore, lower rates of voluntary withdrawal from the health science population should be expected when compared to a general university population; Stewart (1990) found this to be the case in a study of attrition from health professional schools at Dalhousie University. Small class sizes, cohesive units and compact curricula supporting their students were factors Stewart described to account for a low attrition rate of 2.5 % (1990). As will be shown later in the findings, this is not consistent with the pattern of attrition in the cohort classes studied in the BHSc program.

Laudicina (1997) conducted a study of attrition in clinical laboratory science programs; this study collected information from the program administrators though, not from the students who actually withdrew. The study looked at only the administrators' perceptions of reasons why students left the program. The top seven reasons for program incompletion in order of ranking included: insufficient study effort, conflict between academic and personal life, curriculum too academically difficult, discipline-specific courses were too difficult, financial difficulty, students were academically unprepared for the program and had unrealistic expectations of the difficulty of the work (Laudicina, 1997).

The study of attrition from health professional schools (1983-1985) at Dalhousie was one of the most relevant articles located for the literature review (Stewart, 1990). The most prevalent reasons Stewart (1990) found for withdrawal were "dissatisfaction with the program/curriculum content", "uncertainty about educational/occupational goals" and "stress associated with the profession."

Stewart (1990) commented on the findings and stated that the first two reasons are found in general post-secondary attrition literature but stress associated with the profession may be unique to health professional schools. Stress associated with the profession may be in part due to accreditation requirements that affect the design of educational programs or professional socialization (Stewart, 1990). If students are not fully informed or knowledgeable about the profession prior to entering the program, stress may result.

With professional career counselling, academic advising and academic support programs, stress can be decreased and student satisfaction and goal commitment/motivation can be increased (Stewart, 1990). This information may offer an opportunity to implement retention strategies to deal with these particular issues.

Trotter and Cove (2005) recently published a study that interviewed students who withdrew from a healthcare degree programme in a UK university. This study found that four main themes emerged: integration, issues concerning a mixed-age group of students, the relationship between education and career, and balancing studies with other life commitments (Trotter & Cove, 2005).

A study conducted by Blume and Krefetz (1997) found that the main reasons for students' withdrawal in their study were academic difficulties, dislike of the profession, family difficulties, financial stress and substance abuse. Academic difficulties and dislike of the field were the main contributors to attrition in this study and changes (required clinical laboratory visit, an established peer support network and an early intervention system for poor academic performance) were made to the program's retention model to

address these issues (Blume & Krefetz, 1997). The authors did not report on the success of these initiatives and no further report was found in the literature on whether these introduced measures were proven to be helpful.

Glossop (2002) conducted a study on attrition and found in her study that the main reason for students leaving a nursing program in the UK were family difficulties, academic difficulties, financial problems, ill health and wrong career choice.

Pre-entry qualifications may predict academic outcomes and a study in the UK found that students with non-conventional entry qualifications to a nursing program had higher attrition rates (Wharrad, Chapple & Price, 2003). Wong & Wong (1999) found that student performance, as reflected in their science grade point average (GPA) on the basic science courses (Introductory Physiology, Anatomy, Microbiology and Chemistry) predicted successful student program completion at the Dalhousie University School of Nursing. The authors suggested that effective intervention programs could be developed for those students at high risk in these basic science classes to improve students' success in terms of program completion.

There is no doubt that attrition is multivariate by nature, with a complex interaction of diverse personal, academic and organizational factors involved (Stewart, 1990). A thorough knowledge of the reasons and trends in student attrition can be invaluable to those working in student advising, enabling them to target and aid "at risk" students (Robinson, 2004).

Tinto (1987) recommended a mandatory exit interview and questionnaire for those students who withdraw from a program. Data collected from exit interviews can

provide key information on the contributors to student attrition (Wells, 2003). Wells (2003) suggested that exit interviews could be used to determine if the students' withdrawal could have been prevented and could also be used to develop retention strategies. Following the introduction of an exit interview procedure at the School of Care Sciences, University of Glamorgan, Glossop was able to obtain quality exit interview information from 78% of the discontinued students (2002).

It is important to obtain information from students themselves, as incongruencies may exist when information is obtained from others. Stewart (1990) found in her study that faculty advisors more frequently cited "personal" reasons and heavy workloads as explanations for students leaving; these did not match the grounds identified by students.

Relevant and timely research of today's health science students is needed. Wells (2003) suggested that Tinto's model of student retention may not be applicable to the new population of undergraduate nursing students. Students may be older, have had university experience or even earned university degrees before they enter their program of study. Wells (2003) argues that much of the research conducted in the 1970s-80s shows the typical student to be white, middle class having just graduated from high school; students today are more likely to be from a diverse racial/ethnic background and often have some post secondary experience. Wells (2003) stresses the need for new strategies to deal with the current population of students in order to reduce attrition.

Another influencing factor that may affect attrition includes the millennial generation health professional student, as this special population group often have lofty goals and high expectations but often lack realistic plans for achieving their goals (Keeling, 2003).

High rates of attrition can be reduced by implementing retention strategies (Wells, 2003). Accurate information about the rigors of the program, faculty development related to cultural diversity and a greater institutional focus on student retention are primary strategies suggested by Wells (2003). A study found that students who left a health care program reported a discrepancy between what they expected and the reality of their educational experience compared to those who remained in the program (Wells, 2003). This suggests that students might not have received enough or appropriate information to have an accurate expectation of the program.

Faculty are an important resource in a program and play an important part in the academic success of all students; in fact, in a study, faculty behaviours were shown to be related to academic success more than any other factor (Wells, 2003). Astin (1993) suggested that student attrition may be reduced if faculty priorities were shifted more in the direction of a concern for student development.

Emans (1990) concluded that the primary ingredient for retaining students must be meaningful interaction with faculty. This guidance is of particular importance at the beginning of their journey as attrition has been found to occur predominately during the first eighteen months of a program (Glossop, 2002).

Drea (2004) suggests that reasons for attrition are complex and must be viewed in the local context; specific retention strategies are needed for individual programs. In a recent article concerning student attrition and retention in Ontario's colleges Drea (2004) offered ten recommendations for increasing student retention:

1. Establish and maintain a student success and retention committee.

2. Provide new student orientation which is open to families and partners of students.

3. Identify at-risk students.

4. Improve service quality to students.

5. Have students and faculty get to know each other in their first year.

6. Establish academic and social interaction opportunities.

7. Accurately determine attrition rates by tracking individual students.

8. Conduct exit surveys to determine why students leave.

9. Conduct an institutional self-study to determine where improvements are necessary.

10. Institute a tangible reward system for good teaching and faculty advising.

The demand for health care professionals is high and is expected to increase (Lehman et. al, 1995). There is also an increased importance for health science students to complete their program of study. Stewart (1990) in her article from fifteen years ago advised that "attrition specifically from health professional schools in Canada requires investigation." A study of attrition of health sciences students can provide insight and implications for recruitment, admissions, advising and professional career counselling in health professional education in Canada (Stewart, 1990).

The Committee on Allied Health Education and Accreditation (CAHEA), the United States equivalent to the Canadian Medical Association (CMA) Conjoint Accreditation process, stated that there is a need for studies on attrition rates for students in allied health programs so that attrition rates may be lowered and more qualified

graduates will be available to fill predicted health professional vacancies (Blume & Krefetz, 1997).

The literature on student attrition specific to health sciences is scant and the affiliated Association/ Societies (CSDMS-Canadian Society of Diagnostic Medical Sonographers, CAMRT- Canadian Association of Medical Radiation Technologists, CSRT- Canadian Society of Respiratory Therapists and the CSMLS- Canadian Society for Medical Laboratory Science) did not have any available online information on the topic of student attrition. The Canadian Health Services Research Foundation (CHSRF) has identified workforce planning, training and regulation as a theme for future research in Canada (CHSRF, 2004).

Summary

The literature on student attrition shows the complexity and the multifaceted nature of student attrition. There are many reasons students may leave educational programs. Clearly, there is a need to have a better understanding of the nature and reasons students leave their specific programs so that measures can be put in place to improve student retention.

CHAPTER 3

Research Methodology

"Research is a process of steps used to collect and analyze information in order to increase our understanding of a topic or issue" (Creswell, 2005, p. 3).

Overview of the Study

Using a qualitative approach and thematic analysis for analyzing the data, this study explored reasons why students left a health sciences program of study. The purpose of this research was to explicate the reasons for leaving a health sciences program of study from those students who had actually left. To understand the issue of student attrition experienced in QEII/Dalhousie Health Sciences program, I explored the following questions: What are the factors that influence attrition among the BHSc students? When in the academic program is attrition most likely to occur? Can identifying critical points for intervention minimize student attrition rates? Do pre-entry requirements affect academic outcomes?

The method of data collection included in depth interviews with former health science students from the 1999, 2000 and 2001 class cohorts who described their experiences as students in the BHSc program and why they subsequently left their program of study.

In addition to the qualitative data, anonymatized quantitative data was collected to show attrition rates, aid with comparisons and assist in answering some of the research questions. The linkage of quantitative information with the richness and uniqueness of

the qualitative information allowed for increased contribution in the quest to understand student attrition.

General Research Perspective

It is important to obtain opinions and reasons for leaving from those students who actually leave a program of study because they differ substantially from those students who may just think of leaving (White, Williams & Green, 1999). In Last and Fulbrook's (2003) study, they presented the views of current students concerning other students who had left a program of study. Laudicina recognized a weakness in her study, in that information was gathered from program directors rather than from the students who left their program. She recommended that research in student attrition should be focused on gathering information from the actual former students themselves (1997). It cannot be assumed that the opinions of others (program directors, faculty or other students) are congruent with those students who have left a program of study.

I felt strongly that gathering the opinions and perspectives of former students was important. I felt it was ideal to interview the students who had actually left their health science program. Going to the students who withdrew emphasized a "student- centred" approach to understanding attrition (Hermanowicz, 2006). The data collected from interviews with former students on student attrition focuses on their perception of the experience of leaving an educational program before completion. The interviews allowed participants to volunteer what factors or influences were significant for them. With this approach, the study is "grounded" in the interview data of former students of the Bachelor of Health Science program (Creswell, 2005).

Research Design

A qualitative exploratory research approach, broadly guided by phenomenological principles was used as a strategy of inquiry to understand the phenomenon of student attrition in this study (Rossman & Rallis, 2003). The method of data collection to generate rich descriptive data included in-depth interviews with former health science students who described their experiences as students in the BHSc program and why they subsequently left their program of study.

Recruitment

The recruitment process began immediately following receipt of ethics approval by the MSVU University Research Ethics Board (Appendix E). The School of Health Sciences Admissions Officer for Dalhousie who tracks the attrition rates each year also holds the identities and contact information for all previously enrolled students. Individuals who entered their program of study in 1999, 2000 or 2001 and who subsequently left the BHSc program before completion were eligible for inclusion in the study. Six years have passed since initial registration; students from these class cohorts should have completed their programs of study (Dalhousie University Academic Calendar, 2007).

The Admissions Officer made initial contact with the former students from the intake years 1999, 2000 and 2001. This method of initial contact gave each former student the opportunity to deny my request by not replying rather than having to refuse directly.

The School of Health Sciences Admissions Officer was provided with a brief introduction message for the study and with this she then attempted to contact all former

students from the selected three cohorts. My intention was to conduct as many interviews with former students of the Health Sciences program as possible from the first three cohorts of this new program.

The Admissions Officer first attempted to reach potential participants by phone. Any students who were unable to be reached by phone received an email and also a mailed request for their permission to have the researcher (myself), contact them to provide them with more information on participating in the study.

In the early stages of the study, it became evident that contacting former students would prove more difficult than expected. The Admissions Officer was unable to make contact with a number of the potential eligible participants. Some former students were unable to be reached with the contact information available. Several (3-5) attempts were made by the Admissions Officer to contact potential participants. This included repeated telephone calls and email attempts but this resulted in no contact with the former students or anyone associated with the former students who could assist her in contacting them.

Of the thirty two total number of potential eligible participants, eighteen could not be reached as phone numbers had been disconnected and addresses were no longer current or available (Table 2). Of the remaining potential participants that were able to be reached, a brief explanation of the study was provided. Every effort was taken to word the introduction in a manner that quickly and concisely communicated the importance of the research being conducted. The Admissions Officer asked former students who could be reached for their permission to have the researcher, myself (Carol Gillis), contact them to invite them to participate in the study. Even with a carefully phrased introduction, five former students indicated they were not interested in participating/ receiving further

information or did not return her call regarding receiving further information on the study.

Table 2

Respondents/ Non-Respondents by Category

Category	Definition	Number
Initial list of potential participants		32
Unable to contact	This category included those potential participants who were unable to be contacted. Some former students were unable to be reached with the contact information available. Several (3-5) attempts were made by the admissions officer to contact these potential participants. This included repeated telephone calls, emails and mailed attempts but this resulted in no contact with the former students or anyone associated with the former students who could assist her in contacting them.	18
Refused initial contact	Every effort was taken to word the initial contact with former students in a manner that quickly and concisely communicated the importance of the research being conducted. However, a number of former students indicated their unwillingness to participate.	5
Declined interview after initial contact	This category included those potential participants who were initially contacted and agreed to have the researcher contact them to give them more information and invite them to participate in the study. Upon receiving this further information, they were not able to schedule an interview time or did not return repeated calls to set up an interview.	2
Interviewed	This category included those participants who completed interviews.	7

Nine former students gave their permission to have me, the researcher, contact them. I immediately contacted them with more detailed information concerning the research study (Participant's Letter of Information and Study Design {Appendix A} and Consent to Participate {Appendix B}). I sent information through their preferred method of communication, either email or mail. Unfortunately, not all of these former students whom I had permission to contact agreed to participate in the study. Following their initial expressed interest, one former student felt she was too busy to arrange an interview and another former student did not return repeated messages in efforts to arrange a time to meet for an interview.

Sample

The purposeful sample of participants in this study was drawn from individuals who entered their program of study in 1999, 2000 or 2001 and who subsequently left the BHSc program before completion. This sampling strategy was aimed at being responsive to the problem of attrition and meeting the needs of the study (Coyne, 1997). In total, thirty-two undergraduate students left the Dalhousie University baccalaureate health sciences program before completion of their studies from the 1999, 2000 and 2001 class cohorts. The sample for qualitative in-depth interviews in the study consisted of seven students or 22% of the eligible pool of participants. This was the maximum number of former students from this group who agreed to be interviewed. Recruiting all of the willing participants from the three cohorts studied prevented a larger sample from being employed. This was a manageable number of interviews to conduct and transcribe and also allowed for the obtainment of thick, rich data.

Data Collection

Participant interviews.

The in depth interviews were intended to elicit views and opinions from the participants. The purpose was to uncover and describe the former students' perspectives on attrition (Marshall & Rossman, 2006). Using a semi structured style of interviewing allowed conversation to flow freely but also maintained focus on the issues and areas that needed to be explored.

Each individual interview was arranged according to the participant's preference regarding scheduling (time and day). I arranged interviews as the participants responded and held the interview in a location of the participant's choice which was convenient/ comfortable for him/her. One participant chose a private interview room in an office setting. Two participants chose hospital meeting rooms. Two participants chose university meeting rooms. One participant preferred to hold the interview in her home and one participant chose to have a telephone interview. In most cases, I traveled to the current location of the participant to avoid travel for the participant. Interviews occurred over the course of seven months.

Most of the interviews took place in the Halifax area (n = 6) and one of the interviews was held in a rural location in Nova Scotia. Each interviewee received a Participant's Letter of Information and Study Design (Appendix A) outlining the purpose of the study. I also provided the interviewee with the Consent to Participate Form (Appendix B) which was signed before beginning the interview.

Each interview was conducted on an individual basis and ranged from 45 minutes to 80 minutes in length. All interviews were digitally audio recorded and subsequently

transcribed by the researcher, allowing for detailed in depth analysis. Six of the seven interviews were in person and one interview was held using a speaker phone, as this was the participant's preference since she was unable to meet for an in person interview.

A semi structured interview approach was used with a general interview guide (Appendix C). Informed by the literature, I wanted to discuss certain issues related to student attrition with former students. Questions were focused around introductory information, leaving, history/background and prevention. Participants responded to open ended questions in order to gain detailed information related to their reasons for leaving the program. I asked each of the participants to discuss their experience as a student, their leaving and their thoughts on why this occurred. I hoped to learn more about why these students left the program and investigate potential ways this could be prevented.

As the interviews were held, information regarding supports and barriers to their success in the program were explored. Information emerged from the responses of the participants about issues related to their leaving. Interview questions continued to evolve in response to these emerging themes and this offered the opportunity to elicit more data from subsequent interviews.

The interviews were conversational in nature. As a researcher, my role was to actively listen and facilitate the interview. I make no claim that the experiences told by the seven former students in these interviews are generalizable to all students in health professional educational programs. These interviews are simply snapshots of students' experiences, with student attrition being a much larger and more complex phenomenon.

Participants received a modest honorarium of $20.00 to acknowledge their time and valuable insights for this study. There was no compensation for the researcher.

Anonymatized data.

With the permission of the Director of the School of Health Sciences, Dalhousie University (Appendix D), anonymatized quantitative attrition data collected by the School of Health was assembled to show attrition rates, aid with comparisons and help answer some of the research questions.

Data Analysis

"Qualitative data analysis seeks to organize and reduce the data into themes" (Walker & Myrick, 2006). Thematic analysis was the method chosen to analyze the data. Boyatzis describes thematic analysis as "a way of seeing" (1998, p. 1). This process of thematic analysis allows the researcher to identify patterns or themes in the data which reflect the participants' experiences (Boyatzis, 1998).

I used the approach of simultaneous collection and analysis of data. Immediately after each interview, I transcribed and analyzed the data (Chiovitti & Piran, 2003). Glaser and Strauss (1967) identified specific procedures to examine data and labeled their analytical approach as the constant comparative method. The constant comparative method of comparing new data with data obtained in the earlier collection process was utilized in this study. Using the inductive incremental analytical process, the approach of systematizing the constant interaction of new information and previously collected data was employed (Deploy & Gitlin, 2005). Whether data was similar or different, commonalities and variations could be determined (Thorne, 2000).

From the first data collected and the initial categories formed, I was able to use this information to inform additional interview questions (Creswell, 2005). Each interview

transcript was compared to the previous and subsequent transcripts a number of times until I was satisfied that no significant statements were overlooked (Stott, 2007).

The analysis of qualitative material involves coding the material and identifying themes (Attride-Stirling, 2001). Interview transcripts of data were handled using the manual method of colour coding, in order to manage, analyze and interpret the data (Marshall & Rossman, 2006). I marked in colour those words, ideas or nuances which appeared to be connected to the topic of student attrition (Roberts and Taylor, 1998). I used a detailed approach of coding the data using open coding to break down, examine, compare, conceptualize and categorize data (Strauss & Corbin, 1990). Axial coding and selective coding were also used (Creswell, 2005). Themes and explanations for student attrition were grounded in the views of the participants (Creswell, 2005). This process of identifying themes allowed provision of potential points for future intervention strategies.

Using constant comparative analysis of the data I developed and refined emerging themes from the coding (Creswell, 2005). Through the analysis of looking for like themes in the data, I was able to provide interpretation of the information, illuminating reasons for students leaving the BHSc program.

Ethical Considerations

"The purpose of ethics approval is to protect human subjects and their records by assessing risks and benefits, unbiased selection, confidentiality and incentives to participate" (Bordage & Dawson, 2003).

Third Party Permission

Prof. John Hubert, Director of the School of Health Sciences, Dalhousie University, provided his consent and permission to use anonymatized attrition data collected by the School of Health Sciences and to make initial contact with former students asking them permission to have me, the researcher contact them to invite them to participate in the study (Appendix D).

Mount Saint Vincent University Research Ethics Board approval was secured May 9, 2006 (Appendix E).

Informed Consent

In the preparation of the Participant's Letter of Information and Study Design (Appendix A) outlining the purpose of the study and the Consent to Participate Form (Appendix B), I ensured that as much detail as possible was made available to the potential participants. These documents indicated that the interviews would be audio tape-recorded and that the participant had the right to refuse to answer any questions asked for any reason.

Avoidance of Harm

As my thesis and the interviews addressed student attrition, these students' experiences of leaving had a degree of vulnerability inherent in the participant's agreement to participate. The subject area (leaving a program of study) could be

somewhat emotional and had the potential to provoke stress, anxiety or feelings of sadness. I assured participants that they could choose not to answer any questions and that they were not required to share their reasons for doing so. I also assured participants that I could stop the interview at any time. I explained that I am a trained health professional who has experience dealing with people in difficult and stressful situations and I may be able to offer suggestions on services that could assist participants if this happened to them.

At the conclusion of interviews in this study, I observed a sense of comfort and ease with all participants. One former student expressed that the experience was indeed "absolutely" positive. Talking about their experiences may have helped relieve negative emotional feelings and may have even helped participants feel supported. Having the opportunities to tell their stories enabled former students to feel positive about their contribution to helping future students. As the findings show in Chapter 4, many participants shared suggestions to increase student retention that could improve attrition in the future.

Privacy, Confidentiality & Anonymity

Any report of the study will not identify individuals. All information is coded and only identified by a number. I personally transcribed the interviews and I am the only one who has access to the digital audio recorded interviews. The digital audio files and the electronic version of the transcripts (stored on a memory stick) are located in a locked file cabinet the researcher's office. Consent forms have been kept in a locked drawer in the same office, separate from the data. The data will be kept for five years post any

publication and then destroyed. This ensures that the contents of the interviews are kept confidential.

Dissemination of Results

Participants who indicated on their Letter of Consent (Appendix B) that they wished to see the results will be mailed/emailed a summary of the report. A summary of the report will also be mailed to the Director of the School of Health Sciences.

CHAPTER 4

Findings

This chapter will present the participants' demographics as well as an overview of the findings. The five main themes, reflective of the varied responses of individuals who left the health sciences program will be presented. These include: wrong career choice, unable to see career pathways, lack of support or connection with faculty, not ready for the demands of university, and stress. In addition, participants' actual comments and suggestions of what could help improve retention are included.

Research Participants' Demographics

Participants in this study were all former students from the first three Dalhousie University, School of Health Sciences' class cohorts; two participants started the health sciences program in 1999; three participants started in 2000 and two participants started their program in 2001. Similar to other attrition studies, most students left voluntarily (White, Williams & Green, 1999). Six of the participants in this study left the program voluntarily. One participant was academically dismissed.

There were six females and one male in the study sample. This is similar to the demographic information collected for the full class cohorts which can be found on page 65 in this chapter. All participants were Caucasian. The participants' age at the time they left the program ranged from 19 to 26, with a mean age of 23. The educational background of the participants when they entered the School of Health Sciences ranged from high school to completed degrees. Five participants had some university experience with four of these having completed previous university degrees. Two participants had no

previous university experience prior to entering the health sciences program, having entered directly from high school.

Four participants in this study were enrolled in the respiratory therapy discipline. Two participants were enrolled in the radiological technology discipline and one participant was enrolled in the nuclear medicine discipline stream. No diagnostic medical ultrasound students left their program from the class cohorts studied. Unfortunately, no eligible former students who were able to be contacted from the diagnostic cytology discipline agreed to participate in the study.

All of the study participants lived in off-campus residences while students in the program. Three of the participants worked more than fifteen hours per week. Two of these participants worked more than thirty hours per week.

Most of the study participants (n = 6) departed their programs in their first year. Two of these participants left during or after the first semester and four participants left during or after the second semester. One of the seven participants in the study left in the second year of study.

In the case of this research, there was some diversity of the participants. The participants were of differing ages, sexes, educational backgrounds and health science disciplines. There were no visible minority participants. Despite any small differences, the thesis begins from the central point that students left their health sciences program of study before completion.

A specific research question needed to be answered: Why do students leave the Bachelor of Health Science program? Each of the former Bachelor of Health Science students interviewed had a unique experience to share. Despite this uniqueness, the

reasons former students gave for leaving seemed to cluster into identifiable problem areas. Five main organizing themes or categories emerged from the data analysis as perceived contributors to students leaving the Bachelor of Health Science program before completion: wrong career choice, unable to see career pathways, lack of support or connection with faculty, not ready for the demands of university life (under-prepared, both academically and socially) and stress, particularly associated with juggling student workload and finance/ job demands.

Theme 1 - Wrong Career Choice

Some students who left the health sciences program revealed that the professional program field of study they entered was "not the right fit" for them. "I really thought it wasn't for me" was a comment made by several former students. Some students felt they had made the wrong career choice with regards to the work, the clinical environment or the scope of practice of the profession. Whatever the case, at some point during their first year of study, students felt that the particular profession they had chosen to enter was the wrong career choice for them. Participants admitted that they did not have a full awareness of the health science profession until after enrollment. After spending some time in the program their awareness and knowledge of the profession improved. Students realized then that they had made the wrong career choice and decided to leave the program.

One participant was not entirely sure of the profession/program before starting and was "kind of leery of the program". "When I started, I tried to picture myself as doing it and I couldn't". Early in the program of study a simulated model is used for learning a clinical competency. This former student was given the opportunity to practice

a skill using the model. “They had the little model there and you had to try and do it without setting off the alarm”.

‘Jake the Trach’ as the plastic model has been affectionately named is a simulated model used by health science students to practice intubation. “Once I was there in Halifax… had the tube going down the trach”. This simulated leaning scenario seemed to be a significant realization of the responsibility that would be involved in this profession and caused this student to doubt his interest and fit in this particular profession. I asked this former student whether there was any realization prior to applying to the program that this would be a part of the work in this field. The former student responded, “I did but it is different when you are there. Try it and you set it (the alarm) off three or four times”.

This participant didn’t fully realize that the field would have emergency type situations that arise in the clinical setting that may be unexpected and require immediate response and competent health action, sometimes under considerable pressure. Health care can be quite stressful and sometimes you deal with life and death situations. The National Institute of Safety and Workplace Stress (NIOSH) recognized workplace stress and identified health care occupations as some of the most stressful (Mason, 2006). The participant could not picture himself working “in an emergency situation” and “having this thing (pointing to heart) going a hundred”.

Asking whether this participant thought that student applicants have enough career information, profession awareness or information about the program before entering, the former student responded:

> Do they actually know that there are going to be stressful situations in healthcare? Yah, but you are 17 or 18. You know what I mean cocky. You know you see it on

> TV watching ER and that. You think this is no problem until you actually get there. You are in the building; you sign that waiver or contract or whatever it is and that makes it sink home. Understanding yes but just like I said once you got there. The gravity of the situation didn't really set in until you were right there. You know what I mean?

The former student provided further explanation in describing the gravity of the responsibility that would be required in this profession:

> Like if you are a cook at the (restaurant) and you make one little mistake, your meal doesn't taste good. But if you're a therapist and you make one little mistake, there is a funeral in a couple of days. That really set in. It was just a matter of this is just not right. I couldn't deal with the stress. I mean that is not the kind of temperament you want in an emergency room or in a clinic.

Concluding our discussion the student added: "It was just a matter of this is just not right. I couldn't deal with the stress". This former student felt this was the wrong career choice and subsequently made the decision to leave the program.

Another former student felt "the scope of practice was too narrow" and didn't realize this until she was part way through the first year of the program.

> I can't say I realized before I entered. Like it was definitely after I had done it, a semester. I just found it was going to be too limited in what I was going to be able to do; I thought it was going to be more broad than it was. I just didn't want to do lungs and breathing. I wanted to do more the whole person. I didn't want to be just limited to be called in to check their breathing or put them on oxygen or do asthma tests.

After spending some time in the program, she decided, "I wasn't going to spend four years studying something that I really didn't want to study." She made the decision that this was the wrong career choice for her and left the program to pursue studies in another health care field.

"It wasn't anything to do with the way the program was run or even the content per se" she added. "It really didn't have anything to do with the program set up or the

instructors or the class or whatever. It was just that I realized that I really don't want to do this." This participant felt that the primary reason she ended up leaving the program was "not knowing exactly what it (the profession) was beforehand".

Another participant recognized that she did not like the clinical environment of health professions:

> We started going around to the hospitals to get familiarized and taking on sort of like meeting the patients and stuff. I kind of realized that I don't like hospitals at all. It was the smell. I didn't like the smell. I found it very difficult to be around people who were basically suffering all the time. I don't want to say that I had too much empathy but that is kind of how I felt. I just felt so bad for them. I found it really hard to be in that environment. If I did not have to work in a hospital or see people suffer it would be great.

This participant pointed out that she enjoys her current job because "you see all healthy people".

Another student who left the program commented on the clinical environment as well and stressed the importance of knowing the environment before entering the program. "Be in the room, smell whatever that cleaner is that is in there, hear the lights buzzing above you. It is a whole other world when you are right there." Blume & Krefetz (1997) found that some of their student attrition was due to a dislike of the field and subsequently required applicants to visit a hospital prior to admission to ensure that applicants had a better understanding of the health science field prior to beginning a program of study.

Three of the total seven participants felt that they had made the wrong career choice after entering into their health science program and exited in their first year of study. Each of these students felt that they had made the wrong career choice after entering into their health science program. Not knowing exactly what the profession was

before they began the program was common to all. None of these students had any regrets about leaving and believed that indeed they had made the right choice for them in choosing to leave the program.

Student applicants have preconceptions of health science professions before entering professional programs of study. These preconceptions may conflict with the reality of the health professional role, in terms of the academic content and clinical requirements of the program of study (Harvey & McMurray, 1997). What students expect in a health sciences program may not be the reality and this may have a relationship to attrition. In a study of students' perceptions of nursing, conducted by Harvey & McMurray (1997), the findings showed a significant difference in perceptions of the content of the program between those students who left and those who persisted; students who left were more likely to report a discrepancy between what they expected and the realities of their program of study than students who remained enrolled.

An important element when entering a professional program of study is to have a full understanding and appreciation of the profession. With this knowledge, potential applicants can then decide, before enrolling in a professional program of study, if it is the right career choice for them. The health science disciplines (sometimes referred to as allied health professions) have not had a lot of promotion or advertising of the professions to help raise the awareness of potential applicants to health science programs. There currently is a need to educate the public and potential applicants about these professions and programs of study.

The Nova Scotia Department of Health (2005) recognized the need to educate students in allied health careers and completed phase I of an Allied Health Care Career

Counseling for Middle School Initiative. This plan involves a website, media and curriculum documents that could be used by guidance counselors and teachers to educate middle school students about allied health professions. This plan would also incorporate these materials into a middle school career life management course. This is timely in that research has demonstrated by the time students enter middle school, they have already narrowed their career options based upon perceptions (Hoke, 2006).

Although this project was developed several years ago and would be extremely helpful in raising the awareness of Nova Scotia students to the health science professions, funding for Phase II (implementation) of the project has not been secured.

Students applying to the Bachelor of Health Science Program must independently research the profession of the particular program stream to which they are applying (Diagnostic Cytology, Radiological Technology, Respiratory Therapy, Diagnostic Medical Ultrasound or Nuclear Medicine). Application to the program requires that the applicants write a letter of intent which must address the following questions: why did you choose this professional program as your area of study?; what qualities, skills and assets make you a good candidate for this profession?; what is your understanding of the duties and responsibilities of a person working in this profession? and how did you research this field before making your choice?

Many students rely on websites to find information about career choice (Health Canada, 2007). When I asked one of the participants if she knew much about the profession before she entered into the program she responded, “I did some research; I thought I knew”. When asked what type of research she did, she said, “going on the Dal

website, Googling the profession and looking at job descriptions." She did not speak to anyone in the profession before applying.

A recent Health Canada report (2007) on career awareness and recruitment strategies of Canadian health professional programs (radiological technology, ultrasound and medical laboratory science) ranks brochures, calendars and websites as the top three most commonly used strategies by programs for career awareness and recruiting efforts. This project, Preliminary Study on Career Awareness and Recruitment Strategies was developed to improve the dissemination of information and recruitment processes in the health science professions (Health Canada, 2007). Phase I - Research and Development - focused on information gathering, technology planning and stakeholder involvement.

Phase II of this project - Technical Implementation, Launch and Sustainability - will be used to launch a public allied health career promotion website. These ongoing efforts are intended to develop a strong public profile in order to attract, inform and recruit excellent applicants to health science programs (Health Canada, 2007).

Although health science student applicants answered questions through their own research efforts about the profession before entering the health science program, they may indeed not have had a full appreciation of the full extent of the profession to which they enrolled. The analysis of students who left the health sciences program revealed that some former students entered the Bachelor of Health Science program and subsequently found that the professional program field of study they entered was "not the right fit". They did not have a full knowledge or awareness of the program or profession before entering. The professional program discipline to which they were enrolled was not what they expected.

When one participant in the study was asked if she felt that she had an accurate understanding about the program before she entered, she replied, “No, not really. I had an idea of what it was about but in the first two weeks (of the program) I felt, oh, this is what it’s all about.” Another participant responded, “ I found when I first got there it was more or less I had no idea of what (the discipline) was. None of us did.”

When students gained more knowledge about the program and profession, this led some participants to conclude that it was the wrong career choice for them. “I really thought it wasn’t for me”. With this increased awareness and realization, some students made the choice to leave the program before completion.

A study of student retention in dental hygiene programs showed dissatisfaction with career choice as the second most common reason reported by respondents for student attrition; academic difficulties was the most common reason (Holt, 2005). White, Williams & Green (1999) listed personal/family, career not really for me, academic level higher than expected and financial reasons as the most important reasons for leaving. Braithwaite et al. (1994) found disillusionment with the profession and personal problems as the most important reasons for leaving. It is apparent that a focus needs to be placed on wrong career choice/ not really for me/ disillusionment with the profession as this cause of student attrition may be preventable. Students need more information on health science professions before entering into their program of study. Holt recommends prior experience or familiarization with the field, pre requisite courses for students and academic advising to create confidence in the applicant’s career choice (2005).

Theme 2 - Unable to See Career Pathways

"Career development and not knowing what the career development path is" contributed to a former student's decision to leave the program. "I didn't see what the career… I didn't see what the road looked like". She also didn't see her fit into the discipline. "I didn't really see where/ how I fit, not only into the program but into the discipline itself". This participant's story was particularly unfortunate as she "lost interest, not knowing what was down the road. Not necessarily the program."

This former student failed to feel connected to the program. "I wasn't sure where I fit with the program. I didn't know where I was going with it. I didn't have a clear path. I didn't see what the path actually was."

She described her first year of the program:

> You see all these lung x-rays. To me, it just seemed like by the end of it, I would be giving these lung x-rays to like Mrs. Jones, telling her to take a deep breath in, deep breath out and the thought of that, I just lost interest and I didn't see all the exciting parts about it. It was exciting at first; like the first quarter and then we start getting into the boring stuff. You need to have a basis for everything but I think I needed a little taste of the end of the road. The thought of giving Mrs. Jones, the x-ray, the lung x-ray or the chest x-ray I guess was just, oh my gosh, I can't do that forever. Personality wise, I constantly need to have challenges and when I lose interest. It's just like ugh. You lose the effort behind it right? Just knowing where else I could go with it. I guess that first year, I just got overwhelmed in just seeing what was there and I didn't see what was further down. The career path, seeing where you are actually going was kind of blocked for me.

Students are attracted to professions that will present opportunities for them to grow and expand. It is important for students to be aware of career paths or career ladders showing pathways or opportunities that are available for graduates in their professions (Wilson & Cooley, 2006). Career guidance provided during a program has been highlighted as an important strategy in improving retention (Murrells & Robinson, 1999). It is important to

include in the first year program curriculum opportunities and exposure to career pathways. Career pathways or opportunities a student may have following completion of the BHSc program include: work in hospitals or clinics, education, administration, research, computer applications, radiation safety, homecare, rehabilitation, technical applications and sales/marketing.

At the time this former student was in the program, she was unaware of her career options in health sciences. She was unsure of career development opportunities beyond the very basic competencies. “When you're just studying one thing or you do a placement in the chest x-rays, you only see one small part. It looks like you are going to be working in a box.”

Students need to know more about what is available in the profession. By showing attractive career choices for students and providing them with information on career development and advancement opportunities early in the first year, professional programs can be more appealing, interesting and motivating for students.

This participant shared more of her experience:

> Knowing other positions. I mean, I was pretty close minded at the time what was actually available. When you go in I was thinking this is all cool, when you read about what the program is and when you see it first year and you're seeing …I keep saying chest x-rays but that's just what I think. When I went into the chest x-ray thing I mean oh my goodness, I can't do this forever and not being able to see any of those other options. I know that there are piles of other options now. So if I had known that and had people come in that actually did it. It wasn't just something that I just read in a textbook but actually saw someone physically come in and say it. That would be great.

In describing her decision to leave, this participant recounts:

> It was a really hard decision for me to leave. It was just one thing that I didn't see where I was going and financially when you don't see where you're going you start thinking that you're digging yourself a hole. At that time, I thought I'm just

> working all this much and I'm going to school and I don't see the light at the end of the tunnel. So what do I do? Knowing where I fit in would've really helped I think.

This former student suggested that having a graduate "come in and show you" what they are doing in the profession may "have been something that would have tweaked my interest." She described this in the interview:

> That would be great to know at that time, because then I could see where I would fit into a field. You are not necessarily working in a hospital working with patients. You could be doing research over here. You could be working in the OR or ER for that matter. Just like in different places… sales, applications, IT.

Theme 3 – Lack of Support or Connection with Faculty

Frequency and quality of student and faculty contact has been shown to be very important for student success (Tinto, 1987; Astin, 1993). "Teachers are often considered the primary facilitators for student success" (Higgins, 2005). Students who remain in school usually can tell a story about a faculty member 'who recognized them', 'made them feel important' and who helped them activate a 'can do' attitude. (Noel & Levitz, 1997). Discipline specific health sciences faculty play an integral role in retention and student success (Wells, 2003).

A former student expressed that she did not connect with faculty. When asked whether she got to know any faculty members in her first year, she responded, "I don't even remember any of their names to be honest with you. I knew them as my instructors, and that's about it. I didn't connect with them." Connectedness is an important part of the culture of a health science discipline and this falls within the faculty's realm of control (Mason, 2006).

Lack of connection with discipline specific faculty may have led to this former

student to doubt her abilities in the profession or to see her fit within the profession.

> I didn't have any connection with any of my instructors. I didn't really see where I fit in the program, either, which if you don't have a connection with an instructor and you just have a connection with your class. I think that it's really difficult to find out like am I really good at this? Should I really be here? So it was hard for me to approach them and ask for help I think at the time if I needed it.

Instructors 'being there' providing an appropriate sense of community and support may reduce attrition (Mason, 2006). Lack of support or connection with faculty may have also contributed to not knowing career advancement or opportunities within the discipline. This former student described her first year:

> I was pretty confused about where I fit. If it was a good fit for me. Should I be here? Maybe I am not even good at this? Like maybe this is something I shouldn't be doing. Now that I look back, I think that everyone probably had the same feelings so I don't think I was strange in that way. But just having someone say, no, this is okay. This is what you should be doing; you are great at this piece, whether it be the chest x-ray or something else. Like giving you something more I think would've really helped me along. If someone would have shown me a picture of what I could be after I graduated. I don't know why I couldn't do that for myself but at the time, I just didn't see what happened after graduation. All I saw was what was in front of me at that time.

When asked if there was anything else that could have been done that might have allowed her to stay in the program, she responded:

> Yeah I guess, if I did feel like I had somebody supporting me and I felt like I knew where I actually fit into the program. I think that would have really helped me. Having somebody that I could go to and just talk openly with and say listen, like these are the things I'm thinking of; should I be here?

Another former student was asked what she felt contributed to her leaving the health sciences program. This former student replied, "I just didn't get any support from faculty." When asked if she felt faculty cared about her well being, she responded, "No; not at all. There was very little support."

Theme 4 - Not Ready for the Demands of University Life

Some former students interviewed said that they were not ready for the demands of university life. When asked what she thought contributed to her leaving, one former student replied, “I don’t think I was ready”. Another participant said, “I personally wasn’t prepared for what was expected of me”. She wished she “had known that it was going to be that labour intensive right off the get go”. Similar to a study by Laudicina (1997) academic under-preparedness was a predominant theme underlying student attrition.

Academically Under-Prepared

The students interviewed who did not feel ready for the academic demands of university both had high school as their pre-program education preparation and entrance requirement for the program.

One former student described her experience:

> I was really young. I was the youngest person in my class. There were only two of us that were straight out of high school. They always tell you when you leave high school that university is going to be the hardest thing ever. Your first year, you're not going to know what to do. They try to prepare you for it. And then when you get there. It's like where am I? What is this? You know, you get there and everything is so fast. You know, you get there, and it's like a week later you have an exam. I just felt it was so quick. It was the quickest year of my life.

A former student described her difficulty with writing reports in the program:

> I wasn’t used to writing reports. We had never had to do anything like that before. All of a sudden we had to do formal lab write ups and I am not a writer. I think it was more or less the technicalities of when you had to do a report. You know like the different formats you know the APA format. I had never done anything like citing quotes or anything like that in high school. We never did anything like that.

Several former students found the Health Sciences program to be academically demanding and stressed the need to know and be prepared for this prior to beginning the

program. One student shared: “I think you just have to make sure that the people you accept know what they are getting into and they are definitely focused. I think they just need to make sure that the people they do accept are ready.”

Workload.

The workload was especially difficult for those former students coming straight out of high school. One participant expressed, “I did feel I was in over my head”. Another expressed, “It was a lot of work”. These former students did not feel equipped for the time consuming and challenging curriculum. “They seemed to just dive into stuff right away like the (discipline specific courses). They just expected us to already have a level of knowledge that we wouldn't have coming right out of high school.”

A participant felt that the significant course load contributed to her leaving.

> The difficulty of it I would say coming right out of high school. It wasn’t anything specifically I mean they just jumped right into the specialized stuff right away and coming right out of high school and not really having enough knowledge in those areas already. Like the high school did not prepare us for those workloads going right into it. There was a lot expected right away from day 1.

One participant described her experience coming straight out of high school as a disadvantage in relation to her other classmates:

> Half our class was right out of high school. The other half had a degree or started a degree at Dal. So you could definitely tell the difference between the two. They already had that basic level of knowledge, and they were adding to it. Where we were trying to add stuff and learn it all at the same time. We kind of had to take a step back and learn the basics and learn the specific stuff, all at the same time.

One former student felt that high school was not enough as far as admissions requirements to this program. She expressed her opinion on admission:

> I definitely feel that it should be treated more so like to get into the School of Pharmacy where you do have to have an entry. You do get into the School but

> your first year is entry level sciences, your requirement courses. Because the courses you take in high school are in no comparison to the courses or what they expect you to already know for these courses. They are pretty in depth right off the get go and they are labour intensive and you should be able to get yourself into that swing of what university is actually like and get yourself in the right track before you throw yourself into this program. It is really intensive."

This participant described her first year as having program specific courses and also introductory courses like, "Intro. to Biology and Intro. to Chemistry and Biochemistry". "We should have had to take those just by themselves one year and then taken our other discipline specific starting in the second year." When asked about what might have allowed her to stay in the program, she replied, "to have known that maybe I should have just taken that year, just taking intro. courses. I could have had more time to take a grasp of everything that was thrown at me. It was too much all at once."

One former student would have liked to have had "just some notice that it is a little heavier, the classes than other schools." She suggested that there could be a recommendation:

> When you were applying for it (the program) that you can apply right out of high school but we recommend students take a year to study their basic sciences. A year of sciences, those intro classes at least would do somebody good coming right out of high school.

This former student concluded by saying: "They only seat so many people. It is a selective class that is there. If they want those people to stay and succeed they should have more requirements set out rather than just high school."

In the interviews with former students, I inquired about support services available for students at the university. Some students "didn't know about any of it". Many of the students knew of support services but did not access any of the programs, services or development opportunities. "Maybe the support was there; I just didn't tap into it". When

one participant was asked if she singled out any services at the university to help her with her academics she responded, “I think I saw some tutoring signs up but I don’t think I would have had the money anyways”.

Another former student commented on tutoring and said, “There probably was some tutoring available through Dal, but it was never brought up as an option. It was never explained to us that if you do want some extra help, you can find a tutor”. This student seemed to suggest that she did not know of some of the available support opportunities. “I didn't find like Dalhousie itself, the University very helpful. I found the School of Health Sciences, they were very close knit and helpful. But as for the actual Dalhousie campus and helping me find stuff and organize myself, they weren't very helpful at all.”

When asked about the free services offered at the university such as time management, writing workshops etc., she replied, “I didn’t really look into anything like that at all.” She did note that courses which included tutorials were helpful. “Those (tutorials) were excellent; I found those really good.” This seemed to point to the need to encouraging students to seek out support services at the university. Students may not think of the supports which are available through the university. There may be “a disconnect with upper campus” and students may not seek out available student support services. Faculty and academic advisors should encourage these services when students are experiencing academic difficulties.

Socially Under-Prepared

Socially, the students straight from high school experienced more difficulty. This may be partly due to their lack of maturity and partly their lack of academic experience.

"Everyone else was over 19. I was still 18. Everyone else was more together because they could all go out together. I couldn't go with them. I couldn't hang out with everyone else." She explained the social connection and bonding with the students that were of legal drinking age. "They would go out and have a couple of drinks and study and I couldn't go with them. I was younger than everyone and I found that they all went out together and hang out together and I couldn't do that."

One participant described her experience as a health science student and the split in her class with students having different academic preparation:

> Like even the people from my class I never really had a chance to get to know them and feel comfortable enough with them to go to them if I needed help with something, especially the students that already had a degree. Our class was kind of split down the middle; half was out of high school and half already had a degree. It was almost like classed. They felt like they were a class above us so we didn't really socialize with them because they felt more superior to us. Even our class itself was a little separated. Like I mean it was really segregated like class wise. There were those students who had more knowledge and then there was us. We never really associated with the other students.

Former students also discussed the difficulty with not living in close proximity to the University and downtown area. "They (classmates) also all lived in Halifax in very close proximity. As far as going places with them I really couldn't because then I would have to deal with getting there." She explained her situation:

> Where I lived, it would take me forty five minutes to get there and forty five minutes to get home. When there were social gatherings you know for a couple of hours, for me it would be like if it was going to be too late I don't want to take the bus home at 10 o'clock you know, so I would have to opt out.

One participant felt that living off campus was a "big disadvantage". She compared her experience at Dalhousie University living off campus with living on campus at another university:

> The year after I left Dal I went to (another university) and I lived on campus and I definitely had a way better experience. I certainly met more people and I have a lot more memories and a lot more to draw on but I don't remember much from my year at Dal.

Despite describing some elements of social disconnect, the former students commented positively on the small class size and that this provided some social opportunities. One participant commented, "There was a little of the social aspect while we were in class because you know at one point there was seven of us." Another participant added, "The small classes made it nice to get close to people which is really important I think because you have that support network."

Another participant commented on the small class sizes and said you were "able to go to the teachers and other students for help". One participant added, "When you have a smaller class, right, I mean you feel less like a number than if you go to class with three hundred students". "I think that the health sciences program probably made me feel less like a number."

One former student felt that "the group settings that we had" helped her learn academically. "We had a class that had all the different disciplines. It was kind of neat because then you kind of learned a little bit more about other people's roles within the hospital and that environment."

Former students recognized the need for social connections. This need was not only for social connections with their classmates but also opportunities to socialize with health science students in upper years of study:

> If they had some sort of a social event where everyone went. I know not everyone is ever going to go to all those things but just have like some sort of social event for the School itself. Have it for all the years. That way you can also get to know the rest of the upper years as well.

Stewart found in a study of undergraduate health professional programs at Dalhousie University that characteristics reflecting facets of academic integration were more common to students who left than social integration (1990). This is similar to the results from this study.

Theme 5 - Stress

Stress was the fifth theme which arose from the data. In particular, financial stress for two former students was a factor in their decision to leave.

Financial Stress

One former student felt that "financial stability" contributed in part to her leaving.

> Financially, it was difficult for me. I was having a hard time getting student loans. I was in school for a few years and financially it was hard. When you start thinking about all of that and there weren't any scholarships or anything that I knew of. I had looked into different things that I could get or even bursaries and I didn't see any of those answers. So it was like, multiply this by another three years, and I'm going to be in over my head. I had five jobs at one time. I worked a lot. I think I could've done a lot better if I wasn't working so much. But at the same time, I wasn't in a position. I think you do what you have to do. It probably affected what I could've done.

Another former student shared, "It is really expensive. It (expensive tuition) is a big deterrent." She explained that she had to pay for everything herself. "It (expensive tuition) is a big deterrent. Being 18 years old and trying to come up with $10,000 was a bit much. I am still paying for it and I will be for the next 25 years."

One participant explained the dilemma of working and obtaining student loans. "I was at the point where I had made too much money to get a student loan. So if I stopped working I can't pay for school and I don't qualify for student loan". "My parents could've

helped me" she explained, "but I shouldn't need my parents to help me to get through school."

This former student relied on her employment while in the program to finance her education. Without work, this former student did not have sufficient financial resources to complete her program of study and this was of great concern to her. She was reluctant to accumulate more student debt and put considerable stress on herself by juggling a full course load and a significant number of hours of employment. Ineligible for a government student loan and unable to rely on alternative financial options the stress mounted.

This former student did not feel supported in her struggles to manage finances:

> Financial support would have been nice through the school. Show me how I can do it. You know there was nobody through the program who could do that at the time. You're talking about $6,000 for four years. That's $24,000 dollars plus books, plus lost earnings. It actually adds up to $40,000.

She did express that she:

> Would do things a lot differently if I could go back. Number one is I probably would have gotten the student loan. You know I wouldn't have worked through my first year. I would have gotten my student loan through my first year. You know I would still be paying it back at this point but it would have taken a lot of that (stress) off. Absolutely, because I could have been an A student.

Other Personal Stressors

Students who are not prepared for the requirements of study and the multiple demands placed on them may be subsequently faced with a host of problems (Taylor, 2005). Kevern, Ricketts & Webb (1999) found that mature students face work-life balance issues that contribute to their reasons for leaving. It was evident in one of the interviews that a former student found the stress "you know working trying to put myself

through school" working 30-40 hours per week plus going to school full time a source of "mental strain". "I wasn't the only one who had a job but I was the only one who was working that much." She described not having "time to put extra work into my assignments" and "getting you know 5-6 hours of sleep a night".

"I was willing to settle for B's because I was working fulltime. If I hadn't been working fulltime, I wouldn't have settled for anything less than an A. I was willing to settle for B's and a few C's to get me through." This former student's grades continued to decline as well as her health. She began "doing poorly" in her academics. It became "just too much. Too much. Absolutely."

"I was very unhappy. I didn't see any point in continuing to be unhappy. I was wasting my money. And wasting my money was making me unhappy." It became "just too hard mentally to continue". Declining grades, failing health and financial difficulties led this former student to make the decision to leave the program.

Some participants commented on other personal stressors which distracted them during their program:

> I mean it wasn't just school I had also other situations going on. I had personal things going on at that time that really restricted my focusing process. I just was not focused. There were some personal issues going on at the time; it kind of distracted me. At that point in my life, I didn't know that these personal issues were getting in the way. I didn't realize that it was affecting me but now when I look back it was a big deal.

One participant felt that she would have preferred to talk to someone who was not a faculty member about her personal issues affecting her school work. "I think if it was more, not a faculty member. It would have had to been someone more on the outside." She did say that, "they (faculty) probably would have had to approach me because I'm

not one for just getting out there."

In summary, the participants' interviews revealed five main themes: wrong career choice, unable to see career pathways, lack of support or connection with faculty, not ready for the demands of university, and stress. The analysis of the former students' experiences of leaving a health science program prior to completion revealed that participants in some way may have been "insufficiently prepared" for their educational experiences which then led to their leaving.

Some students revealed that they did not have a full knowledge or awareness of the profession before entering the program of study. Not knowing enough about the profession prior to entry into the program (under-prepared in awareness and understanding of the health science profession) led to students making the wrong career choice and then subsequently leaving a program of study.

Not knowing the career development opportunities or career pathways in the discipline may have been the result of insufficient preparation or orientation to the profession early in the program of study.

Some students felt they came to the program under-prepared academically and socially. Not fully equipped academically for the time consuming and challenging curriculum or socially for university life led some students to leave the program feeling under-prepared for their experience.

Finally, stress (of being a fulltime student with a job) led to leaving because of under-preparation for the multiple demands of a very challenging student workload and a job.

Themes had a common thread of not being sufficiently prepared. Future students in this education program may be more successful in completing their education with increased preparation.

Findings from Anonymatized Data

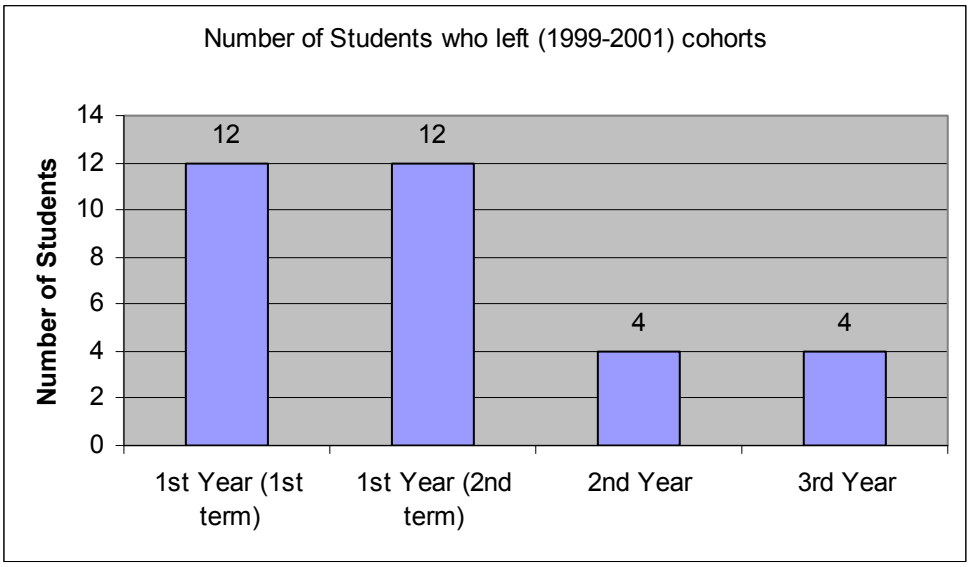
Dalhousie's School of Health Sciences Admissions Officer tracks the student attrition rates for the school. The calculated average attrition rate for the classes beginning in 1999, 2000 and 2001 is 25 %. (Marlene Hubley, personal communication, July 25, 2007). The first health sciences' class intake in 1999 had an attrition rate of 18%. The class intake for 2000 had an attrition rate of 21 %. The class intake for 2001 reported an attrition rate of 35% (Table 1).

As the literature suggests, the findings in this study similarly show that departure from a post secondary education program is most likely to be voluntary. Of the 32 students who left the BHSc program from the first three cohorts (1999, 2000 and 2001), 25 students or 78 % left voluntarily.

When in the academic program is attrition most likely to occur? The findings in this study show that departure is likely to occur within the first year with 24/32 students or 75 % leaving in their first year of study (Figure 1). This is consistent with other study findings (Murtaugh, Burns & Schuster, 1999) and the literature showing first year to be the most critical (Tinto, 1987; Astin, 1993 & Pascarella & Terenzini, 2005).

Figure 1

When Students Left the Health Sciences Program (1999-2001 class cohorts)



Students enter into the Bachelor of Heath Science program with differing levels of academic preparation. Incoming educational background categories of students include: high school, college, some university experience and completed university degree. Information was collected on the distribution of pre program educational preparation for all students (n =132) in the class cohorts studied (Figure 2). This was done to examine whether pre-program educational preparation of students affected successful completion. Was there any relationship between academic preparation and attrition?

The total number of students entering the Health Sciences program with high school as their academic preparation from the cohorts studied was 41/132 or 31 %. The number of students entering the Health Sciences program with college as their academic preparation was 13/132 or 10 %. The number of students entering the Health Sciences program with some university as their academic preparation was 37/132 or 28 % and the number of students having already completed a university degree was 41/132 or 31 % (Figure 2).

This incoming educational preparation data of the health sciences students was very useful to compare to the data of the thirty two students who left the health sciences program from the class cohorts 1999, 2000 and 2001. Of the students who left the program, 17/32 or 53% had high school as their educational background; 3/32 or 9% had college as their academic preparation; 6/32 or 19% had some university experience and 6/32 or 19% had completed a university degree (Figure 3).

Figure 2

Pre-program Education Preparation for All Health Sciences Students (1999-2001 class cohorts)

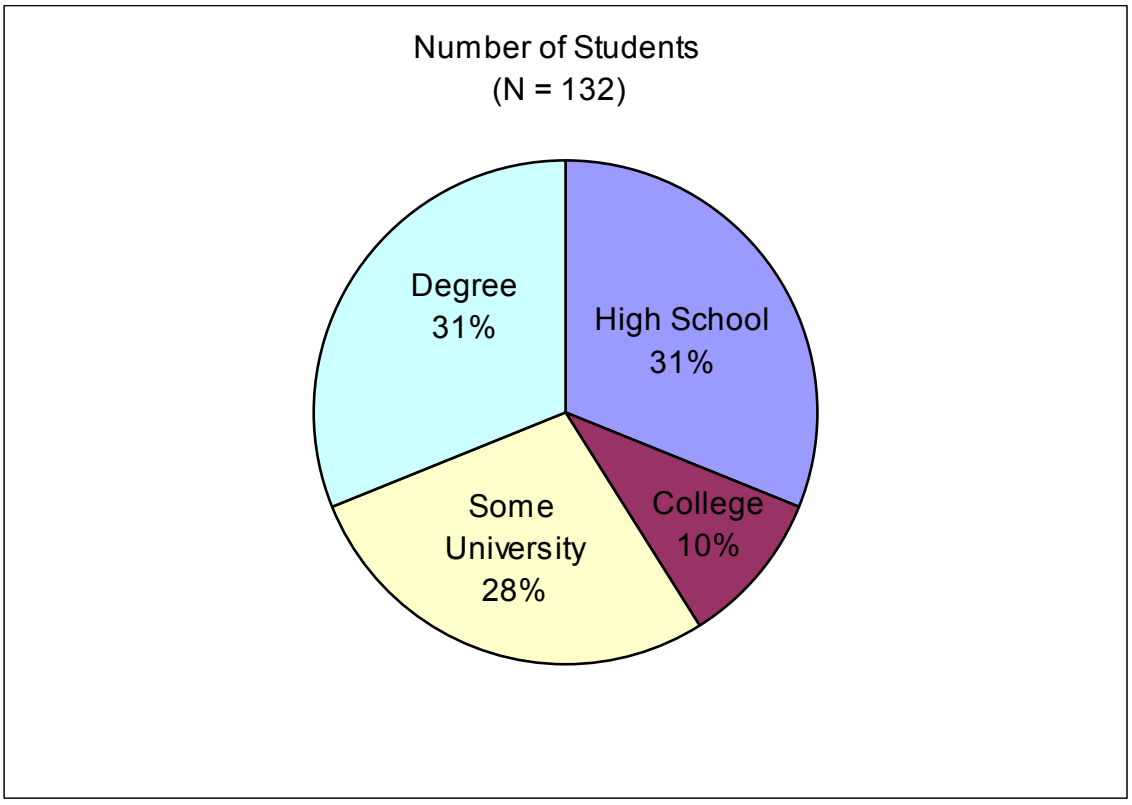
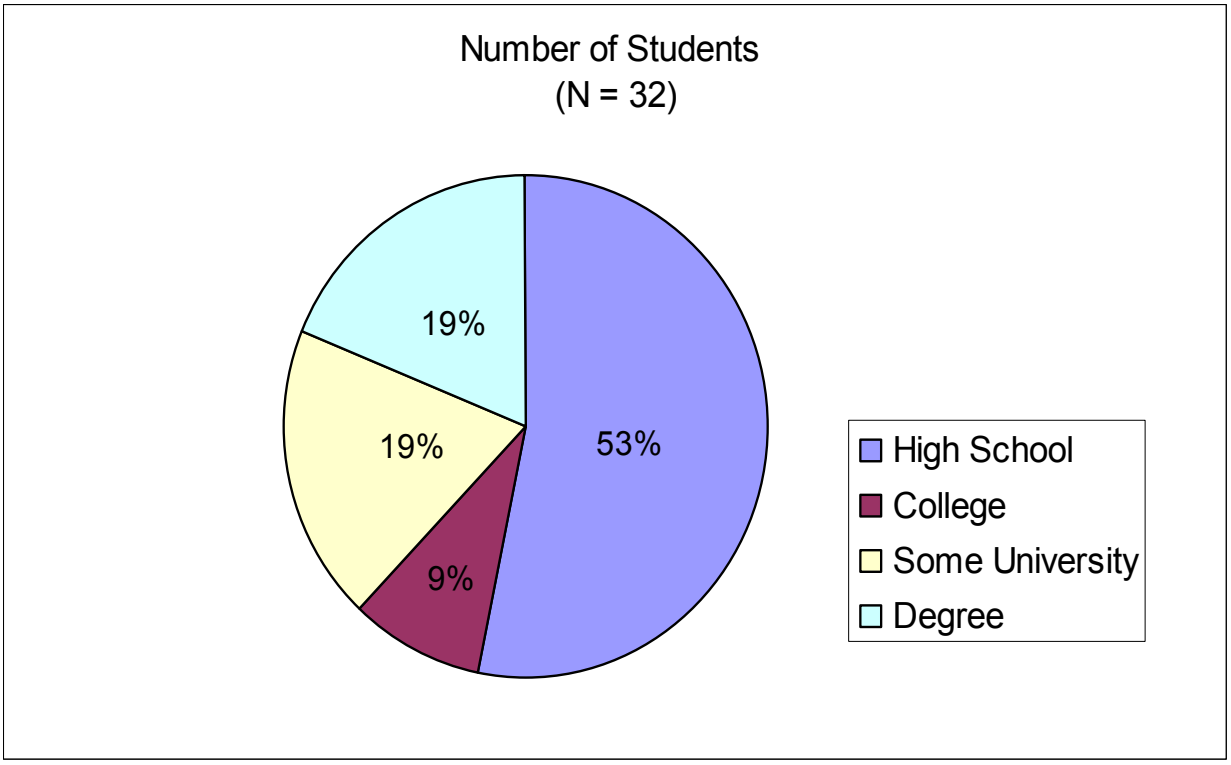


Figure 3

Pre-program Education Preparation for Health Sciences Students who Left the Program (1999-2001 class cohorts)



Do pre-entry requirements affect academic outcomes? The students who entered the health sciences program with high school as their academic preparation were at greater risk for attrition than their counterparts who had some college or university experience. Of the students who left the program, there was a greater percentage (53%) from the high school category. This was higher than the percentage of students with high school as their academic preparation entering the program (31%). The retention of students with some post secondary education is higher than students with no post secondary education exposure or high school preparation only.

Can identifying critical points for intervention minimize student attrition rates? A further study will be needed to conclude whether identifying critical points for intervention and actually implementing interventions could minimize student attrition rates. I can from this study identify critical points that would perhaps benefit from intervention. These include the pre entry period and the first year of study.

Braithwaite, Elzubeir & Stark (1994) found that age, sex, marital status and nationality were not significant factors influencing attrition. In contrast, Gupta (1991) found that men who were enrolled in allied health programs to be significantly more likely to be lost to attrition than were women. Overall in the health science cohorts studied, there were 25/132 (19%) men and 107/132 (81%) women (Figure 4). Of the students who left, 7/32 (22 %) were men and 25/32 (78%) were women (Figure 5). This shows that gender was not a significant factor influencing attrition in the health sciences program. This was confirmed in an interview with a former male student who did not feel in any way disadvantaged by gender.

Figure 4

Percentage of Male and Female Students Enrolled in the Health Sciences Program (1999-2001 class cohorts)

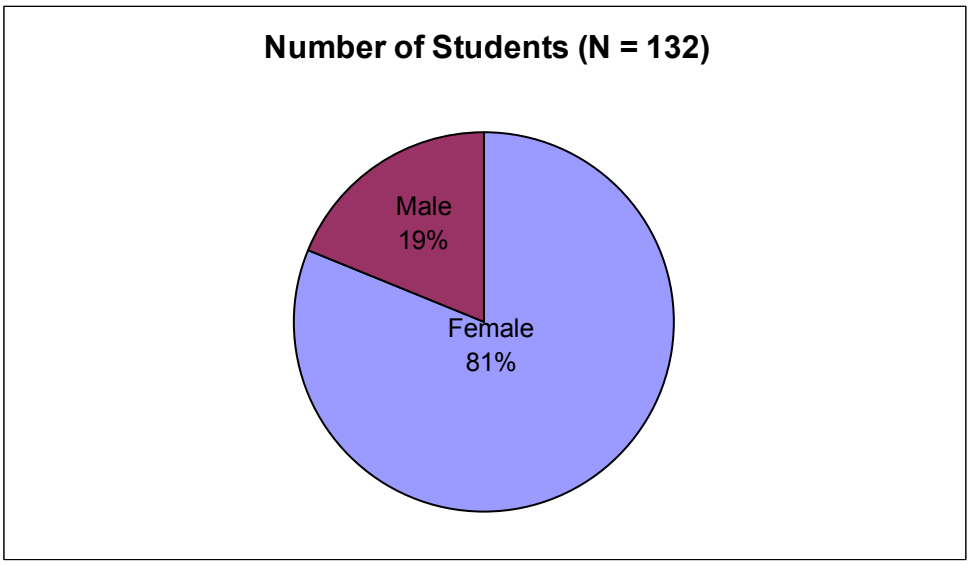
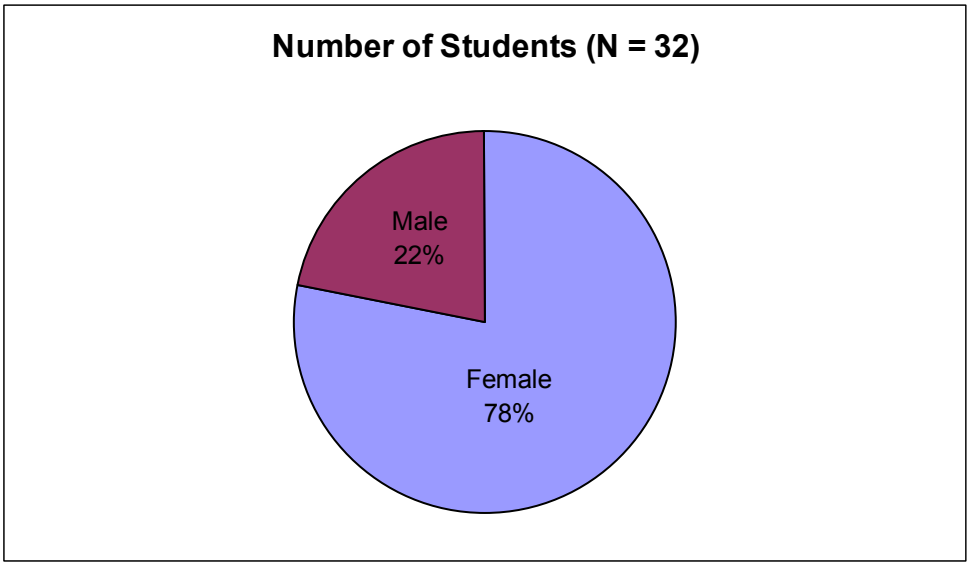


Figure 5

Percentage of Male and Female Students Who Left the Health Sciences Program (1999-2001 class cohorts)



Suggestions from Former Students- What Could Have Helped?

With hindsight, all former student participants offered insight and suggestions into how improvement or effective interventions may be developed to reduce student attrition. They shared ideas which they felt might have helped them and might help students persist in the Bachelor of Health Sciences program. These suggestions include the following: open house for applicants, learning from professionals in the field, improved recruitment/ admissions processes, mentoring and peer tutoring programs.

Open House for Applicants

One participant suggested an "open house for just applicants". "You might be able to save someone… having an open house."

This participant suggested that this may also be useful in screening applicants describing that "once you get your final ten or whatever for your program, it might not be a bad way to actually screen." This participant expounded on this by adding:

> You folks could gauge peoples' reactions attitudes and that. I mean even just for the staff to watch people. How they are going to react. You can tell a lot about a person by their body language in that situation. I am sure I looked like a cat in a dog pound. I was just twitching the whole time I was there. The open house would be a better read than just a letter.

Another participant suggested having "health professional fairs" for potential applicants. "I am sure everyone is busy but I am sure that people wouldn't mind spending a couple of hours or whatever like an actual therapist who is practicing to go sit at a booth and speak to people."

Exposure to actual health science professional working in the field was identified as important:

> It would have been a neat idea to actually meet with a RT (registered technologist) and see exactly what is involved. I think if they had an open house it might have been something you may have been able to make the choice. You could capture a kind of feel for whereas when you read it on paper.

Learning from Professionals in the Field

Lunch and learn.

One participant offered a suggestion "to maybe have a professional in that field speak to students" and described lunch and learns as a great way to learn.

> I think that lunch and learns are essential when it comes to helping people understand what they're doing. Bring your lunch and say like this person's been doing this for ten years. This is what I've done. Here are some examples. This is a case study. This is really cool. I did this after; this is how I got here. Like that kind of stuff would have been awesome to have because you get some insight into what the field is.

Another participant said, "it would have been a neat idea to actually meet with a RT (registered technologist) and see exactly what is involved."

Job Shadow

Another former student shared, "I think if I had of job shadowed beforehand that possibly I would have not entered to begin with." The participant said, "Maybe everyone should job shadow someone for a day." Although she recognized, "that is kind of difficult". "They are not as aware of confidentiality, especially before they are in a health care program".

She offered an alternate suggestion:

> To maybe have a professional in that field speak to students because I know just out of high school it was science or arts was basically all we were told. I think that maybe not just saying look on the website but actually getting people to talk to or having the option to make an appointment with someone who is working in the field.

The opportunity to interact with a professional in the field is important. By observing a successful role model in a particular field, students believe that they themselves can be successful (Scherer, Brodzinski & Wiebe, 1991).

Improved Recruitment/ Admissions Process

Some former students recognized some weaknesses in writing a letter of intent rather than interviewing applicants.

> You have to write the letter stating why you think you would be cut out for the course. I can write a mean essay you know what I mean? Edit it 25 times. Make yourself look awfully good. Well they obviously use it as a screening device but someone with decent English skills could do an awfully good job. Somebody with great skills may be in the room and might not be able to write it up. That is what I found.

Another participant supported the use of an interview as part of the applicant screening process. “I actually think that they should interview for these programs. She said, “I think they (potential applicants) would get a better idea of it; you know, what it is about. I have been through a Med School interview and it makes you think.”

Another student commented on the screening process:

> You need some way to find out that the person has an interest and is capable of doing it. You do have to look at certain marks but then after that you really almost need a job shadow. You have got to be there you have got to see it happen. Suppose it is a day volunteering. You should have to complete that and have a certified therapist sign it.

One former student who had a previous post secondary degree felt that “people should have a year of university first”. When I asked why she suggested this, she replied,

"I just think that not everyone is ready at 17 or 18 to go into the hospitals. I mean some of it is intimate issues you have to deal with right off the bat. I just don't think it would hurt to have one year."

This was supported by a former student who was straight out of high school who described her experience. "I felt like I needed a year of university, kind of a first year of basic stuff just to get used to. I think a first year of just basic, maybe Bachelor of Science would have been a good idea."

Increased Multi -Media Resources

One participant felt that "just more resources before applying might help students in the future". She had suggestions for "some sort of video educational things that are online or something, virtual tours or whatever. It could be on the Dal Health Sciences website". She did not think that reading material was enough. This participant felt that even a video or something like that which would show a video clip of a therapist working with a very ill patient "could make a difference".

Mentors

I asked what would have helped one participant stay in the program and she replied, "If we had a person that we could go to like a mentor system." Another former student felt that "having mentors is for every discipline". She described a mentor as someone who "could lead me down the right garden path". She explained what might have really helped her in the program:

> If someone came to me when I was in first year and had gone through the program and knew what they were doing and could relate to how I was feeling at that time. I think it would be pretty helpful. Saying, you know, take a deep breath.

> This is fine. This isn't the end of the road, like what you just saw there wasn't everything. There are all these other things, and I've gone through it; I know how you're feeling. I think actually just having someone at all there to support you, who you could call up and say listen, ' I've gone to this class', ' I've seen this', 'like where does this fit in?' We had lots of interesting courses. If I saw how they fit into what I was doing. I didn't really see how they connected, but now I see, obviously.

Wright, C. and Wright, S. (1987) describe a mentor as a veteran professional who takes an active interest in the career development of younger professionals. Mentors have been found to increase the success and productivity of mentees, as well as their career satisfaction (Wickman & Sjodin, 1997).

Peer Advice/ Peer Tutoring

One former student captured the importance of information that could come from other students:

> It might have been good to have had maybe like an afternoon or something where the other students came in and just talked to us, gave us direction on 'we have been here before'". "We know that workload is hard but perhaps this is what worked for us if you want to try this or if you need some extra help like somebody else that has already been through it, the exact program because it's not similar to other programs like just science programs that Dal offers. It is a little bit more intensive so if there had been some other students there to say this is what you are going to be. This is what to expect".
> "Maybe some more in depth on what the course load is actually going to be like. How much time they have actually allotted to studying and doing (assignments). Like the teacher can tell you how much you should be doing this, this and this but the students really know how much you should be allotting to everything. More (information) like their experiences, the things that have helped them, time management and organization because it is a program where you really have to have yourself put together or it's overwhelming."

This former student captured the importance of information that could come from other students:

> If it comes from a student and you really sit back and think ok well they actually know what they are talking about because they have been there before. (Teachers)

> have not actually had to been through this workload so they might not really know what the other classes are like. But the students know. They have been there and they know how things operate and how they have gotten themselves on track and how to organize yourself in the right ways.

Summary

This chapter presented findings of this study on student attrition including the five main themes suggested as factors influencing attrition: wrong career choice, unable to see career pathways, lack of support or connection with faculty, not ready for the demands of university, and stress. Participants' actual comments providing suggestions of what could help improve retention were also included. These suggestions will provide important input for the implications for practice and recommendations discussed in the final chapter.

CHAPTER 5

Discussion

Summary of Research

The primary aim of this study was to explore why students leave a health sciences program of study before completion. It was important for this study to hear from the students themselves who left the health sciences program as they experienced leaving firsthand. To understand the issue of student attrition experienced in the QEII/Dalhousie Health Sciences program, I explored the following research questions: what are the factors that influence attrition among BHSc students; when in the academic program is attrition most likely to occur; where are the critical points for intervention: and do pre-entry requirements affect academic outcomes?

This final chapter discusses the themes and issues derived from the study. It discusses implications for practice and focuses on various recommendations to be considered for health science education. Bringing conclusion to the thesis, possible directions for future research as well as the limitations of the study are discussed.

The participants in this study were individuals who entered their program of study in 1999, 2000 or 2001 and who subsequently left the BHSc program before completion. Through these in depth interviews the factors that influence attrition among BHSc students were explored. It is crucial to understand the factors that influence student attrition so that appropriate measures to improve can be developed and implemented (Murtaugh, Burns & Schuster, 1999).

What are the factors that influence attrition among BHSc students? The five themes that seemed to influence attrition among BHSc students which emerged from interviews included: wrong career choice, unable to see career pathways, lack of support or connection with faculty, not ready for the demands of university, and stress.

The first theme to emerge as a reason for leaving, the health sciences program was wrong career choice. Former students used available information and resource materials for applicants to select health science disciplines that they believed were most appropriate career choices for them, but their beliefs proved to be inaccurate after some time in the health science program (Coleman, 2002). Some former students felt the health science discipline, they had chosen was "not for them".

Dissatisfaction with career choice reflects uncertainty about career goals and unrealistic expectations (Holt, 2005). This uncertainty may be heightened in younger students as these students, more frequently than their older peers, report wrong choice of field of study (Trotter & Cove, 2005).

The connection between what students expect, and the reality of a program of study as well as stress at the beginning of the program, may help explain why the greatest attrition occurs in the first year of the students program (Jones & Johston, 1997). An applicant needs to be fully informed and knowledgeable about the profession or program before entering as a student into the program. Improved and accessible information needs to be in place for applicants to establish better awareness of the health sciences professional roles before entering an educational program.

Potential applicants may indeed need to have career information very early in their schooling. Students need to have career information at the junior high school level

in order to take the required high school level courses to prepare them for admission requirements of a health professional program (Etowa, Foster, Vukic, Wittstock & Youden, 2005). The opportunity to educate middle school students about the pre requisite requirements of health profession programs as well as detailed and accurate descriptions of the role of health professionals is required.

Prior experience or job shadowing opportunities in a hospital could improve student's confidence in career choice with respect to health professions (Holt, 2005). With confidentiality being a particular issue, job shadowing at some hospitals may not be possible for potential candidates. Available online videos and testimonials could be an alternate way to provide improvement in students' confidence in health science career choices.

The second theme to emerge as a reason for leaving was not seeing the career pathways. Students need to be made aware early in their program of study of the opportunities that are available in their chosen profession. Having this knowledge will allow students to set goals and to continue to be challenged both intellectually and in their clinical competencies unique to their scope of practice.

Health science professionals participate in lifelong learning, providing many opportunities for career advancement and personal growth satisfaction (Wilson & Cooley, 2006). The Dalhousie BHSc profile of a graduate of the Bachelor of Health Science states that they will have a strong foundation for academic and career advancement (Dalhousie University, School of Health Sciences, Curriculum Framework, 2001). Connecting learning and the work environment in an intentional way can help

provide health science students with a career pathway or career ladder (Wilson & Cooley, 2006).

Discipline specific faculty need to be connected and involved early in students' programs to provide guidance. Educators need to expose students to the variety of roles within a profession so that students can find their place (Pesut, 2003). Showing students the exciting opportunities that exist in their health sciences profession is important. Light recommends that faculty establish one-on–one mentorships with students (2001). To facilitate a mentoring process, all students could be provided with a contact person (another student, tutor or faculty member) early in their program of study (Higgins, 2005).

Lack of support or connection with faculty was the third theme identified from the interviews with former students. Research has shown that absence of faculty support is a factor in voluntary and involuntary withdrawal from health professions programs (McGregor, 2005). Some former health sciences students expressed that they lacked support or connectedness. They did not feel cared for by faculty. Shelton reports that students who withdraw from programs have significantly less perceived faculty support, in terms of both functional and psychological support, than students who persist in programs (2003). Lacking support or connectedness with faculty contributed to students' withdrawal in the health sciences program.

The fourth factor for influencing attrition that emerged was students who were not ready for university, especially what was expected of them academically. Prior to enrolling in a program, applicants should have information regarding the expected workload. Students with high school as their entrance requirement should be encouraged

to seek academic advising and to access student support services, as they have a higher risk for non completion than those students who have had some previous post secondary experience. By identifying students early who may be at risk allows for proactive intervention and referral to programs that will assist those students (Wong & Wong, 1999).

Strengthening first year efforts to orient new students to increase the likelihood of success is a key opportunity identified by Murtaugh et al. (1999). Addressing academic difficulties early in a program is key. Identifying individuals at risk for academic probation or dismissal early can allow for efforts to be made and measures to be implemented in order to increase student retention (Jewell & Riddle, 2005).

Knowledge of patterns in a student's progress through a university degree is invaluable to academic advisors. These patterns of student failures and academic probations can help target at risk students (Robinson, 2004). Jewell & Riddle suggest counseling, learning style assessment, tutoring, providing multimedia resources or assigning individual coursework as strategies to help students prevent poor academic performance (2005). As well, it supports the need for early intervention strategies to identify and address student stressors and academic challenges to prevent students leaving a program.

A first year of university study in general science and writing before entry into a BHSc program may be a valuable option for those students who are apprehensive about their academic readiness. With some post secondary knowledge and experience in the university setting, students may be better prepared for the rigors and workload of a health

sciences program. Having this additional academic background may allow some students to feel confident in their ability to successfully complete the program.

Students do benefit from student engagement; the more students study or practice a subject, the more they learn about it (Carini, Kuh, & Klein, 2006). Enquiry-based learning using real-life situations as a focus from exploration of issues may be a positive way to enhance the students experience and enhance retention (Taylor, 2005).

Getting involved in group activities is especially important for new students and Light (2001) encourages the creation of peer study groups. Successful peer tutoring programs may increase the number of successful student completions in health professional programs (Higgins, 2004).

Finally, stress contributes to student attrition. Academic advising plays an important part in helping students find the help they need. Students experiencing financial stress and difficulties should be referred to the university's financial support office for personalized assistance and support (Holt, 2005).

Students leave programs of study for a variety of reasons which makes the enhancement of retention more challenging (Hermanowicz, 2006). Despite this reality, with a more in depth knowledge of why students leave a program, corrective measures to reduce attrition can be put in place.

When in the academic program is attrition most likely to occur? Similar to the literature, this study's findings show that attrition is most likely to occur within the first year. Knowing that first year is a key or critical point in student retention can allow programs to develop strategic measures to focus on first year students.

Where are the critical points for intervention? Two points seem particularly critical in relation to students' success in a health science educational program; these include the pre entry time and the first year of the program.

Pre-entry to a program is crucial to ensure that students have an accurate understanding of the health science professions which is essential for success in a program. Information needs to be available to applicants so that they will be confident that they have chosen the right career choice for them before enrollment. Online videos, testimonials, frequently asked questions and access to health science professional societies and career information needs to be available for applicants.

The first year of the program is also a key time. In this initial year, it is important to orient and educate students in how to be successful in a program. Developing good study skills and time management skills at the beginning of an educational program is essential for students.

Faculty support and connection is also very important early in a program. Offering support and a positive educational climate that promotes interpersonal connectedness for students and faculty is vital. Faculty can also provide students with available career opportunities in the discipline showing students careers they may pursue upon completion of their education.

Do pre-entry requirements affect academic outcomes? Prior academic achievements (chemistry and biology) have been shown to predict academic success in health professional education (Wong & Wong, 1999). Ethington (1990) found prior achievement to have the strongest effect on student persistence in postsecondary education, to completion of the baccalaureate degree. Johnes & McNabb found that the

type of school attended prior to university may have an effect on completion of a university education (2004). Prior achievement must be considered in the admission of students to post secondary educational programs.

The findings in this study show that students who entered the health sciences program with a pre entry requirement of high school to be at greater risk for attrition than those students who had obtained some post secondary experience. There may be a lack of time available in a health science courses to provide background foundational knowledge in sciences. A high level of background knowledge may be necessary prior to entry into a program in order to give students an adequate understanding of medical sciences on which to base their practice (Wharrad, Chapple & Price, 2003). The Admissions Selection Committee might consider placing greater emphasis on the grades of biological sciences that applicants have studied together with other selection criteria (Wharrad, Chapple & Price, 2003).

Implications for Practice

The findings from this study provide many implications for practice. The information in this study can be used in the development of strategies to facilitate retention within health sciences programs.

Exit Interviews

Attrition of students from educational programs is costly to students, universities, professions and the general public; programs need to identify and rectify problem areas they encounter to improve attrition rates (White, Williams & Green, 1999). In order to do this effectively, data needs to be collected regularly and monitored for trends. Glossop

(2002) found great improvement in gathering information on students' leaving reasons with the introduction of an exit interview.

Qualitative exit interview data can be used as an evaluation strategy to ensure that improvements are making a difference in a program (Unrau, 2001). As faculty support in a program is crucial for student success, perceived faculty support could be one of the questions in exit interviews done at the time of withdrawal (Shelton, 2003).

Pre - Enrollment Information

From this research, the findings support the need for sufficient realistic information of the health Sciences professions prior to entering a health sciences program. Applicants who are interested in a health science profession need an accurate and thorough understanding of the role of the health science professional. This intervention may reduce the number of students who leave a health sciences program because their pre-enrollment perceptions are inconsistent with the realities of the profession. Pre-admission advising with a working health science professional may provide an applicant with real occupational experiences and additional clinical type information which may lead to a more thorough understanding of the responsibilities and scope of practice of the profession. Prior experience, job shadowing opportunities in a hospital or access to online resources would be additional advantages to gain understanding of the profession and the environment. Having this information may give applicants what they need to make a more informed decision on their career choice prior to entering the program of study.

Admissions

The Admissions Selection Committee might consider placing greater emphasis on biological sciences that applicants have studied as well as on any previous post secondary experience.

Based on the results of this study, I would recommend recruitment efforts be strengthened to attract more first and second year university applicants to the program. Recruiting first and second year university students who already have some experience with university level course work may potentially decrease attrition in the health sciences program which has precious limited enrollment numbers available. This would allow students to have experienced some basic science courses and also allow them time to develop time management, organization and study skills required to succeed in a demanding health sciences program.

White, Williams & Green (1999) suggest a more thorough selection process to enlist the best and most motivated students to the program. In addition to grades used in admission selection, qualitative data gathered through interviews and essays may provide additional useful information. In her study of effectiveness of student admission essays, Sadler found thematic differences in essays of non-completers. Non-completers tended to write about the health profession as external to themselves whereas completers described an internalization of the role (Sadler, 2003).

Questions for applicants on student admission essays should guide student responses to elicit motivation factors for choosing a health science career, including a personal experience with a health science professional either through personal healthcare experiences or through a family member or friend (Sadler, 2003). This might be helpful

in choosing students who are more likely to complete a program thus decreasing student attrition.

Interviews do not prevent high attrition rates but may reduce attrition that stems from personal reasons (Ehrenfeld & Tabak, 2000; Espen, Wright & Killion, 2006). Interviews require significant time to arrange, conduct and evaluate and may lack objectivity (Ehrenfeld & Tabak, 2000; Kudlas, 2006). An alternative to a face–to face interview is a written interview (Espen, Wright & Killion, 2006) which may take the form of an open ended questionnaire (Kudlas, 2006). Interviewing in person or a written interview may be worth considering in the admissions selection.

If a letter of intent asking applicants why they chose this professional program as their area of study is employed, looking for applicant experience with a health science professional and internalization of the role is important.

Student Engagement

Students benefit from student engagement; the more students study or practice a subject, the more they learn about it (Carini, Kuh, & Klein, 2006). Students who are actively engaged have greater academic success (Peter, 2005). Enquiry-based learning using real-life situations as a focus for exploration of issues may be a positive way to enhance students' experience and enhance retention (Taylor, 2005).

Faculty Development

Faculty who not only teach but mentor, nourish and inspire students create a supportive and positive environment for learning. Students who perceive faculty to care about them and help them to learn persist in programs (Peter, 2005). By providing learning opportunities that inspire in a climate of support, faculty contribute to students'

success. Caring for and striving to ensure that students become successful in their chosen programs and professions are important components of faculty responsibilities.

Creating a climate of supported faculty who in turn provide a climate of supported students is the ideal situation for an educational institution. Providing student retention strategy opportunities for faculty development may enhance student retention.

Faculty development may include exploring the "hidden curriculum" or the culture of the educational climate in which they teach (Pesut, 2003). Reflecting on their own practice, faculty may consider new ways to improve their support and connection with students.

Part of a faculty development initiative for improved retention rates may include an increased customer service focus, with students being the customers. This may provide a faculty attitude focused towards offering the best possible teaching and support for students.

Including faculty and staff in the goal of decreasing student attrition is essential. Setting an acceptable and appropriate student retention target for a department encourages faculty to sustain their focus on student attrition and engages faculty in efforts towards improvement.

Implications for Future Research

There is considerable research in the area of general post secondary student attrition and limited study in health science student attrition. As the findings in this study show, there is no one answer to why students leave a health sciences program. Additional qualitative studies of individuals who have left health sciences programs need to be

conducted to validate findings from this study and to increase the knowledge and understanding of the processes that affect student attrition in health professions.

With a discrepancy between health science pre-course perceptions and the actual educational experience, further research is needed to assist in determining the type of information that is required for career awareness and recruitment strategies in health science professions.

Stewart (1990) found a low attrition rate of 2.5 % for health professional schools at Dalhousie University. This very low attrition rate was not consistent with the attrition rate studied in the School of Health Sciences, 25%. With increased awareness of the factors contributing to attrition in the Health Sciences program, it will be important to identify if interventions minimize future student attrition rates.

Although there is attrition in health science programs, there are many more who succeed. The qualities and profiles of those students who persist need to be studied to see how they differ from those who leave. This may have implications for recruitment and may be valuable information for Admissions Committees making decisions the best choice for offers of admission among many applicants.

Related to the influence of role models and mentors, it would be useful to examine the influence of role models and mentors on career choice and persistence in health sciences programs. Currently, a Dalhousie University Health Science faculty member is implementing a mentorship program matching fourth year health science students with first year students. This new initiative may provide valuable linkages for students including awareness of health science career pathways. This initiative may indeed have an effect on future student persistence in the health sciences program.

To gain a different perspective, faculty, academic advisors and other students who stay in a health sciences program could be interviewed to identify their thoughts on student attrition.

Limitations of the Study

As Rossman and Rallis (2003) depict, describing the limitations of a study acknowledges the partial and tentative nature of research. A limitation of this study is reflected in the number of participants who participated in the interviews. Seven of a possible thirty two former students agreed to participate in an interview. This accounts for approximately 22 % of the total sample size. Generalizability of the findings of this study is compromised because not everyone from the sample of former students participated in the study. Those former students who did participate may have had particular characteristics that differ from those who did not.

Furthermore the sample is taken from one health profession's school in one university. While the study is highly relevant to a health science program in the Maritime region of Canada context, generalization of the findings to other health professional student populations may be limited.

Given the retrospective nature of the interview (requesting participants to recall student experiences and why they decided to leave a BHSc program) participants may have remembered incorrectly or incompletely. With the passage of time, a study may produce invalid generalizations (Higgins, 2005).

The topic of student attrition is complex. Rossman & Rallis remind us that research findings are tentative and conditional and knowledge is elusive and approximate

(2003). Nonetheless, I believe that the snapshot provided in this study has the potential to contribute to the literature on student attrition, in particular student attrition in health professional education.

Conclusion

Despite the current emphasis placed on recruitment and retention of health science professionals, little research has focused on the education and retention of health sciences students. The findings here will help fill the void in the health sciences education student retention literature.

Using a qualitative approach, this research has highlighted reasons why students leave a health sciences program of study. In light of the human resource shortages that currently affect the health science professions, it is important that efforts are made to retain students in these programs. Heightening awareness of the professions and the issues related to attrition will provide opportunities to improve retention of students.

As Tinto (2006) describes, “we have traveled a long way since we first began studying the issue of student retention”. It is hoped that this research may provide further information and a better understanding of student attrition in health sciences and that with institutional commitment, strategies can be put in place to reduce student attrition in health professional education.

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Appendix A

Participant's Letter of Information and Study Design

Date_____
Dear _____:

My name is Carol Gillis and I am a candidate in the Master of Arts in Education degree at Mount Saint Vincent University. My thesis is an exploration into student attrition in the Dalhousie BHSc program, specifically the reasons why students leave the program.

Focus of the Research
There is a body of literature addressing the issue of student attrition in postsecondary education. There are many reasons for students leaving a program of study. The purpose of this qualitative study is to understand the factors that influence attrition among Dalhousie BHSc students.

How the Research will be Conducted
Participation in this study is voluntary and you may withdraw at any time. You will be invited to participate in a single one on one in depth interview of approximately 45 minutes conducted by Carol Gillis. The interview will be audio-taped and participants will be asked to respond to open ended questions in order to gain detailed information related to their reasons for leaving the program. Views and opinions regarding supports and barriers to success in the program will be explored. This method will allow me as the researcher to investigate the study questions: What are the factors that influence attrition among the BHSc students? When in the academic program is attrition most likely to occur? Can identifying critical points for intervention minimize student attrition rates? Do pre-entry requirements affect academic outcomes?

The information you provide will help in the understanding of the reasons why students leave the BHSc program. I want to use the research to inform others and help enhance future students' success in the program by recommending retention strategies to reduce attrition.

Potential Risks and Benefits
The interview will be conversational in style. You may feel that the subject area (leaving a program of study) is somewhat emotional and this may provoke stress, anxiety or feelings of sadness. If this happens to you I can stop the interview. I am a trained health professional who has experience dealing with people in difficult and stressful situations. I may be able to offer you suggestions on services that could assist you.

You may indeed feel that the experience is positive. In talking about your experience, the discussion may help relieve any negative emotional feelings and you may even feel supported. You may appreciate the opportunity to tell your story and may feel positive about your contribution to helping future students.

Confidentiality
Your participation in this study will be anonymous and confidential. All information will be coded and only identified by a number. The researcher is the only one who will have access to the taped interview. You may choose not to answer any question and you are not required to share your reason with the researcher.

Tapes, transcriptions and data will be kept in a locked filing cabinet in the researcher's office. The data will be kept for five years post any publication by the researcher and then destroyed. Any report of the study will not identify individuals.

If you would be willing to participate in this research, I would ask you to please read the Consent to Participate Form and seek clarification on any points. Your signature on these forms will indicate your informed consent to participate and be voice recorded in the study.

Sincerely,

Carol Gillis

Appendix B

Consent to Participate Form

I have read the Letter of Information and Study Design. I have been given the opportunity to discuss it and my questions have been answered to my satisfaction. I understand that the research project will explore the reasons for BHSc students leaving their program of study. I understand that the research is being conducted by Carol Gillis, a Master of Arts in Education student and that this particular research will contribute to a thesis being supervised by Patricia De Méo, Ph.D., Director of Academic Success Services, Dalhousie University. The researcher may be reached at the following phone number ([redacted] or email [redacted]

As a participant in this research I have been informed that I have particular personal rights, outlined here:

1. I understand that I have the right to confidentiality with regard to interviews.
2. I understand that I have the right to anonymity. My name will not appear anywhere in relation to the research. A pseudonym may be used.
3. I am aware that participation in the study is voluntary. I have the right to withdraw from this project at any time and for any reason. I do not have to share my reason(s) with the researcher.
4. I have the right to refuse to answer any questions asked of me for any reason. I do not have to share my reason(s) with the researcher.
5. I am aware that I have the right to contact Patricia De Méo, Ph.D. at ([redacted] or by email at [redacted] to inquire about the research.
6. In the event that I have any difficulties with, or wish to voice concern about, any aspect of my participation in this study, I may contact the Chair of the University Research Ethics Board (UREB) c/o MSVU Research and International Office, at (902) 457-6350 or via e-mail at research@msvu.ca or Patricia Lindley, Director of Dalhouse University's Office of Human Research Ethics Administration, at [redacted], or via e-mail at [redacted]
7. I am aware that participation will involve a single one on one in depth interview of approximately 45 minutes conducted by Carol Gillis.
8. I am aware that the individual interview will be audio-taped, though I may choose not to have it audio-taped. Audio-tapes and data will be kept for five years post any publication by the researcher then destroyed.
9. I will receive a copy of this consent form.
10. I may choose to receive a copy of a summary of the report when it is completed. Carol Gillis will make a reasonable effort to contact me in order to supply me with this summary.

I consent to participate in the study by taking part in one interview: Yes [ ] No [ ]

I consent to being directly quoted in the research. Any reference to me will be by pseudonym only. Yes [ ] No [ ]

I choose to have a copy of the summary of the report when it is completed mailed to me: Yes [ ] No [ ]
Mailing address: _____
I choose to have a copy of the summary of the report when it is completed emailed to me: Yes [ ] No [ ]
Email address: _____

Name of participant (printed):_____

Signature of Participant: _____ Date: _____

Signature of Researcher: _____ Date: _____

I consent to the audio-taping of the interview: Yes [ ] No [ ]

Name of participant (printed):_____

Signature of Participant: _____ Date: _____

Signature of Researcher: _____ Date: _____

Appendix C
Interview Guide

The interviews will follow a semi structured format, although, I do hope to create a conversational style approach. More details will be sought using prompts, etc. The following are some particular questions that I intend to ask participants:

I. Introductory Information

1. What year did you start the BHSc program?
2. What discipline were you enrolled in?

II. Leaving

1. When did you think about leaving the program?
2. When did you leave the program?
3. Why did you leave? (was leaving voluntary or nonvoluntary)?
4. What do you feel contributed to your leaving?
5. Could you describe your experience as a student in this program?
6. Can you describe supports? (academic – what helped you learn? and social- what were your social connections) barriers? (academic –what made your learning more challenging? and social- were social connections missing)

III. History/ Background

1. Tell me about yourself. Where are you from? What is your age? Did you experience any advantages or disadvantages that you associate with your culture, language or ethnic heritage? What were your parents' highest levels of education?
2. What educational background did you have before entering the program? What was your basis of admission? (high school, internal transfer, previous academic work, external transfer)
3. How did you find out about the program?
4. Why did you choose this particular program?

IV. Prevention

1. Did you have an accurate understanding about the program before you began?
2. Was there anything that you feel could have been done that might have allowed you to stay in the program? Anything that would have helped?
3. Were you treated equitably?
4. Did you get to know any faculty member(s) in your first year?
5. Were you able to connect with other students in your first year?
6. Did you feel that you mattered?

V. Other

1. Is there something I haven't asked that you would like included in this particular interview?

Appendix D
Letter of Permission from Director School of Health Sciences

Ms. Carol Gillis
Lecturer
School of Health Sciences
Dalhousie University
617-Bethune
1278 Tower Rd.
Halifax, NS
B3H 2Y9

DALHOUSIE UNIVERSITY
Inspiring Minds
Faculty of Health Professions

February 16, 2006

Dear Ms. Gillis: Carol

Thank you for your note requesting participation of the School of Health Sciences in your thesis study *Student Attrition in a BHSc Program: Why do Students Leave?* On behalf of the School I am pleased to extend our cooperation in helping you to compete your research.

As I understand your request this will entail, 1) clerical assistance in contacting students who have left the program prior to graduating in order to ascertain their willingness to be contacted by the principal investigator; and 2) providing anonymatized data regarding current attrition rates for each professional stream in aggregate and as categorized as voluntary and involuntary. In addition to this we are prepared to offer limited clerical and logistical support through the faculty support secretary (and others) as required and approved by the office administrator. I am also open to discussing other ways in which the School can offer assistance as the study progresses to help ensure the success of the project within the methodological and ethical parameters of the research.

The School's participation will of course be contingent on the study receiving all required Research Ethics Board approvals and continued adherence to these ethical standards throughout the conduct of the research. To this end I request that a copy of each ethics approval notice be forwarded to this office for filing.

Again, I want to thank you for including the School in this valuable research, and we look forward to receiving a summary of your findings upon completion of the project.

Kind Regards,

[redacted]

John Hubert, PhD(c)
Assistant Professor
and Director

Appendix E
MSVU Ethics Review Committee Permission

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University Research Ethics Board

UNIVERSITY RESEARCH ETHICS BOARD

Certificate of Research Ethics Approval

Title of project: *Student Attrition in a BHSc Program: Why do Students Leave?*

Researcher(s): Carol Gillis
Supervisor (if applicable): Dr. Patricia De Meo
Co-Investigators: n/a

File #: 2005-55

The University Research Ethics Board (UREB) has reviewed the above named proposal and confirms that it respects the *Tri-Council Policy Statement* as outlined in the *MSVU Policies and Procedures: Ethics Review of Research Involving Humans* regarding the ethics of research involving human participants.

This certificate of approval is valid one year from the date of issue. A final report is required within 30 days of expiry. Researchers are reminded that any changes to approved protocol must be reviewed and approved by the UREB prior to their implementation.

[redacted]
Dr. Deborah Norris, Acting Chair
University Research Ethics Board (UREB)

May 9, 2006
Effective Date

[Expires: May 8, 2007]

Renewal is contingent upon submission to the UREB of a written request for renewal accompanied by a satisfactory annual ethics report thirty days prior to expiry.

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