

**Barriers to Timely Completion  
of the Nursing Education  
Program of Saskatchewan  
(NEPS)**

**A thesis submitted to the  
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in the College of Nursing  
University of Saskatchewan,  
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## Approval

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## Abstract

Timely student completion of undergraduate nursing programs in order to produce practicing registered nurses (RNs) is of concern to students, faculty, governments, employers, and health care consumers across Canada. The shortage of health care professionals in Saskatchewan, particularly in nursing, is an immediate and growing concern. The average age of RNs in Saskatchewan is 44.9 years (CIHI, 2003). With the inevitability of retirement of many RNs, recruitment and retention of new nurses is critical to the quality of health care in this province. The looming shortage creates a further challenge for key stakeholders in academia, government, and health regions who hold a vested interest in the retention of nurses educated in Saskatchewan. Currently, little is known about the impact of barriers to timely completion of students in the Nursing Education Program of Saskatchewan (NEPS). Considering the aging nursing workforce, frequent, substantial numbers of nursing graduates are important to meet the demand for health human resources in the province of Saskatchewan (SRNA, 2004).

The purpose of this research was to conduct a secondary analysis of the NEPS Database including exit surveys completed by 363 graduates over a three-year period, 2002-2003; 2003-2004; 2004-2005. Group membership was determined by splitting data between graduates who had taken four academic years (September to April) or less to complete the program (timely completers) and those who took longer than four academic years (delayed completers). Objectives were to examine the differences between the two aforementioned groups in terms of the following variables: employment hours, financial burden, student loan status, dollar amount of bursaries

awarded during the NEPS, primary responsibility the year prior to the NEPS, significant life changes during the NEPS, Aboriginal ancestry and core course averages.

Results show that 86% of females in the study group completed the NEPS in a timely manner compared with 58% of their male counterparts. There was a trend of higher employment hours per week in every year of the NEPS for delayed completers. However, this difference approached statistical significance only for students in year one,  $t(360) = 1.81, p < .07$ . Fifty percent of delayed completers had three or more significant life changes during the NEPS. Seventy-five percent of timely completers had two or fewer significant life changes. Students require various forms of support to ensure timely completion of the NEPS. It is anticipated that results of this research will inform policy decisions to facilitate timely completion of the NEPS.

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## Dedication

This thesis is dedicated to my parents Vic and Gail Anderson. Mom and Dad, I value the education that you have unquestioningly supported in various ways over the years. More importantly, I value what you provided in the foundation of experiences that shaped my beliefs and values as I grew up. The positive influence that you have had in my life has allowed me to see the opportunities in every life experience. You have always believed in me and never doubted my abilities, even when I have not been sure of myself.

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## CHAPTER ONE

### Introduction

#### *1.1 Introduction to the Problem*

The province of Saskatchewan currently faces a shortage of registered nurses (RN's). According to the Saskatchewan Registered Nurses Association (SRNA, 2004), increased enrollment of undergraduate students is an important action needed for the replacement of nurses who are approaching retirement. Demographic data indicate that the average age of RNs in Saskatchewan in 2002 was 44.9 years (CIHI, 2003). Similar results were found for RNs who practice in rural and remote areas of Manitoba and Saskatchewan; the largest proportion of rural RNs were those between the ages of 45 and 54 (Stewart et al, 2005). It is evident that the aging nursing workforce has an impact on the nursing shortage, thus increasing the importance of aggressive strategies to meet the nursing human resource demands in the province.

When the Nursing Education Program of Saskatchewan (NEPS) began in 1996, the seat capacity was 180. The Saskatchewan government's targeted funding supported incremental increases in subsequent years, reaching a provincial total admission quota of 400 students across three program sites in 2005. This augmentation of seats was an important step in completing recommendations related to developing local talent as a health human resource strategy set out in the Action Plan for Saskatchewan Health (Saskatchewan Health, 2001). However, increasing the number of undergraduate nursing education seats is not, in and of itself, sufficient to ensure an increased number

of graduates. Stakeholders such as employers, educators and the government must be interested in the academic success of those who enter the NEPS, leading to timely completion of the program.

### *1.2 Statement of the Problem*

Recent efforts to build capacity in the NEPS program undoubtedly will contribute to increased numbers at graduation. However, evidence in the literature demonstrates that students face various burdens throughout the course of their education that have the potential to contribute to the decision to pursue studies part-time or even leave their program altogether (Bolan & Grainger, 2003; Braxton, Bray & Berger, 2000; Bray, Braxton & Sullivan, 1999; Deary, Watson, & Hogston, 2003; Daugherty & Lane, 1999; Dunwoody & Frank, 1995; Harvey & McMurray, 1997; Johnson, 1994; Kirby & Sharpe, 2001; Mohr, Eiche, & Sedlacek, 1998; Rummel, Acton, Costello, & Pielow, 1999). Some of the barriers identified in the literature include lack of supportive resources by the institution, stress, burnout, social alienation, financial burden, family commitments and responsibilities outside of school, culturally diverse backgrounds and employment (Aber & Arathuzik, 1996; Bolan & Grainger, 2003; Braxton et al, 2000; Bray et al, 1999; Deary et al, 2003; Glossop, 2002; Jeffreys 2002; Johnson, 1994; Labun, 2002; Lee, Mawdsley & Rangeley, 1999). While individual students cope differently with these barriers, one or more of these may contribute to delaying graduation or causing the student to leave their program.

There are consequences of not addressing the issue of barriers to timely completion for students, the health care system and the education system. Students who do not complete the NEPS in a timely fashion may experience frustration, financial

hardships and decreased morale. The health care system will experience a smaller than expected supply of RN's coming out of the program on an annual basis. Frequent, substantial numbers of graduating nurses are important to the provincial health regions to meet the demand for human resources (Last & Fulbrook, 2003; SRNA, 2004). Saskatchewan Health (2005) agrees, "While the total capacity of a program is one important aspect, the number of actual graduates is a more important factor" (p. 25). When there is not an adequate volume of graduates to meet the demands in the health care system, staffing levels become low, nurses work in understaffed conditions, and the overall quality of health care for the people of Saskatchewan suffers (Canadian Nurses Advisory Committee [CNAC], 2001). In addition, it is important to note that a lack of nursing resources is linked with longer hospital stays, and fiscal cutbacks to nursing staffs create negative effects for both patients and the system (Canadian Health Services Research Foundation [CHSRF], 2003). Ensuring timely completion of the NEPS, leading to entry into the workforce as a RN, is an important strategy for stabilizing the nursing workforce within the Saskatchewan context.

Although post-secondary students pay tuition, the provincial and federal governments fund the greater proportion of post-secondary education (Saskatchewan Post-Secondary Education and Skills Training, 1996). Students who take more time to complete their educational program place a greater burden on the system in terms of government-funded education. This leads to a greater economic burden for both the provincial and federal government as well as the educational institution (Wells, 2003). While these students continue to be accommodated, their delay in progressing through the program causes them to continue occupying seats in the program that would



otherwise be available to other students who could complete the program in a timely manner. High numbers of less than full-time students in the program negatively affects the projections for graduation within a four- year timeframe. As well, it may be noted that the sooner students graduate, the sooner they improve their quality of life related to their own household income. There is evidence to suggest that there is a link between quality of life and attributes of physical, social and economic environments. Household finances are cited as one of the 12 key domains stemming from the three attributes linked to quality of life for Canadians (Government of Canada, 2004). Additionally, graduates become contributing members of society in terms of the tax base and work force.

### *1.3 Purpose of the Study*

The purpose of this study was to examine existing data from those who have graduated from the NEPS as contained in the NEPS Data Base (NEPS, 2005). The Data Base, managed by the College of Nursing, is located in Saskatoon at the University of Saskatchewan. The existing data include the NEPS exit surveys (Appendix A) from 2002-2003, 2003-2004 and 2004-2005 graduates, the NEPS two-year follow-up surveys from 2000, 2001, 2002, 2003 graduates, as well as the first five-year follow-up survey of graduates from 2000. In addition, the database also includes information related to courses taken, student grades, contact information, previous education and other demographic data. For the purpose of this research, data from the NEPS exit surveys and course grades for graduates from 2002-2003, 2003-2004, and 2004-2005 were utilized. Comparison of the differences between those who graduated in four years or less (timely completers) and those who took longer (delayed completers) included: 1) specific

employment work hours while enrolled in the NEPS, 2) student loan status, 3) dollar amount of bursaries and scholarships awarded while in the NEPS, 4) major activity the year prior to beginning the NEPS, 5) significant life changes during the NEPS, 6) Aboriginal ancestry 7) The NEPS core course averages. The study seeks to determine whether statistically significant differences exist between the two groups related to these variables.

#### *1.4 Need for the Study (Relevance and Significance)*

Although literature exists relating to attrition of students from nursing programs, no studies were found that compared graduates in terms of barriers to timely completion. In addition, much of the literature on attrition dates prior to 1999. Most existing studies do not focus on nursing. However, it is recognized that there is growing research related to attrition from nursing programs. A potential explanation of this may be the current shortage of nurses, creating a high interest in success of students (Canadian Nurses Association [CNA], 2003). However, this research is often in the form of American doctoral dissertations that are costly to obtain. Canadian research exists, although there is little from western Canadian schools of nursing. No published research studies were found related to barriers facing undergraduate nursing students in Saskatchewan.

Addressing the research questions in the proposed study will be relevant to stakeholders such as employers in the health regions, government, nursing faculty, and students. Results have the potential to drive policy related to student work hours and the admission process in the NEPS, government support, and employer retention strategies. The member organizations of the Canadian Association of Schools of Nursing (CASN) have expressed keen interest in the NEPS Data Base, recognizing the contribution these

data could make to decision making for other Canadian nursing programs. It is anticipated that this research will add value leading to evidence-based policy in areas that will directly affect the registered nurse human resource capacity in this province. Registered nurses are the single largest body of health care professionals. The timely production of RN's is critical to maintaining the quality of health care for the people of Saskatchewan.

## CHAPTER TWO

### Background

#### *2.1 Literature Review*

The majority of literature related to post-secondary student barriers to success focuses on attrition and is found in disciplines other than nursing. When comparing the concepts of attrition and persistence, attrition from post-secondary education remains the better-explored concept of the two. The literature explored for the current study includes both of these key concepts to ensure a more comprehensive examination of what researchers have found. Additionally, student employment, financial status, personal responsibilities, Aboriginal students, grades and knowledge translation were relevant concepts explored in the literature for the purpose of this study. Literature from within nursing as well as other fields has been included.

Attrition was not explored within the current study. The method was a secondary analysis of existing data from the NEPS Database and exit surveys. These surveys were administered solely to students who graduated. However, the barriers that present challenges and cause students to lengthen their time in the NEPS are likely similar to barriers that cause students to eventually leave a program without completing. The examination of these variables remains important as they may be viewed as indicators not only for delayed completion, but for attrition as well.

*2.1.1 Questions and methods.* The topics of attrition from and persistence in post-secondary programs have been studied from a variety of perspectives. The purpose

statements from the articles are varied. A common approach is the examination of graduates versus dropouts (Daugherty & Lane, 1999; Harvey & McMurray, 1997; Johnson, 1994; Mohr et al, 1998). Comparison studies such as these provide insight into differences between those who persist and those who leave. Bolan and Grainger (2003), Harvey and McMurray (1997), along with Johnson (1994) have solution focused approaches that motivate their studies. Specifically, they seek to identify strategies to reduce attrition.

Another common approach in the literature is to study stress perceptions of those in colleges and universities (Bray et al, 1999; Daugherty & Lane, 1999; Deary et al, 2003; O'Connor & Bevil, 1996; Sawatzky, 1998; Timmins & Kaliszer, 2002). Stress in post-secondary programs is common and examination of it is imperative to the phenomenon of attrition. The study of faculty and student perceptions of the impact that faculty have on attrition is another approach to the problem (Braxton et al, 2000; Dunwoody & Frank, 1995). Students are generally the sample population in studies regarding attrition, so the inclusion of faculty perceptions and influences are important perspectives. The literature acknowledges some nursing-specific areas as sources of stress. Hours spent in employment (O'Connor & Bevil, 1996), and academic and clinical experiences are noted in the literature as stressful to nursing students (Sawatzky, 1998; Timmins & Kaliszer, 2002). Sawatzky (1998) found that the four major areas of stress that have emerged in the literature over time are personal, academic, clinical experiences, and social. However, Sawatzky further notes that while key areas of stress have been identified, creation of supports for students continue to be limited in nursing education.

The study of academic ability is another common thread in both attrition and persistence research (Bolan & Grainger, 2003; Brennan, Best & Small, 1996; Daugherty & Lane, 1999; Johnson, 1994; Kirby & Sharpe, 2001; Rummel et al, 1999; Wharrad, Chapple & Price, 2003). High secondary school marks, or grade point averages (GPA's), have been long standing indicators of student likelihood to persist versus discontinue in post-secondary programs, thus providing the common foundation for acceptance to most post-secondary institutions. Additionally, some studies examine marks while in university as an indicator of success and likelihood to persist (Aber & Arathuzik, 1996; Andrew, 1998; Bolan & Grainger, 2003; Brennan et al, 1996; Byrd, Garza, Nieswiadomy, 1999; Kahn et al, 2002; O'Connor & Bevil, 1996; Rummel et al, 1999; Wharrad et al, 2003). Grades as academic predictors are important for accepting students into programs, and thus informing the process for reducing attrition and increasing persistence (Daugherty & Lane, 1999; Rummel et al, 1999). More of the literature focused on examining the connection between success and grade point averages while in college or university rather than the influence of high school marks on academic success.

*2.1.2 Sample.* Various approaches have been taken when acquiring samples for the studies reported in the literature. There is agreement in the research literature that a high rate of attrition occurs in the first year of college or university (Bolan & Grainger, 2003; Braxton et al, 2000; Bray et al, 1999; Daugherty & Lane, 1999; Kahn et al, 2002; Kirby & Sharpe, 2001). Consequently, the most common sample population is first year students in post-secondary programs (Andrew, 1998; Bolan & Grainger, 2003; Braxton et al, 2000; Bray et al, 1999; Daugherty & Lane, 1999; Kahn et al, 2002; Kirby &

Sharpe, 2001; Metzner, Lauer & Rajewski, 2003). Five studies included students who had already left their programs either by attrition or graduation (Harvey & McMurray, 1997; Johnson, 1994; Mohr et al, 1998; Rummel et al, 1999; Wharrad et al, 2003), and thirteen studies included continuing students (Aber & Arathuzik, 1996; Andrew, 1998; Brennan, Best & Small, 1996; Deary et al, 2003; Dunwoody & Frank, 1995; Harvey & McMurray, 1997; Jeffreys, 2002; Johnson, 1994; Last & Fulbrook, 2003; Metzner et al; Mohr et al, 1998; O'Connor & Bevil, 1996; Timmins & Kaliszer, 2002) Along with continuing students, two studies included faculty in their sample (Dunwoody & Frank; Last & Fulbrook) and two studies utilized student records and existing data (Byrd et al, 1999; Glossop, 2002). The inclusion of faculty demonstrates the recognition by universities of the need to investigate reasons for attrition and persistence within post-secondary settings. Dunwoody and Frank (1995) demonstrated that professors were often unaware of reasons for attrition due to a lack of communication on withdrawal forms. Students were not required to declare a reason for withdrawal, thus professors were unaware of why students were leaving. This study illustrates the importance of faculty-student communication to address issues of attrition, as changes to promote retention are difficult to make when the problems facing students remain unknown.

*2.1.3 Design.* Most of the research studies reviewed were quantitative. There were nine studies that were descriptive correlational (Bolan & Grainger, 2003; Braxton et al, 2000; Bray et al, 1999; Daugherty & Lane, 1999; Deary et al, 2003; Dunwoody & Frank, 1995; Johnson, 1994; O'Connor & Bevil, 1996; Timmins & Kaliszer, 2002). Three studies utilized mixed methods research (Kirby & Sharpe, 2001; Last & Fulbrook, 2003; Mohr et al, 1998). Wells (2003) and Sawatzky (1998) each suggest their own

framework and approach to studying aspects of attrition. The concepts of both attrition and persistence contain many variables and are clearly related topics. The findings from descriptive correlational studies are important because they examine and illustrate such relationships.

Common design elements included conducting surveys or questionnaires either in person or over the phone (Bolan & Grainger, 2003; Braxton et al, 2000; Bray et al, 1999; Daugherty & Lane, 1999; Deary et al, 2003; Dunwoody & Frank, 1995; Harvey & McMurray, 1997; Johnson, 1994; Kirby & Sharpe, 2001; Last & Fulbrook, 2003; Mohr et al 1998; O'Connor & Bevil, 1996; Timmins & Kaliszer, 2002). Research questions were often in two categories: one dealing with academic factors such as high school or post secondary grade point averages, and the other dealing with social factors that may influence student decisions to leave their program.

It appears to be a design strength to compare those who have left to continuing students. Comparing and contrasting these two groups allows for differences to emerge between the characteristics of each group. For example, in the study by Mohr et al (1998), it was found that there is an important link between academic advising and attrition. Studies on freshmen have found that this is not important, but with students who had persisted with more than 86 credits, results were different. Mohr et al were able to compare the perceptions of this variable between those who had left and those who were continuing. Illustrating differences such as these demonstrates strength in design of their study in that comparisons between students who are at different places in their program are reflected, not just differences between successful students and those who discontinue their program of study.



*2.1.4 Instrumentation.* Upon review of the research on attrition and persistence, it is evident that instrumentation is varied and somewhat inconsistent. None of the studies identified an internationally recognized tool for studying these concepts. While some researchers study stress in students utilizing various tools and methods (Bray et al, 1999, Daugherty & Lane, 1999; Deary et al, 2003, Last & Fulbrook, 2003; O'Connor & Bevil, 1996; Timmins & Kaliszer, 2002), others study personality factors (Deary et al; Kahn, et al, 2002). Some researchers developed their own survey for their particular sample population. Attrition and persistence are subjective issues with a wide variety of potentially influencing factors that may make the development of an internationally recognized tool challenging. However, it is difficult to determine internal consistency without a statistical score such as a Cronbach's alpha. One of the studies that addressed internal consistency was that of Daugherty and Lane (1999). They stated that the Lazarus Stress questionnaire (Folkman & Lazarus, 1985) appears internally consistent. However, they do not provide a Cronbach's alpha for their own study. There are benefits for researchers in developing their own tools, such as creating specific questions for their context. Conversely, there are also drawbacks. Researchers may develop the tool in a manner that creates a bias in the questioning and subsequently influences the results. As well, the tool may be developed in such a way that the researchers purposefully gain the results they are seeking (Burns & Grove, 2005).

## *2.2 Themes and Inconsistencies*

*2.2.1 Attrition.* In the studies that reported statistical information about student attrition, results vary. The students studied in the various research projects included those from arts, engineering, psychology, nursing, and military schools. Overall,

attrition in the first year of post-secondary military college was the highest at a fifty-six percent rate of first year leavers (Daugherty & Lane, 1999). There was a 45% percent attrition rate among engineering technology students within the first semester (Kirby & Sharpe, 2001) and 40.4% attrition rate for students in various programs from a large western Canadian university in first year (Johnson, 1994). However, Mohr et al (1998) found that 47% of students in various programs left after obtaining 86 credit units. Other studies indicate that 21% of nursing students had left by second year (Bolan & Grainger, 2003), while 30.3% of students in various programs left in second year, 17.7% in third year, and 11.6% in fourth year (Johnson, 1994). The variation of findings may relate to the difficulty of particular post-secondary programs, demographics of the sample, and other contributing factors. However, it is apparent that attrition during first year at all universities and colleges in these particular studies is high. As well, universities must remain aware that high rates of attrition can occur when adequate academic advising and supports are not in place in later years of post-secondary school (Mohr et al, 1998).

*2.2.2 Persistence.* For the purposes of the current study, it was relevant to conduct a search of the term persistence considering the entire population of the current study did in fact persist and complete the NEPS. When combining a search of nursing students and persistence, it was interesting to find that the majority of hits in CINAHL were doctoral dissertations. While abstracts were reviewed, the researcher did not obtain these documents; the articles that were retrieved containing the key word ‘persistence’ were from psychology rather than nursing literature. The authors of the persistence research tended to have a variety of foci. For example, while Bolan and Grainger (2003) primarily focused on marks, Metzner, Lauer, and Rajecki (2003) and Johnson (1994)

examined marks as one of many other factors that they considered to influence persistence. Findings included that lower levels of persistence were seen among those who entered psychology directly from high school (Metzner et al, 2003) and generally students who did not persist had lower grade 12 averages (Johnson, 1994). Persistence may be seen as a broader term requiring various approaches to studying it. Metzner et al, (2003) reported their findings in terms of those who persisted versus those who did not. Therefore, it is evident in the literature that persistence may be considered as a term opposite to attrition, used to emphasize those who finished post-secondary school rather than those who left.

2.2.3 *Stress.* Bolan and Grainger (2003), Bray et al (1999), Daugherty and Lane (1999), Deary et al (2003), and Last and Fulbrook (2003) all studied stress but there were differences in their findings because none of these authors used a common tool. Bray et al (1999) found that the ability to use coping strategies, such as active coping, acceptance, denial, growth and behavioral disengagement, influences the college student departure process in terms of social integration, subsequent institutional commitment, and intent to re-enroll. Daugherty and Lane (1999) studied students at an all male military college and found that both academic and psychosocial factors need to be considered related to attrition. Last and Fulbrook (2003) also acknowledge psychosocial factors and further note that the clinical setting and the increasingly demanding nature of nursing contribute to stress for students. Both Bray et al (1999) who studied full-time freshman at a highly selective research institute, and Daugherty and Lane (1999) in their study of military college students recommend strategies such as early provision of social support including stress management discussions, and on-

campus support systems. While Bolan and Grainger (2003) did not focus primarily on stress, they recommend an increase of on-campus support systems for nursing students who are admitted directly from high school to decrease attrition rates and increase academic success. They further suggest that more realistic presentations of nursing as a profession to high school students may affect career choices and reduce attrition rates.

Alternate findings related to stress were noted by Deary et al (2003). These researchers found that students in a nursing program who were likely to experience stress and burnout were more likely to persist. This finding is inconsistent with Bray et al, (1999) and Daugherty and Lane (1999) who studied non-nursing students. This raises the question of whether nursing students persist in spite of stress because they see it as part of the future career. As well, there may be fundamental differences between the characteristics of those who enter nursing and those in other fields.

*2.2.4 High school and post secondary marks.* There are consistent reports related to the belief that high school marks and marks while in university are important factors influencing the ability to succeed in post-secondary education (Bolan & Grainger, 2003; Braxton et al, 2000; Daugherty & Lane, 1999; Dunwoody & Frank, 1995; Johnson, 1994; Kirby & Sharpe, 2001; Rummel et al, 1999). Some of the correlations are likely to be irrelevant to nursing, such as strong correlations between high school math scores and success in engineering (Kirby & Sharpe). However, Bolan and Grainger (2003) found that high school mathematics courses correlated with several nursing courses throughout all nursing years with advanced high school math correlating most frequently. This is an intriguing finding in that classes such as English, Biology,

and Chemistry, not math, are thought to be predictors of success in later years of nursing school (Bolan & Grainger; Brennan, Best & Small, 1996).

Johnson (1994) noted that even slightly lower high school grade point averages (GPAs) can result in leaving versus continuing. Conversely, Daugherty and Lane (1999) found an association between high school GPA and being a continuer versus a leaver in a military college. Dunwoody and Frank (1995) examined university psychology and anthropology course withdrawal; the top reported reason listed by students for leaving was unhappiness with their grade in a class. Rummel et al (1999) examined university GPAs and found that along with those who did not maintain a high enough average, there were also 20% of students who left that maintained high GPAs over 3.0. There are various potential explanations for this attrition including gaining entry into another university. It seems that examination of high school and university grades provides important information in determining progression through a post-secondary educational program. The differences in approaches and findings supports the need for continued attention and research related to this particular variable.

### *2.3 Summary of the Literature*

Various sources of literature were examined within nursing education as well as in other disciplines to inform the background of this study. Both academic factors such as GPA as well as non-academic factors such as stress influence student success in post-secondary programs. Wells (2003) suggests an epidemiologic framework to conceptualize attrition and consider levels of prevention from a primary, secondary and tertiary standpoint. The majority of literature found does not focus specifically on the factors that delay completion of a program, but rather generally deals with those who

leave a program. For the purposes of this study, it may be seen that once a student has already left a program, tertiary prevention or late stages of attrition are occurring. Examining students at the level of delayed completion may be viewed as secondary prevention. The factors that lead to both attrition and delayed completion are likely similar, with delayed completion being a potential proxy for an eventual outcome of attrition (Wells, 2003).

#### *2.4 Conceptual Framework*

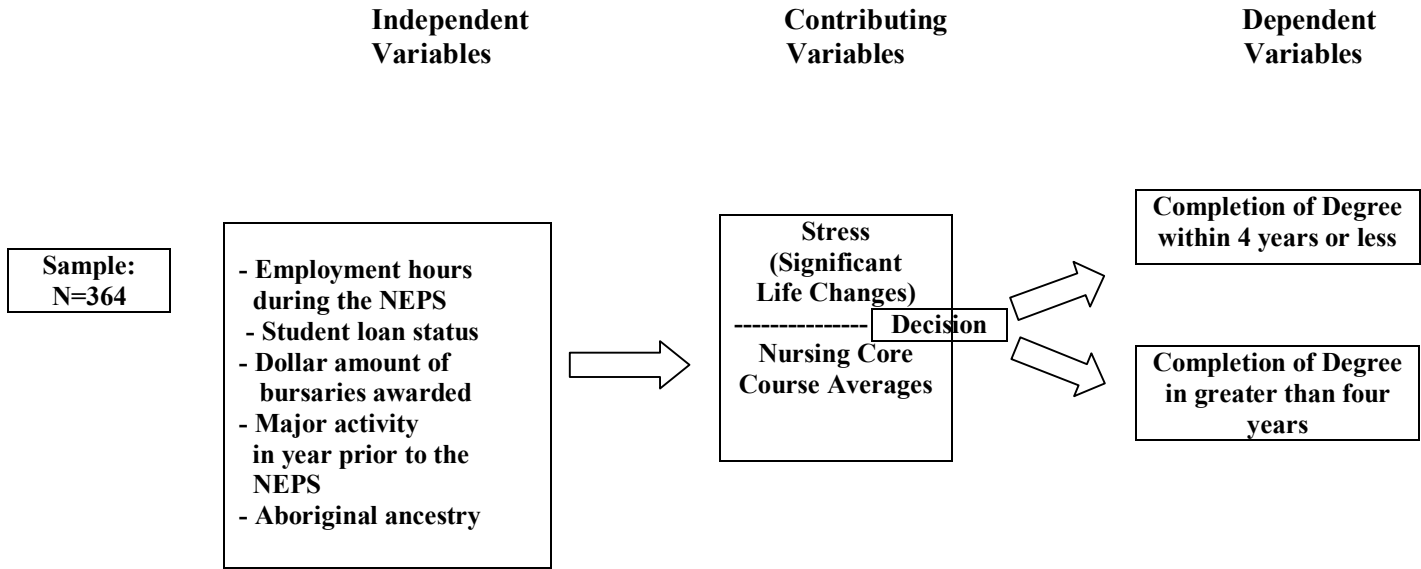
*2.4.1 Contributing variables.* High school grade point average has been established in the literature as an indicator of success in university (Bolan & Grainger, 2003; Braxton, 2000; Brennan, Best & Small, 1996; Daugherty & Lane, 1999; Johnson, 1994; Kirby & Sharpe, 2001; Rummel et al, 1999; Wharrad, Chapple & Price, 2003). Further, there is evidence that high school averages and nursing courses are positively correlated (Bolan & Grainger, 2003). For the purpose of this research, the examination of averages within the context of core NEPS courses was selected as a success indicator and contributing variable to establish whether or not there is a link between grades in core courses and timely versus delayed completion of the NEPS. Core courses utilized were from the years one and two health challenges and life sciences streams along with the practicum at the end of second year (NEPS 2005b).

A second important contributing variable related to academic success leading to timely completion versus delayed completion is stress. Literature supports the notion that stress is a contributing factor to academic performance in post-secondary school (Bray et al, 1999; Daugherty & Lane, 1999; Deary et al, 2003; Last & Fulbrook, 2003; O'Connor & Bevil, 1996; Sawatzky, 1998; Timmins & Kaliszer, 2002). It is logical to

acknowledge that stress plays a role in the life of undergraduate nursing students. For this research, stress was seen to be inherent in the variable “significant life changes”. While stress is sometimes referred to in a negative context, in terms of burdens (Aber & Arathuzik, 1996), it is important to note that both negative and positive stressors exist, with each having an impact at an individual level in terms of resilience and coping (Sawatzky, 1998). Significant life changes were used as a proxy measure to establish the presence of stress as a barrier to success and timely completion of the NEPS.

*2.4.2 Independent variables.* The independent variables for this study include employment hours worked, student loans, dollar amount of bursaries awarded during the NEPS, primary responsibility the year prior to the NEPS, and Aboriginal ancestry. For the purpose of this study, these variables were considered triggers of increased or decreased stress depending on the variable. As well, it is expected that these variables influence core course averages in either a positive or a negative manner. The presence or absence of stress creates a decision making point for the student in terms of timely graduation. Students may choose to go part-time as a strategy to reduce stress. As well, the possibility of positive or negative changes in core course averages may contribute to a program or student’s decision to delay graduation because of repeating classes or taking a lighter course load to raise one’s average. Ultimately, the end result of the decision making process by the student or the NEPS influences whether graduation occurs in four years or less versus longer than four years. Figure 1 contains a conceptual map to illustrate the perceived relationship between the variables.

Figure 1 Conceptual Map



### 2.5 Research Question and Hypothesis

The research question is: “How do students who graduate from NEPS in longer than four years (delayed completers) differ from those who graduate in four years or less (timely completers) in terms of identified barriers or factors that influence education”?

Null hypothesis Ho 1: There will be no statistically significant difference between delayed completers and timely completers with respect to employment hours during the NEPS.

Null hypothesis Ho 2: There will be no statistically significant difference between delayed completers and timely completers with respect to student loan status by the end of the NEPS.

Null hypothesis Ho 3: There will be no statistically significant difference between delayed completers and timely completers with respect to dollar amount of bursaries and scholarships awarded while in the NEPS.



Null hypothesis Ho 4: There will be no statistically significant difference between delayed completers and timely completers with respect to major activity the year prior to beginning the NEPS.

Null hypothesis Ho 5: There will be no statistically significant difference between delayed completers and timely completers with respect to significant life changes during the NEPS.

Null hypothesis Ho 6: There will be no statistically significant difference between delayed completers and timely completers with respect to Aboriginal ancestry. This will be inclusive of Métis, Non-status Indian, Status/Treaty Indian and Inuit as declared by students who participated in the study.

Null hypothesis Ho 7: There will be no statistically significant difference between delayed completers and timely completers with respect to core course averages in years one and two of the NEPS.

## CHAPTER THREE

### Methodology

#### *3.1 Setting*

The NEPS is a collaborative program between the University of Saskatchewan, College of Nursing; Saskatchewan Institute of Applied Sciences and Technology (SIAST); and First Nations University of Canada (FNUC). The program is currently offered at three Saskatchewan sites - Regina, Saskatoon, and Prince Albert. The most recent partner is First Nations University of Canada (Prince Albert site); the students from that site have not been included in the study as there have not yet been graduates from that site. The sample for this research therefore consists of all graduates of the program from Regina and Saskatoon sites from 2002-2005 inclusively who completed the exit survey (University of Saskatchewan, 2004).

#### *3.2 Original Data*

*3.2.1 Design.* In 2002-2003, 2003-2004, and 2004-2005 a questionnaire was administered to NEPS nursing students who were completing their final senior practicum. The survey included items requesting demographic information, scholarship and bursary status, student loan and other financial information, employment hours while in the program, major life events, recruitment and retention opportunities, perceptions of NEPS, previous education, and many other important factors influencing student life. The data are mainly quantitative in nature. This research study is a secondary analysis that explores the variables that pose the potential to delay timely

completion. This study employed Pearson chi-square, T-tests, mixed-model ANOVA and logistic regression analyses as the quantitative measures.

*3.2.2 Sample.* The data collection for the NEPS Data Base occurs in three phases. The sample for the first data collection consists of the entire population of NEPS nursing graduates. Admission demographics, course progression and marks, and clinical placements are submitted from the three institutions. In phase one, exit surveys are administered upon program completion. The second phase involves administering a graduate follow-up survey at two years after graduation, and the third phase is to survey NEPS graduates five years after graduation. The first five-year follow-up survey was administered in the spring of 2005 (NEPS, 2005a).

*3.2.3 Response rate.* For the current study, only the exit survey data were utilized, not the two-year and five-year follow-up data. The exit survey has been administered to three graduating classes of NEPS. The first was with the 2002-2003 class, the second was in 2003-2004, and the third was the 2004-2005 class. The first year that the survey was administered, a total of 103 participants responded. This was a response rate of 52% (NEPS, 2005a). The second exit survey included 127 responses and represented a response of 59% (NEPS, 2005a). The third exit survey included 134 responses and represented a 61.5% response rate (NEPS, 2005a). The total sample population was 363 subjects. Approximately 20% (60) of these students took longer than four years to complete the program. Those that completed in a timely manner make up the larger portion of the sample. However, delayed completers make up a large enough proportion of the sample for comparison purposes.

3.2.4 *Instruments.* Project coordinators of the original study initially met with Saskatchewan Health and other stakeholder groups to determine important questions and uses of the intended research. This assisted in informing the direction and development of the survey tool. Inshtrix, a well-recognized research company, collaborated with faculty researchers and an Ad Hoc Advisory team in the development of the survey instrument. Participants in the development and validation of the surveys included representatives from SRNA, Saskatchewan Health, Regional Health Authorities, SIAST, and the College of Nursing at the University of Saskatchewan. Pilot testing was conducted prior to the administration of the survey.

### 3.3 *Operational Definitions*

3.3.1 *Timely completion.* There are three groups that fall into the category of completing the NEPS in four years or less (NEPS, 2005b). The first completion option includes students who start their program in September and finish in four academic years. They complete the fourth April following program commencement which includes eight regular session academic terms and one spring session term. The second completion option consists of those students who finish their final term by December in year four. These students complete seven regular session academic terms and two spring session terms. The third completion option involves completing the final academic term by the end of September. Students in this option complete six regular session academic terms, two spring session terms and one summer term. All of the students in these three groups complete the NEPS in four years or less and therefore fall into the category of 'timely completion'.

It is important to note that the University of Saskatchewan definition of full-time status is the equivalent of three classes or nine credit units per term (University of Saskatchewan, 2005). While this is acknowledged, students in the NEPS face a combination of an intensive course load and clinical requirements and would not finish their program in 4 years based on this definition. Therefore, the definition of timely completion is based on the program completion options outlined in the NEPS (2005b) student handbook.

*3.3.2 Delayed completion.* This category includes any students who exceed eight regular session terms and one spring term, completing their degree later than the fourth April after program commencement. All of the students that fall into this category completed NEPS in a timeframe that exceeded four years and therefore fall into the category of “delayed completion”.

*3.3.3 Independent variable.* A new variable was created for the purpose of conducting the analyses. The split of the data was based on timely versus delayed completion time. The dependent variable “asked” existing entrance and exit variables whether or not the student took four years to complete the NEPS. Recoding was done to assign students to category one or two based on completion within four years or longer than four years.

*3.3.4 Core course averages.* These include the year one and two final averages in the health challenges and life sciences streams, as well as the practicum at the end of second year (NEPS, 2005b). These courses were chosen as key indicators related to timely completion in the NEPS due to their science or clinical focus.

### 3.4 *Ethical Considerations*

Ethics approval for the utilization of the original data was obtained from the Behavioural Research Ethics Board June 28<sup>th</sup>, 2002. The term of approval was five years. A modification was made in the delivery of the survey from written to the choice of telephone or web-based. This modification received approval September 5<sup>th</sup>, 2003. For further reference, the BSC number is 02-545.

Upon completion of their senior practicum, student subjects are asked to complete a questionnaire taking approximately 15-20 minutes to complete. Completion of the questionnaire implies understanding of the research purpose and protocol, and agreement to participate. Participation is voluntary and there are no penalties or repercussions for choosing not to participate (Appendix B). The data are part of the NEPS Data Base and are protected by security protocol.

Behavioural ethics approval for the current study was obtained July 7, 2005 (Appendix C). A contract between the College of Nursing and the researcher for the release of data was developed. The researcher agreed to receive the data for specifically requested variables in SPSS format. These data did not have identifying variables such as student names or identification numbers. The researcher agreed to safeguard the data when not in use by locking it in a filing cabinet. Upon completion of the study, the data will be returned to the College of Nursing for storage or disposal.

## CHAPTER FOUR

### Results

#### *4.1 Data Gathering*

Data were gathered by paper survey in 2002-2003 and by phone or e-mail in 2003-2004 and 2004-2005. Data were gathered annually and compiled into final reports by Insightrix employees including information technologists, data analysts, directors and managers of research services. The full student database is kept electronically by the College of Nursing at the University of Saskatchewan. Data cleansing was conducted to prepare for the secondary analysis of variables of interest by the researcher.

The Statistical Package for the Social Sciences Version 12.0 (SPSS) was employed to conduct the statistical analyses. Hypothesis testing was done in relation to the aforementioned variables of interest between graduates who take longer than four years and those who take four years or less to complete NEPS. The analyses for this study were conducted by transferring NEPS Data Base data from Microsoft Excel into the SPSS computer software.

#### *4.2 Demographic Data*

*4.2.1 Length of time in program.* Of the total sample of 363 students, 60 took longer than four years to graduate and 303 completed the NEPS in four years or less. Subjects self reported starting the NEPS between the years 1995 and 2002.

4.2.2 *Gender.* Post hoc, a relationship was found between gender and whether or not it took longer than four years to complete the NEPS,  $\chi^2(1) = 17.26, p = 0.001$ . An examination of Table 1 indicates that 42% of male students took longer to complete the NEPS compared to 14% of their female counterparts.

Table 1

*Timely vs. Delayed Completers in Male or Female Gender*

	Gender ( $n = 359$ )		Pearson Chi-Square	$p$
	Male ( $n = 33$ )	Female ( $n = 326$ )		
Timely Completers	19(57.6%)	280 (85.9%)	17.27	.000
Delayed Completers	14 (42.4%)	46 (14.1%)		

### 4.3 *Financial Factors*

4.3.1 *Null hypotheses #1: Employment.* The null hypothesis that there will be no statistically significant difference between those who graduate beyond four years and those who graduate in four years or less with respect to employment hours was rejected related to students who worked in employment other than as Senior Assists. While there was a trend towards higher employment hours per week in every year of the NEPS for delayed completers, this difference approached statistical significance only for year one,  $t(360) = 1.81, p = .07$ , and not for year 2,  $t(360) = 1.29, p = .20$ , year 3,  $t(360) = 1.50, p = .13$ , or year 4,  $t(359) = 1.50, p = .13$ . Differences in the number of hours worked by timely completers versus delayed completers collapsed over the four academic years approached statistical significance,  $t(360) = 1.87, p = .06$ . Table 2 shows summary



statistics for the employment hours worked by students over the four years of NEPS.

Although not reported in Table 2, 66.3% of timely completers were employed between zero and ten hours per week compared with 50.8% of delayed completers in year one. In year four, 75% of timely completers were employed between zero and ten hours per week compared with 69.5% of delayed completers.

Table 2

*Employment While a Student in the NEPS*

Years	Timely Completers		Delayed Completers		<i>t</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Year 1 hours ( <i>n</i> = 362)	8.11	(10.67)	10.81	(9.66)	1.81	.07
Year 2 hours ( <i>n</i> = 362)	9.45	(10.31)	11.32	(9.84)	1.29	.20
Year 3 hours ( <i>n</i> = 362)	8.54	(9.38)	10.56	(9.76)	1.50	.13
Year 4 hours ( <i>n</i> = 361)	6.01	(8.38)	7.85	(9.49)	1.50	.13
Average hours in 4 years ( <i>n</i> = 362)	8.02	(8.06)	10.14	(7.23)	1.87	.06

Students had the opportunity to work as a Senior Assist after completion of the third year of the NEPS. An evaluation was done to see whether this employment affected how quickly students completed NEPS. No statistically significant relationship was found between working as a Senior Assist during NEPS and whether completion was delayed or not,  $\chi^2(1) = 0.3, p = .59$ . An examination of Table 3 reveals a somewhat higher percentage of timely completers worked as Senior Assists.

Table 3

*Timely vs. Delayed Completers in Employment as a Senior Assist during the NEPS*

<i>n</i> = 363				
	Worked as a Senior Assist	Did not work as a Senior Assists	Pearson Chi-Square	<i>p</i>
Timely Completers ( <i>n</i> = 303)	163 (53.8%)	140 (46.2%)	.290	.590
Delayed Completers ( <i>n</i> = 60)	30 (50.0%)	30 (50.0%)		

A relationship was found between having a job other than as a Senior Assist during NEPS and whether or not it took longer to complete the program,  $X^2(1) = 6.7, p = .01$ . An examination of the Table 4 indicates that a higher percentage of delayed completers worked in a job other than as a Senior Assist. Approximately 88% of delayed completers had jobs other than as a Senior Assist compared with approximately 73% of timely completers.

Table 4

*Timely vs. Late Completers in Employment Other Than as a Senior Assist during the NEPS*

<i>n</i> = 362				
	Job other than Sr. Assist	No job other than Sr. Assist	Pearson Chi-Square	<i>p</i>
Timely Completers ( <i>n</i> = 302)	219 (72.5%)	83 (27.5%)	6.703	.010
Delayed Completers ( <i>n</i> = 60)	53 (88.3%)	7 (11.7%)		

4.3.2 *Null hypothesis #2: Student loan status.* The null hypothesis that there will be no statistically significant difference between those who graduate beyond four years and those who graduate in four years or less with respect to student loan status was not rejected,  $t(262) = .094, p = .93$ . An examination of Table 5 shows the mean and standard deviation values for student loan debt for students by the end of the NEPS. Although not reported in Table 5, approximately 34% of delayed completers had student loan debt between \$20,001 and \$30,000 compared with 21.8% of timely completers in the same range.

Table 5

*Student Loans, Bursaries and Scholarships by the End of the NEPS*

	Timely Completers		Delayed Completers		<i>t</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Student Loans	\$26300.58	\$21613.66	\$26603.60	\$12721.79	.094	.93
Bursaries/Scholarships	\$5724.93	\$3919.30	\$6288.57	\$5800.29	.73	.47

4.3.3 *Null hypothesis #3: Bursaries and scholarships.* The null hypothesis that there will be no statistically significant difference between those who graduate beyond four years and those who graduate in four years or less with respect to dollar amount of bursaries and scholarships awarded while in the program was not rejected. Delayed completers had higher amounts of scholarship and bursary support that did not approach statistical significance,  $t(248) = .73, p = .47$ . An examination of Table 5 shows the mean and standard deviation values for bursaries and scholarships for students by the end of the NEPS. Although not reported in Table 5, approximately 62% of delayed completers obtained bursaries or scholarships in the \$0-\$3000 range compared with 49.3% of timely completers who obtained support in the same range.

Approximately 63% of delayed completers declared receiving financial support during NEPS. This compared with approximately 72% of timely completers who reported their funding. See Table 6 for bursary and scholarship sources as distributed between timely and delayed completers.

Table 6

*Timely vs. Delayed Completers in Source of Bursary and Scholarship Support*

	<i>n</i> = 256				
	Government	University	Regional Health Authority	First Nations Band/Métis Organization	Other
Timely Completers	148(88.1%)	22(84.6%)	29(85.3%)	4(80.0%)	15(65.2%)
Delayed Completers	20(11.9%)	4(15.4%)	5(14.7%)	1(20.0%)	8(34.8%)

4.4 *Non-academic Factors*

4.4.1 *Null hypothesis #4: Major Activity in the year prior to the NEPS.* The null hypothesis that there will be no statistically significant difference between those who graduate beyond four years and those who graduate in four years or less with respect to major activity the year prior to beginning the program was not rejected. No relationship was found between major activity in the year prior to the NEPS and whether or not it took longer to complete the program,  $\chi^2(2) = .783, p = .68$ . An examination of Table 7 indicates that of those who worked in the year prior to the NEPS, a higher percentage were delayed completers. A higher percentage of those who went to school in the year prior to starting the program were timely completers. However, these differences were not large enough to reveal a statistically significant difference between the two groups on major activities.

Table 7

*Timely vs. Delayed Completers in Major Activity in the year prior to the NEPS*

	Household Responsibilities	<i>n</i> = 362 Going to School	Working	Pearson Chi-Square	<i>p</i>
Timely Completion ( <i>n</i> = 302)	6 (2.0%)	181 (59.9%)	115 (38.1%)	.783	.676
Delayed Completion ( <i>n</i> = 60)	*2 (3.3%)	33 (55.0%)	25 (41.7%)		

(\* = Expected cell count was less than 5)

4.4.2 *Null hypothesis #5: Significant life changes.* The null hypothesis that there will be no statistically significant difference between those who graduate beyond four years and those who graduate in four years or less with respect to significant life changes during the NEPS was rejected. Delayed completers had more significant life changes during NEPS than timely completers,  $t(361) = 5.1, p < .001$ . An examination of Table 8 shows the mean and standard deviation values for significant life changes during the NEPS.

Table 8

*Timely vs. Delayed Completers in Number of Significant Life Changes during the NEPS*

	<i>n</i>	<i>df</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Timely Completers	303	361	1.63	1.249	5.10	.001
Delayed Completers	60		2.57	1.555		

Significant life changes included: Change in marital status, birth of a child, death of a family member or friend, major uncertainty of nursing as your profession, home relocation, care giving for dependent children or dependent adults, and ‘other’ as indicated by the student. Although not reported in Table 8, approximately 50% of delayed completers had three or more significant life changes during NEPS. Approximately 76% of timely completers had two or fewer significant life changes.

For a closer look at specific significant life changes, Fisher’s exact test was conducted. This test is generally conducted with smaller sample sizes (Simon, 2005). Therefore, rather than running chi-square tests on the data, Fisher’s exact tests were chosen as data were conveniently able to be categorized into two by two sets of data. The results of the tests for each significant life change are reported in Table 9. It is interesting to note that a higher percentage of delayed completers compared to timely completers experienced every significant life change.

Table 9

*Timely vs. Delayed Completers in Specific Significant Life Changes during the NEPS*

(n = 363)			
	Timely Completers	Delayed Completers	p (Fisher's Exact Test)
Change in Marital Status	61 (20.1%)	22(36.7%)	.007*
Birth of a child	6(2.0%)	10(16.7%)	.001*
Illness/Death	136(44.9)	32(53.3%)	.258
Uncertainty of Nursing	71(23.4%)	23(38.3%)	.023*
Personal Illness/Disability	22(7.3%)	11(18.3%)	.012*
Home Relocation	136(44.9%)	33(55.0%)	.159
Caregiver Children/Adults	30(9.9%)	15(25.0%)	.003*
Other	31(10.2%)	8(13.3%)	.494

4.4.3 *Null hypothesis #6: Aboriginal ancestry.* The null hypothesis that there will be no statistically significant difference between those who graduate beyond four years and those who graduate in four years or less with respect to Aboriginal ancestry was not rejected. Approximately 25% of Aboriginal students delayed completion, compared with 16% of non-Aboriginal students who did not complete NEPS in a timely manner (Table 10). However, no statistically significant relationship was found between Aboriginal ancestry and whether or not it took longer to complete the program,  $X^2(1) = 1.30, p = .19$ .



Table 10

*Timely vs. Delayed Completers in Aboriginal Ancestry*

	Aboriginal Ancestry ( $n=361$ )		Pearson Chi-Square	$p$
	Of Aboriginal Ancestry	Not of Aboriginal Ancestry		
Timely Completers ( $n = 301$ )	18 (6%)	283 (94%)	1.303	.191
Delayed Completers ( $n = 60$ )	6 (10%)	54 (90%)		

#### 4.5 *Academic Factors*

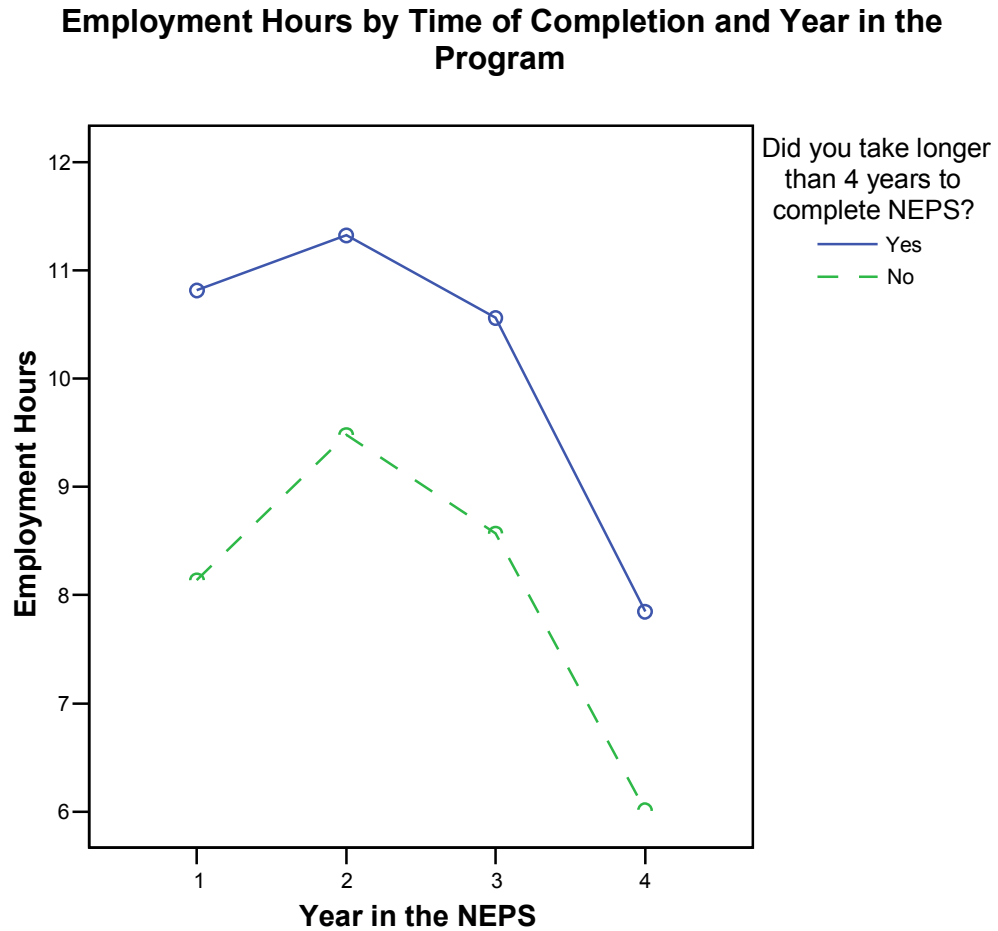
4.5.1 *Null hypothesis #7: NEPS core course averages.* The null hypothesis that there will be no statistically significant difference between those who graduate beyond four years and those who graduate in four years or less with respect to core course averages was rejected. Delayed completers had lower core course averages by the end of second year,  $t(348) = 2.7, p = .006$ . For delayed completers, the core course average by the end of second year was  $M = 70.78$  ( $SD = 7.10$ ) compared to core course average for timely completers of  $M = 73.12$  and ( $SD = 5.73$ ).

#### 4.6 *Differences in Employment Hours across the Four Years*

A mixed model ANOVA was conducted on the variable of employment hours. The between subject factor was completion time (timely or delayed). This is a test of whether the difference between the means for timely vs. delayed completers is statistically significant collapsed over the four years. The within subject factor was year in the program (one, two, three, or four). This is a test to see if there is a statistically

significant difference between the means for years one, two, three, and four. A main effect was found for year of the program collapsing over completion time,  $F(3, 1077) = 10.56, p < .001$ . A Bonferroni correction is conducted after a statistically significant outcome is found for the within subject ANOVA. This test revealed that number of hours worked in year one ( $M = 8.56, SD = 10.55$ ), year two ( $M = 9.78, SD = 10.24$ ), and year three ( $M = 8.89, SD = 9.46$ ) were all greater than the number of hours worked in year four, ( $M = 6.31, SD = 8.58$ ). See Figure 2. A main effect was also found for the completion time collapsing over years,  $F(1, 359) = 3.41, p = .07$ . Delayed completers ( $M = 10.14, SD = 7.93$ ) worked more employment hours than timely completers ( $M = 8.05, SD = 7.92$ ). A mixed model ANOVA also tests for statistically significant interaction between year in the program and completion time. No interaction was found between year in the program and completion time,  $F(3, 1077) = .19, p = .90$ .

Figure 2



#### 4.7 *Logistic Regression to Predict Completion Time*

Logistic regression was used to create a model that included a statistically significant combination of predictor variables to differentiate timely versus delayed completion. A direct entry logistic regression was conducted to predict timely versus delayed group membership status from the following predictor variables: major activity in the year prior to NEPS, significant life changes, core course averages, employment hours, scholarships, student loans, gender, and Aboriginal status. Reference categories

for the dichotomous variables were coded as follows: Gender; Female = 0, Male = 1; Aboriginal Ancestry; No = 0, Yes = 1; Major Activity; Work = 0, School = 1.

The logistic regression model was statistically significant,  $\chi^2(8, N = 363) = 47.78, p < .001$ . The Nagelkerke *R* squared, analogous to *R* square in linear regression, indicated 22.5% of the variance in classification of timely versus delayed group membership was attributable to the set of predictor variables. Table 11 shows regression coefficients, Wald statistics, odds ratios and 95% confidence intervals for odds ratios for the predictor variables. Both gender (odds ratio = .18) and significant life changes (odds ratio = 1.8) were statistically significant in the model. End of year two core course averages (odds ratio = 1.06) approached statistical significance. On that basis, 84.8% ( $n = 285$ ) of the cases were correctly classified. Two-hundred and seventy-five of 281 timely completers (97.9%) were classified correctly. However, 45 of 55 delayed completers (82.8%) were incorrectly classified as timely completers. Therefore, it has become clear that the predictor variables in the model were better at predicting those who completed in a timely manner than predicting delayed completion.

Wald statistics should be interpreted with caution as they can increase the probability of Beta, or committing of a Type II error. For example, the Wald statistic for significant life changes being 23.30 may cause the standard error to be inflated. This can lead to the Wald statistic being underestimated, thus rejecting a predictor as being significant when it actually is. If the value of the odds ratio is greater than one, as the predictor increases, the odds of the outcome occurring increases. For example, the significant life changes odds ratio is 1.8. Therefore, the likelihood of belonging to the delayed completer group increases as the predictor of having significant life changes

increases. The confidence interval must not be interpreted as statistically significant if it includes the value of one. As an example, the odds ratio value for significant life changes falls between the lower value of 1.42 and the upper value of 2.28, thus being 95% confident that the result is statistically significant (Field, 2005).

Table 11

*Logistic Regression Analysis of Timely vs. Delayed Completers*

Variables	$\beta$	Wald Test (z-ratio)	Odds Ratio	95% CI for Odds Ratio	
				Upper	Lower
Constant	-.346	.027	.707		
Major Activity	-.119	.12	.888	1.74	.45
Significant Life Changes	.587	23.30**	1.80	2.28	1.42
Core Course Average	.053	3.59a	1.06	1.12	.99
Employment Hours	-.033	2.37	.97	1.01	.93
Scholarships	.000	.17	1.00	1.00	1.00
Student Loans	.000	.03	1.00	1.00	1.00
Gender	-1.70	13.74**	.18	.45	.07
Aboriginal Status	-.737	1.81	.48	1.40	.16

a  $p < .10$

\*  $p < .05$

\*\*  $p < .01$

#### 4.8 *Results Summary*

Statistically significant results related to timely versus delayed completion were found on three of the seven null hypotheses. In addition, a post-hoc result was found on the variable of gender. Table 12 shows a summary of results on each variable that was explored.

Table 12

*Results Summary Table*

Null Hypotheses: There will be no statistically significant difference between delayed and timely completers with respect to:

Variable:	Value:	Result:
<hr/>		
Ho 1: Employment:		
Weekly hours in Year 1	$t(360) = 1.81, p = .07$	Approached Statistical Significance
Weekly hours in Year 2	$t(360) = 1.29, p = .20$	Not Statistically Significant
Weekly hours in Year 3	$t(360) = 1.50, p = .13$	Not Statistically Significant
Weekly hours in Year 4	$t(359) = 1.50, p = .13$	Not Statistically Significant
Average Weekly hours (over 4 years)	$t(360) = 1.87, p = .06$	Approached Statistical Significance
Senior Assist	$X^2(1) = 0.3, p = .59$	Not Statistically Significant
Other Employment	$X^2(1) = 6.7, p = .01$	Statistically Significant
Ho 2: Student loans	$t(262) = .094, p = .93$	Not Statistically Significant
Ho 3: Bursaries/ Scholarships	$t(248) = .73, p = .47$	Not Statistically Significant
Ho 4: Major Activity	$X^2(2) = .783, p = .68$	Not Statistically Significant
Ho 5: Significant Life Changes	$t(361) = 5.1, p = 0.001$	Statistically Significant
Ho 6: Aboriginal Ancestry	$X^2(1) = 1.30, p = .19$	Not Statistically Significant
Ho 7: Core Course Averages	$t(348) = 27, p = .006$	Statistically Significant
Post Hoc: Gender	$X^2(1) = 17.26, p = .001$	Statistically Significant
<hr/>		

## CHAPTER FIVE

### Discussion

#### *5.1 Overview*

The purpose of this study was to determine how students who take longer than four years to graduate from the NEPS differ from those who graduate in four years or less in terms of identified barriers or factors that influence education. The key variables examined were employment hours worked while in the NEPS, student loan status, dollar amount of bursaries and scholarships, major activity in the year prior to the NEPS, significant life changes during the NEPS, Aboriginal ancestry, and the NEPS core course averages. It was found that timely and delayed completers differed on the variables of gender, employment other than as a Senior Assist, significant life changes, and core course averages during the NEPS. Each key variable along with gender will be discussed in the context of policy implications with an integration of the key points from the literature.

#### *5.2 Discussion of Demographic Data*

Approximately 42% of male and 14% of female students were delayed completers. This finding suggests that the challenges male NEPS students face are more likely to cause delayed completion than challenges faced by female NEPS students. There is evidence in the literature to suggest that there is a high rate of attrition from nursing programs among male students which points to the need for heightened awareness and strategic support by nursing faculty (Brady, 2003; Stott, 2003). O'Lynn



(2004) found that a lack of mentorship, no history of men in nursing, textbooks referring to 'she', exclusive use of lecture format, and lack of encouragement to seek peer support from other male nursing students were cited as the top five barriers to male students in his study. It is possible that barriers such as these contribute to some degree of isolation for male nursing students and perhaps are a factor in delayed completion for male students in the NEPS.

It is also likely that individual internal factors influence timely completion of nursing. Deary, Watson and Hogston (2003) explored personality factors and their link to program completion. They found that students were more likely to discontinue if they were less agreeable and less conscientious. Sawatzky (1998) suggests concepts of hardiness and successful coping are central to understanding stress in nursing students. From this perspective, educational success is not necessarily influenced solely by events or barriers but rather by how the student chooses to deal with those challenges. It is possible that female NEPS students are more resilient than male NEPS students with regard to coping with barriers to timely completion.

It is clear that there are obvious challenges for male students in a predominantly female post-secondary education program. However, it remains unclear at this point which barriers in particular are causing males in the NEPS to delay graduation. While male and female students did not differ with statistical significance related to significant life changes, male students differed with statistical significance from female students by working a higher number of employment hours. The topic of gender differences was not fully explored within the current study. Further exploration of the connection between

gender and barriers to timely completion should be a consideration for future research with the NEPS students as the sample size of male student's increases.

### 5.3 *Discussion of Financial Factors*

Delayed and timely completers did not differ in regards to employment hours worked, student loan status or dollar amount of bursaries and scholarships obtained while in the NEPS. However, there was a trend across all four years for delayed completers to work more hours per week than timely completers did. While approximately the same number of timely and delayed completers reported working as Senior Assists, a greater number of delayed completers reported employment other than as Senior Assists. This finding may indicate that the type of employment students engage in plays a more important role than the number of hours spent being employed. Time spent working as a Senior Assist likely consolidates learning that is more directly related to nursing than other student employment opportunities. Ensuring meaningful employment may be particularly important for employer stakeholders. Health Regions may want to ensure that the NEPS students have meaningful part-time and summer employment throughout the four years of their program. Student employment in the health field may have some influence on timely completion and ultimately support the creation of a substantial number of graduating nurses to meet the demand for human resources (Last & Fulbrook, 2003; SRNA, 2004).

The trend for higher employment hours in year one may indicate a need for increased bursary support earlier on in the program. Delayed completers tended to work more hours in year one than those who completed in a timely manner. The literature indicates that financial pressures on nursing students are a source of stress, a key reason

for choosing to be employed while going to school, and can lead to discontinuing nursing education (Glossop, 2002; Lee, Mawdsley, & Rangeley, 1999). Recognizing the importance of current financial supports for NEPS students in Saskatchewan is critical. If government and employment bursaries, university scholarships, and First Nations Band and Métis organization funding opportunities were not available to students, the average employment hours during NEPS as well as the proportion of delayed completers would likely be higher. The value of these financial supports is critical to student success and timely completion of NEPS. Additional sources and amounts of funding for students in NEPS could decrease the number of employment hours for students, which could have a direct impact on more timely completion of the program. Of particular importance are funding opportunities that have a return-for-service clause that contribute to the increased retention of nurses in both urban and rural health regions and subsequently increase the likelihood that nurses stay in the province of Saskatchewan. Ensuring that funding sources are communicated to student stakeholders is critical.

Student loan debt is of concern for all students in the NEPS with the average debt load exceeding \$25,000 for both timely and delayed completers. It is interesting to note that 25% of delayed completers versus 10% of timely completers were caregivers for either dependent children or adults. The associated monetary costs of being a caregiver may explain some of the debt incurred by delayed completers. Delayed completers also tended to receive somewhat more scholarship and bursary support. This greater support may be linked to the criterion of financial need as a factor in awarding scholarships. Caregivers undoubtedly have higher financial needs than those without care giving responsibilities.

The provincial and federal governments contribute the majority of the cost for each student in post-secondary education (Saskatchewan Post-Secondary Education and Skills Training, 1996). It is important for students to complete the NEPS in a timely manner to decrease the economic burden on the system in terms of provincial and federal government funding for education along with the burden placed on the educational institution (Wells, 2003). Continued bursary and scholarship support is important to ensure all students can commit to program responsibilities, decrease their outside employment hours, and reduce the amount of student loan debt they incur during the NEPS.

#### *5.4 Discussion of Non-Academic Factors*

NEPS students in the two categories did not differ related to major activity the year prior to beginning the program. Going to school and working emerged as the major activities in the year prior to the NEPS. Household responsibilities were only reported by two students as their major activity. It remains unclear whether or not those who went to school the year prior to NEPS were in post-secondary programs or high school. Future research between this differentiation and timely completion may be important.

While timely and delayed completers did not differ related to working versus going to school in the year prior to the NEPS, it may be practically significant to note the type of employment timely and delayed completers engaged in. Forty percent of timely completers and 24% of delayed completers worked in the health care field. This finding suggests that health care experience may be helpful to those entering the NEPS. Future research should explore the connections between completion time and experiences prior to the NEPS.

On average, delayed completers were found to have approximately one more significant life change during the NEPS than timely completers. This particular variable was examined from the perspective that significant life changes during the NEPS have the potential to cause stress that may affect student decisions to consider part-time rather than full-time studies. Selye (1974) first discussed the concepts of eustress and distress. While eustress is considered a positive form of stress, it may be seen to contribute to delayed completion of the NEPS. For example, the significant life changes variable included what may be seen as either positive or negative stressors for the NEPS students. While experiencing death of a family member or friend would be viewed as negative or distressing, getting married or experiencing the birth of a child could have components of both eustress and distress for students. The responsibilities associated with all significant life changes experienced present a degree of stress whether it is eustress or distress. However, it is likely the resilience and coping mechanisms identified by Sawatzky (1998) that contribute to how students deal with significant life changes and whether they cope successfully or not.

Although some students may manage well in the NEPS with many significant life changes, the findings of the current study suggest that as more significant life changes accumulate, the ability to cope or remain resilient may falter. Therefore, some NEPS students may make the difficult decision to attend only on a part-time basis. Further exploration of the relationship between significant life changes and stress, and differentiating the impact of positive significant life changes from negative ones, are relevant areas for future research. It is important to communicate the potential implications of significant life changes for delayed completion to the NEPS student

stakeholders. It is also important to ensure that there are appropriate supports available to students experiencing significant life events, for example, the death of a family member.

It is important to acknowledge that Aboriginal and non-Aboriginal students did not differ with regard to timely versus delayed completion of the NEPS. The Native Access Program to Nursing (NAPN) has supported Aboriginal students in Saskatchewan since 1985 (College of Nursing, 2003). It is likely that retention support offered by the NAPN contributes to the success and timely completion of the NEPS by Aboriginal students. Providing support for minority students in post-secondary settings involves culturally sensitive curriculum development (Labun, 2002) and faculty role-modeling (Campbell & Davis, 1996).

Labun (2002) discusses the importance of support networks within the Red River College Program. Tracking of student difficulties and providing instructors, counselors and other staff to assist students provides a basis for success for students pursuing their educational goals. In addition to the barriers typically faced by all students, Aboriginal students may face other barriers such as pressure to succeed as the first in their family to attend post-secondary school and disconnect from their family and community (Labun, 2002).

As the NEPS database continues to gather annual data, the sample size of Aboriginal students will increase. The first class of NEPS graduates from the Prince Albert site will complete the program in spring, 2006. This site accepts as first priority Aboriginal students who are northern residents (College of Nursing, 2005). Consequently, the Prince Albert site has a higher percentage of Aboriginal students than

Saskatoon and Regina sites. Having not yet graduated any students, the Prince Albert site has not yet participated in any of the surveys in the NEPS database. Therefore, findings related to timely completion and the specific connections to the Aboriginal NEPS student population will become an increasingly important area to consider for future research.

### *5.5 Discussion of Academic Factors*

Timely and delayed completers differed in their averages for years one and two core courses. Delayed completers had lower core course averages than timely completers. This finding was expected based on the relatively consistent literature supporting GPA's as a predictor of success in post-secondary school (Bolan & Grainger, 2003; Brennan et al, 1996; Byrd et al, 1999; Johnson, 1994). As well, GPA has been a long-standing admission criterion in acceptance to post-secondary education, thus holding some indication of its merit as a predictor. Studies exploring GPA tend to focus on high school GPA's rather than courses during a program of study. Therefore, the findings of this study contribute to the less explored area of averages while in a post-secondary program.

The importance of core course averages in years three and four of the NEPS remains unclear. However, student and faculty stakeholders in the NEPS should remain aware of the importance of the relationship between averages in years one and two and timely completion of the NEPS. Lack of curriculum flexibility in terms of re-taking courses may contribute to delayed completion. In the NEPS, some courses are offered only once per year. As well, if students are unsuccessful, options become limited because of prerequisites for subsequent courses (NEPS, 2005b).

### 5.6 *Differences in Employment Hours across the Four Years*

A mixed model ANOVA was conducted to examine differences in employment hours across time. The model shows that students tended to work more hours in years one, two and three than in year four. One possible explanation for this is the change in student commitment to clinical time in year four. Students are required to attend clinical on a full-time basis, or the equivalent of 40 hours per week for one full semester. This final senior practicum is the only one during the program that contains this many hours of clinical time per week. Therefore, it is likely that students reduce the amount of time spent in their employment during their practica.

The ANOVA also showed that employment hours worked varied between timely and delayed completers. While there were no differences between employment hours worked and completion time on a year by year basis, delayed completers worked more overall during the NEPS. Delayed completers had more significant life changes and care giving responsibilities that may have led them to work more employment hours to support the related financial burden.

### 5.7 *Timely versus Delayed Completion Predictor Model*

The direct entry logistic regression model was able to predict timely and delayed completion based on the variables of gender and significant life changes. In addition, year two core course averages showed some ability to predict timely and delayed completion. The model showed being female and having fewer significant life changes leads to a greater likelihood of timely completion with the added variable of higher core course averages contributing to a timely completion outcome. Conversely, the model shows that being male and having more significant life changes decreases the likelihood



of timely completion, with the variable of lower core course averages further decreasing the timely completion outcome. This model demonstrated better ability to predict timely over delayed completion. This is likely because finishing on time is well captured by gender, significant life changes and course averages in the model. Unfortunately, predicting delayed completion is more difficult in that there is an inability of the model to control for other idiosyncratic variables. Overall, this model suggests that being female with few significant life changes and a higher average contribute to a greater chance of timely completion. This finding should lead to an examination of the NEPS curriculum to determine whether content and processes are inherently targeted at this population, which is reflective of nursing student populations in the past. However, being male with more significant life changes and a lower average does not conclusively predict delayed completion of the NEPS.

#### *5.8 Strengths and Limitations*

Two main critiques of utilization of a secondary data set are that the existing data are old, and what is being explored may have already been looked at in the original study (Burns & Grove, 2005). While both of these are valid concerns related to the use of a secondary data set, it may be noted that the original study is ongoing and the most recent 2005 data were available for analyses in this study. As well, the original study never compared the sample of NEPS graduates in terms of timely versus delayed completion. Therefore, it may be seen as a strength of this study that both recent data were utilized and additional questions were developed to ensure new results.

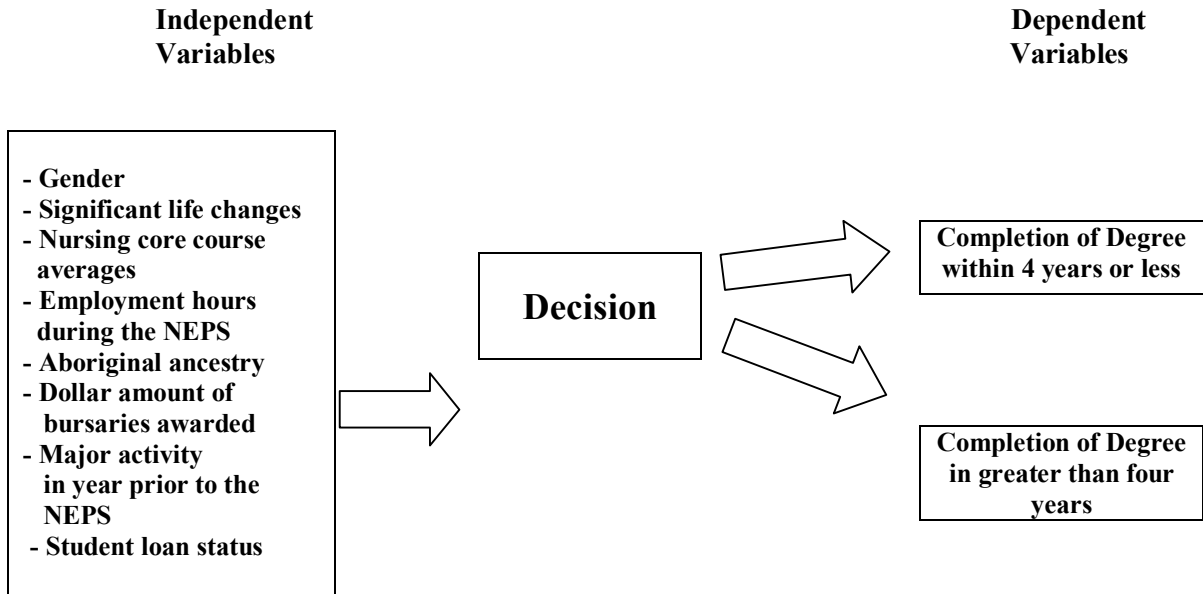
A few limitations of this study are noted. The first limitation relates to availability of data in a secondary analysis study. Grade point averages are

operationalized differently in the literature. Approaches include analyzing high school grade point averages (Bolan & Grainger; Brennan et al, 1996; Kirby & Sharpe, 2001), course marks in all years of nursing (Bolan & Grainger, 2003; Byrd, Garza, & Nieswiadomy, 1999; Wharrad, Chapple, & Price, 2003), first and second year averages (Brennan, Best & Small, 1996), and first year marks (Harvey & McMurray, 1997). It is important to note that the NEPS accepts students in three categories: Admission based on high school standing, admission based on post-secondary studies, and a special admissions category (NEPS, 2005c). These various methods of student acceptance to the NEPS posed difficulty in obtaining high school grade point averages for students in all categories. As a result of entrance marks data and the year three and four core course averages data being incomplete, the decision was made to conduct analyses on the data that were accessible. This included core course averages in year one and two of the NEPS. The researcher recognizes that this study would have been more comprehensive if year three and four course marks had been included. While this is a limitation, it is acknowledged that these data are now available and may be identified as an area for future research.

A second limitation relates to choosing a survey tool. The opportunity to choose a survey tool affords researchers some freedom in asking the questions in which they are most interested. This is a benefit not inherent to a secondary analysis. In this regard, the questions asked of the data were limited in terms of what was originally asked of the NEPS graduates when they completed the exit survey. The original survey contained questions in a variety of areas, but questions were not designed from the focus of timely versus delayed completion.

A third limitation relates to the conceptual framework of this study. Through the process of conducting analyses, it became apparent that all variables were explored in the analyses in a similar manner. The conceptual map suggests a mediational model (see Baron & Kenny, 1986) in which the independent variables are examined in terms of their influence on the dependent variable through a mediator variable. In the present study, the conceptual map suggests that significant life changes and core course averages are mediating between independent variables of employment, major activity prior to the NEPS, Aboriginal status, student loans, bursaries and scholarships to influence the dependent variable of timely versus delayed completion. A typical mediational model would involve testing the causal chain involving an independent variable (ie: employment hours) a mediator variable (ie: stress) and the outcome variable (ie: timely completion). There are various paths within this three variable scenario to ensure complete testing (Baron & Kenny, 1986). The many variables of this study would create the need for testing multiple paths to the outcome variable. Therefore, the decision was made to proceed without exploring the suggested mediational model in its entirety, as this would include a great deal of further analyses beyond the focus of the current research given the complexity of the mediational model. A revised conceptual map based on the findings of this research is found in Figure 3. Independent variables are listed in order of most statistically significant progressing to those that were not statistically significant. Those variables that were not statistically significant in this study remain important to consider in future research.

Figure 3 Revised Conceptual Map



It is important to note that the design of this study was correlational. The non-experimental nature of the research hinders manipulation or control of variables that could affect timely and delayed completion. While some statistically significant relationships were found, causality cannot be implied. Therefore, it is important to remain cognizant of the fact that many other variables influence students' decisions to complete the NEPS in a timely versus delayed manner (Burns & Grove, 2005; Cone & Foster, 2005).

The researcher also recommends caution in generalizing the findings of this study to other settings and populations. It is likely that other samples would differ in terms of findings related to timely versus delayed completion of their program of study. Given the data in this study were obtained from a secondary source, external validity is also affected (Burns & Grove, 2005). It is reasonable to acknowledge the findings of this study within the context of implications for the Saskatchewan government, nursing education, and employment stakeholders.

## 5.9 *Conclusions and Implications*

There continues to be limited research related to barriers to timely completion of nursing programs and related topics such as attrition, persistence and success in post-secondary programs. Secondary school grades remain the most commonly examined indicator of success in the literature. While secondary school grades continue to be a widely utilized indicator of success, students are faced with non-academic pressures that also affect their decision to complete a program in a timely or delayed manner. This study provides evidence regarding barriers to timely completion of the NEPS.

Particular attention needs to be given to the barriers facing male students in the NEPS. Male nursing students often feel isolated while obtaining their education (Kelly, Shoemaker & Steele, 1996; Stott, 2003). While other students are one influence on this isolation, the role of faculty and curriculum underpinnings need to be explored (Kelly Shoemaker, & Steele, 1996). Suggestions for creating a positive experience for male students include: ensuring the use of gender neutral language of faculty in both written and verbal communication, equality of clinical assignments with that of female students, encouraging faculty to challenge societal stereotypes, and increasing access to male nurse role models as priorities in a curriculum that is supportive of males as nurses (Brady & Sherrod, 2003; Kelly, Shoemaker & Steele, 1996; O'Lynn, 2004; Patterson & Morin, 2002; Stott, 2003).

NEPS provides a nursing student support group as part of the curriculum in the third year of the program. Due to the nature of a partnership program, this is an important transition time for all NEPS students to have additional peer support while transferring from SIAST to the University of Saskatchewan, experiencing changing

academic and clinical expectations, and adjusting to a new organizational culture (Golden, 1992). However, the acknowledgement of factors associated with delayed completion of the NEPS such as significant life changes and barriers facing male students needs to be acknowledged and earlier opportunities for formal peer support should be provided in relation to these barriers (Bolan & Grainger, 2003). This may include curriculum options as well as extra curricular supports such as mentoring programs.

Raising the awareness of students related to the accumulation of significant life changes is important. As an aspect of the NEPS curriculum, students have the opportunity to learn to get to know and understand dimensions of themselves through the NURS112.3 Development of Self course. It is recognized that an aspect of this course is to encourage students to think critically about the various areas in their lives and strive to balance among them. To build on the intent of courses such as this, one suggestion would be to have students complete an inventory in each year of the program. This inventory could include the question from the NEPS exit survey related to specific significant life changes. The completion of this inventory would be voluntary and for the students' personal use, simply to raise awareness with students that if they have had more than two significant life changes, they may wish to seek additional supports.

In third year of the NEPS, Regina site students have opportunity to hear from a panel of past NEPS graduates. Hearing from these panelists is important for students in terms of mentorship. Lack of mentorship was noted by 99.1% of male respondents in the study by O'Lynn (2004) as being the most important barrier to address in nursing

education. The opportunity for discussion of career choices in nursing is key for students while in the program. Approximately 21% of male NEPS students experienced uncertainty as to whether nursing was the right profession for them. Considering that male students find themselves in a predominantly female profession, it may be important to provide mentorship opportunities earlier in the NEPS. Implementing a panel of male nurses to speak to students during first year may alleviate some concerns and role strain that male nursing students have about becoming registered nurses (Baker, 2001).

In conclusion, the results of this study support the need for continued monitoring of the NEPS students progress and outcomes. The findings have implications for students, faculty, government, the nursing profession and employers as stakeholders in meeting the health human resource demands of the aging nursing workforce (CIHI, 2003; Stewart et al, 2005).

#### *5.10 Knowledge Utilization*

The knowledge utilization field has recognized the gap between what is known from research and what is done in practice (Champagne, Lemieux-Charles, & McGuire, 2004). It is important to clarify that knowledge is more than the outcome from one particular study. Therefore, while it is important to communicate the results of this research, it is also critical to ensure that stakeholders recognize this research contributes to a body of existing knowledge on predictors of student success in post-secondary education. This body of knowledge is not static and needs to be challenged by future ongoing research. However, another important aspect of research is ensuring that the research is disseminated appropriately. The current study contains critical elements that

need to be communicated to stakeholders such as students, faculty and government so that awareness can be raised related to barriers facing students' timely completion of NEPS.

In terms of knowledge transfer, establishing a commitment to inform stakeholders of the key findings of this study is critical. Kitson, Harvey and McCormack (1998) suggest that when knowledge transfer and knowledge utilization activities are conducted, the three critical components of evidence, context, and facilitation must be considered for uptake and sustainable change to occur. The current researcher, as a faculty member with the NEPS, intends to function as a facilitator and collaborate with opinion leaders within the NEPS. It will be important to plan a transfer of the facilitator role unless the researcher works consistently for the NEPS in the future (Kitson, et al, 1998).

In terms of evidence, the involvement of faculty and students as partners, as well as relevant literature and findings of the current research, are all important (Kitson, et al, 1998). The researcher will facilitate this partnership through collaboration with key opinion leaders and meeting with faculty and students to discuss key actions. In addition, the researcher plans to initiate a time to present findings and engage students in a forum related to key issues they face in timely completion of the NEPS (Kitson, et al, 1998).

The ultimate goal is to implement concrete strategies to address delayed completion of the NEPS. Proposed strategies include having male nurses appear as panelists in first-year NEPS to speak to the male students about their experiences in the nursing profession, conducting an annual significant life changes inventory, facilitating



student mentorship and developing formal peer support earlier than third year. Early counseling regarding demands of the program and the relationship to employment expectations would also be important. As well, it will be critical to explore other possibilities consistent with the evidence and the motivations of the faculty and student partnerships.

In addition to communicating findings to those in nursing education, the researcher intends to submit articles to scholarly journals for publication and present the findings of this research in conferences to reach a broader audience. Communication with government and health regions regarding the findings of this study, such as the importance of Senior Assist job opportunities, remains a priority. The researcher plans to look for ongoing opportunities to network in these areas to disseminate relevant findings to the stakeholders, including meeting with the Provincial Nursing Council.

#### *5.11 Future Research*

As noted above, there is opportunity for future research related to specific gender issues, the growing population of Aboriginal students, academic indicators, and testing of a model with mediator variables. Future research should extend the current research by further examining demographic, academic and non-academic variables that influence timely completion of the NEPS such as through continued work with the NEPS database including the exit surveys and follow-up surveys. There is opportunity for research development in this area for current and future graduate student and faculty.

The NEPS is well-positioned to continue examining and monitoring many barriers that face their nursing students. The sample size of completed surveys in the NEPS database continues to grow, thus increasing the statistical power for future

research. As more research is conducted utilizing these surveys, the NEPS will expand its knowledge base related to the graduates of the program. This specific knowledge base will in turn provide a strong basis for implementation of research findings into Saskatchewan nursing education policies to influence positive student outcomes. Decision makers in the NEPS will have the opportunity to participate in knowledge transfer and knowledge utilization activities that promote the uptake of what is found related to their graduates. The intended outcome is that students as stakeholders will have a strong basis of information about past NEPS students enabling them to make choices informed by research findings.

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## Appendix A

### Survey

#### **Questions and Value Labels for Exit Survey – April 2004**

**1. Did you have any previous education in the health care field prior to starting the NEPS program?**

q001 LUT=YesNo

LUT=YesNo

Value	Handle	Title
1	Yes	Yes
2	No	No

**2. Please identify your previous education in the health care field (check as many as apply):**

q002 LUT=PrevEduc

q002\_other {type in} Entries under "Other":

LUT=PrevEduc

Value	Handle	Title
1	Health/Home Care	Health care/home care aide
2	LPN	LPN
3	Lab tech /EMT	Lab tech/ EMT
4	Volunteer Pgm	Volunteer Program
91	Other	Other, (please specify)

**3. What was your highest educational achievement prior to starting the program?**

q003 LUT=HighEduc

LUT=HighEduc

Value	Handle	Title
1	High school	High school diploma
2	SIAST courses	SIAST (or other Technical Institute) courses
3	SIAST diploma	SIAST (or other Technical Institute) diploma/certificate
4	Some university	Some university classes
5	Baccalaureate	University baccalaureate (Under-Graduate) degree
6	Masters degree	Masters degree
7	PhD	PhD

**4. Please specify the degree(s)/diploma(s)/certificates (including field of study) you held prior to starting the program:**

q004\_1 {type in}  
q004\_2 {type in}  
q004\_3 {type in}  
q004\_4 {type in}

**5. What was your major activity in the year before starting NEPS?**

q005 LUT=PriorAct

LUT=PriorAct

Value	Handle	Title
1	Household resp	Household responsibilities
2	Going to school	Going to school
3	Working	Working

**6. Was this work in the health care field?**

q006 LUT=YesNo  
q006\_Yes {type in}

LUT=YesNo

Value	Handle	Title
1	Yes	Yes
2	No	No

**7. What year and month did you start your NEPS program:**

q007 LUT=Years

LUT=Years

Value	Handle	Title
-1	- select year -	- select year -
1	1995	1995
2	1996	1996
3	1997	1997
4	1998	1998
5	1999	1999
6	2000	2000
7	2001	2001

**8. What was your age when you entered the NEPS program?**

q008 {type in} years

**9. What was your marital status when you entered the NEPS program?**

q009 LUT=Marital

LUT=Marital

Value	Handle	Title
1	Single	Single
2	Married/Com Law	Married/Common Law/Living Together
3	Separated	Separated
4	Divorced	Divorced
5	Widow(er)	Widow(er)

**10. What was the program site at entry to the NEPS program?**

q010 LUT=PgmSite

LUT=PgmSite

Value	Handle	Title
1	Regina	Regina
2	Saskatoon	Saskatoon

**11. Please indicate if you experienced any of the following significant life changes during the NEPS program? (check all that apply)**

q011 LUT=LifeChange

q011\_other {type in} Entries under "Other":

LUT=LifeChange

Value	Handle	Title
1	Chg Marital Stat	Change in marital status
2	Birth of child	Birth of child
3	Death	Illness or death of family member or friend
4	Personal illness	Major personal illness or disability
5	Uncertainty	Major uncertainty of Nursing as your profession
6	Home reloc	Home relocation
7	Care giving	Care giving for dependent children or dependent adults
91	Other	Other, (please specify)
98	None	None

**12. Did you work as a Senior Assist during your NEPS program?**

q012 LUT=YesNo

**13. Did you have a job, other than as a Senior Assist, while in the NEPS program?**

q013 LUT=YesNo

LUT=YesNo

Value	Handle	Title
1	Yes	Yes
2	No	No

**14. On average, how many hours a week did you work at your job?**

q014\_1 {type in} hours/week in Year 1 courses?

q014\_2 {type in} hours/week in Year 2 courses?

q014\_3 {type in} hours/week in Year 3 courses?

q014\_4 {type in} hours/week in Year 4 courses?

**18. Did you receive any scholarships or bursaries during the program?**

q018 LUT=YesNo

LUT=YesNo

Value	Handle	Title
1	Yes	Yes
2	No	No

**19. What was the total dollar value of scholarships or bursaries you received during the NEPS program?**

q019 {type in} \$

**20. What was the major source of your scholarship/bursary support?**

q020 LUT=AidSource

q020\_other {type in} Entries under "Other":

LUT=AidSource

Value	Handle	Title
1	Government	Government
2	University	University
3	Reg Health Auth	Regional Health Authority
4	First Nat. Bands	First Nation Bands/Metis Organization
91	Other	Other (please specify)

**21. Did you obtain any student or educational loans during the program?**

q021 LUT=YesNo

LUT=YesNo

Value	Handle	Title
1	Yes	Yes
2	No	No

**22. What was the total dollar value of your student or educational loans at completion of the NEPS program?**

q022 {type in} \$

**23. What date did you complete your NEPS program**

q023 LUT=YrMo

LUT=Years2

Value	Handle	Title
-1	- select year -	- select year -
1	Oct 2003	October 2003
2	Dec 2003	December 2003
3	April 2004	April 2004

**24. What was your program site at graduation from the NEPS program?**

q024 LUT=PgmSite

LUT=PgmSite

Value	Handle	Title
1	Regina	Regina
2	Saskatoon	Saskatoon

**25. At this time, do you have a job as a graduate nurse confirmed?**

q025 LUT=YesNo

LUT=YesNo

Value	Handle	Title
1	Yes	Yes
2	No	No

**26. If you have confirmed employment, to what extent does your **first job** meet your ideal preferences, where '1' is not at all to '5' being highly ideal?**

q026 LUT=Preference  
 q027 LUT=Preference  
 q028 LUT=Preference  
 q029 LUT=Preference  
 q030 LUT=Preference

**LUT=Preference**

Value	Handle	Title
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5

**31. Name the (one) most positive aspect of your first job?**

q031 {Open Ended}

**32. Within the first 6 months after graduation, do you expect to be:**

q032 LUT=1YrEmploy

**LUT=1YrEmploy**

Value	Handle	Title
1	Nurse	Employed as a nurse
2	Other than nurse	Employed in a field other than nursing
3	Not employed	Not employed

**33. If you do not expect to be employed as a nurse in the first 6 months after completing the NEPS program, what is the MAIN reason why?**

q033 LUT=NotEmploy  
 q033\_other {type in} Entries under "Other":

**LUT=NotEmploy**

Value	Handle	Title
1	Do not expect	Do not expect to find a job I want
2	Family respons.	Family responsibilities
3	Health reasons	Health reasons
4	Going to school	Going to school
5	Travelling	Travelling
6	Wanted time off	Wanted time off
91	Other	Other, (please specify)

**34. What is/would likely be the geographical location of your first job as a graduate nurse?**

q034 LUT=Location

q034\_other {type in} Entries under "Other":

LUT=Location

Value	Handle	Title
1	SK	Saskatchewan
2	MN or East Can.	Manitoba or Eastern Canada
3	AB or BC	Alberta or BC
4	USA	USA
91	Other	Other, (please specify)

**35. Please specify whether the location of your first job as a graduate nurse is/would likely be:**

q035 LUT=LocType

LUT=LocType

Value	Handle	Title
1	Rural	Rural
2	Urban	Urban
3	Both	Both

**36. Please rank the top 3 factors that will/has influenced your choice of work location for your first job as a nurse, with 1 being most important and 3 being least important:**

q036\_1 LUT=InflFactors

q036\_2 LUT=InflFactors

q036\_3 LUT=InflFactors

q036\_other {type in}

LUT=InflFactors

Value	Handle	Title
1	Fam/Comm	Family or community commitments
2	Clinical I want	Clinical/client group I wanted
3	Position I want	Position I wanted
4	Shift I wanted	Shift I wanted
5	Hours I wanted	Total hours I wanted
6	Sign. bonus	Signing bonus
7	Salary	Salary
8	Desire to travel	Desire to travel
9	Student loan Ass	Student loan assistance
10	Housing provided	Housing provided
11	Career plan	Career planning



12	Mentorship	Mentorship opportunities
13	Grad assist	Graduate school assistance
14	Reputation	Reputation of the Institution as a quality workplace
15	Coll. friends	College friends
16	Orientation	Orientation program
17	Geo Loc'n	Geographic Location
18	Familiar Hosp	Familiarity with Hospital where Completed Practicum
91	Other	Other, (please specify)

**37. Which strategy has been most useful in your job search?**

q037 LUT=Strategy

q037\_other {type in} Entries under "Other":

**LUT=Strategy**

Value	Handle	Title
1	Recruitment Fair	Recruitment Fairs
2	Employer visits	Recruitment visits to programs site from employers
3	Internet directo	Internet directories
4	Word of mouth	Word of mouth
5	Advertisements	Advertisements (journals, newspapers, postings)
6	Clinical work	Clinical or work experience in the facility during the program
91	Other	Other (please specify)

**38. Did you get a job offer from a unit where you were employed as a Senior Assist?**

q038 LUT=YesNo

**LUT=YesNo**

Value	Handle	Title
1	Yes	Yes
2	No	No

**39. Did you get a job offer from a unit where you had your 4<sup>th</sup> year senior practicum experiences?**

q039 LUT=YesNo

**LUT=YesNo**

Value	Handle	Title
1	Yes	Yes
2	No	No

**40. How does your experience in finding your **first job** compare with your expectations?**

q040 LUT=Expect

LUT=Expect

Value	Handle	Title
1	More difficult	More difficult than expected
2	Same as expected	About the same as expected
3	Less difficult	Less difficult than expected

**41. What will be the work hours of your **first job** as a graduate nurse?**

q041 LUT=WorkHours

LUT=WorkHours

Value	Handle	Title
1	Reg FT	Regular full-time
2	Casual FT	Casual full-time
3	Reg PT	Regular part-time
4	Casual PT	Casual part-time

**42. Is being employed on a {Hours} basis your preference?**

q042 LUT=YesNo

LUT=YesNo

Value	Handle	Title
1	Yes	Yes
2	No	No

**43. When you start your **first nursing job**, what do you expect will be the length of your orientation (including "buddy" shifts)?**

q043 LUT=Days

LUT=Days

Value	Handle	Title
1	< 1 day	< 1 day
2	1 day	1 day
3	2 - 5 days	2 - 5 days
4	6 - 30 days	6 - 30 days
5	None	None

**44. How many sites will you/do you expect to work at for your first job as a graduate nurse?**

q044 LUT=NumSites

LUT=NumSites

Value	Handle	Title
1	1 site	1 site
2	2 sites	2 sites
3	3 or more	3 or more

**45. What type of organization will you be working at?**

(Note: The primary site is the site where you had the most hours per week)

q045\_1 LUT=OrgType

q045\_1\_other {type in} Other:

q045\_2 LUT=OrgType

q045\_2\_other {type in} Other:

q045\_3 LUT=OrgType

q045\_3\_other {type in} Other:

LUT=OrgType

Value	Handle	Title
-1	Select	- Select -
1	< 100 beds	General hospital, less than 100 beds
2	> 100 beds	General hospital, 100 beds and over
3	Mental health	Mental Health Centre
4	Commun. health	Community Health/Health Centre
5	Nursing Stations	Nursing Stations (Outpost or clinics)
6	Long Term Care	Nursing Home/Long Term Care Facility
7	Rehab/Convales	Rehabilitation/Convalescent Centre
8	Family Practice	Physician's Office/Family Practice Unit
9	Occup. Health	Business/Industry/Occupational Health
10	Private Nursing	Private Nursing Agency/Private Duty
11	Home Care	Home Care Agency
12	Educational Inst	Educational Institution
13	Assoc/Government	Association/Government
14	Self-employed	Self-employed
91	Other	Other, (please specify)

**46. What is your position?**

q046\_1 LUT=Position  
q046\_1\_other {type in} Other:

q046\_2 LUT=Position  
q046\_2\_other {type in} Other:

q046\_3 LUT=Position  
q046\_3\_other {type in} Other:

**LUT=Position**

Value	Handle	Title
-1	Select	- Select -
1	Staff Nurse	Staff Nurse/Community Health Nurse
2	CNO/CEO	Chief Nursing Officer/Chief Executive Officer
3	Direct/Assis Dir	Director/Assistant Director
4	Mgr/Assist Mgr	Manager/Assistant Manager
5	Clinical Special	Clinical Nurse Specialist
6	Educator	Instructor/Professor/Educator
7	Researcher	Researcher
8	Consultant	Consultant
9	Nurse Pract.	Nursing Practitioner
91	Other	Other, (please specify)

**47. What is your main area of responsibility?**

q047\_1 LUT=Responsibility  
q047\_2 LUT=Responsibility  
q047\_3 LUT=Responsibility

**LUT=Responsibility**

Value	Handle	Title
-1	Select	- Select -
1	Direct Care	Direct Care
2	Administration	Administration
3	Education	Education
4	Research	Research

**47a. In what area will you provide:**

**Note:** If picking multiple areas, hold down your control key as you click the appropriate areas.

q047a\_1 LUT=RespChoice  
q047a\_1\_other {type in} Other:

q047a\_2 LUT=RespChoice  
q047a\_2\_other {type in} Other:

q047a\_3 LUT=RespChoice  
q047a\_3\_other {type in} Other:

**LUT=RespChoice**

Value	Handle	Title
1	Med/Surg	Medical/Surgical
2	Pediatric	Pediatric
3	Geriatric	Geriatric/Long term care
4	Comm Health	Community Health
5	Home care	Home care
6	Oncology	Oncology
7	Emergency care	Emergency care
8	Several clinics	Several clinical areas
9	Mental Health	Psychiatric/Mental Health
10	Maternal	Maternal/Newborn
11	Critical Care	Critical Care
12	Ambulatory Care	Ambulatory Care
13	Occup. Health	Occupational Health
14	Oper. Room/RR	Operating Room/RR
15	Rehabilitation	Rehabilitation
16	Service	Service
17	Education	Education
18	Teaching-Student	Teaching – Students
19	Teaching-Employ	Teaching – Employees
20	Teaching-Clients	Teaching – Clients
21	Nurs. research	Nursing Research only
91	Other	Other, (please specify)

**48. On average, how many hours per week did you work?**

q048\_1 {type in} hours/week  
q048\_2 {type in} hours/week  
q048\_3 {type in} hours/week

**49. What do you expect will be your total annual earnings per year before taxes and deductions (Canadian Dollars)?**

q049\_1 LUT=Earning

**LUT=Earning**

Value	Handle	Title
1	< \$20 000	Less than \$20,000
2	\$20 000-\$24 999	\$20,000 - \$24,999
3	\$25 000-\$29 999	\$25,000 - \$29,999
4	\$30 000-\$34 999	\$30,000 - \$34,999
5	\$35 000-\$39 999	\$35,000 - \$39,999
6	\$40 000-\$44 999	\$40,000 - \$44,999
7	\$45 000-\$49 999	\$45,000 - \$49,999
8	\$50 000-\$54 999	\$50,000 - \$54,999
9	\$55 000-\$59 999	\$55,000 - \$59,999
10	\$60 000-\$64 999	\$60,000 - \$64,999
11	\$65 000-\$69 999	\$65,000 - \$69,999
12	\$70 000-\$74 999	\$70,000 - \$74,999
13	> \$75 000	\$75,000 and above
98	Don't know	Don't know

**50. Are you registering with any of the following associations (check all that apply)?**

q050 LUT=Association

q050\_other {type in} Entries under "Other":

**LUT=Association**

Value	Handle	Title
1	SRNA	SRNA
2	RPNAS	RPNAS
3	SRNA & RPNAS	Both
4	Neither	Neither
91	Other licensure	Other nursing licensure, (please specify)

**51. What is your gender?**

q051 LUT=Gender

**LUT=Gender**

Value	Handle	Title
1	Male	Male
2	Female	Female

**52. Where did you grow up?**

q052 LUT=GrowUp  
q052\_other {type in}

**LUT=GrowUp**

Value	Handle	Title
1	Regina	Regina
2	Saskatoon	Saskatoon
4	Town in Sask.	Town in Saskatchewan
5	Rural Sask.	Rural Saskatchewan
6	Outside Sask.	Outside Saskatchewan
91	Other in Sask.	Other city in Saskatchewan

**53. Are you of Aboriginal ancestry?**

q053 LUT=YesNo

**LUT=YesNo**

Value	Handle	Title
1	Yes	Yes
2	No	No

**54. You indicated you are of Aboriginal ancestry; please indicate if you are:**

q054 LUT=Aboriginal

**LUT=Aboriginal**

Value	Handle	Title
1	Metis	Metis
2	Non-status	Non-status Indian
3	Status/Treaty	Status/Treat Indian
4	Inuit	Inuit

**55. What is your current marital status?**

q055 LUT=Marital

**LUT=Marital**

Value	Handle	Title
1	Single	Single
2	Married/Com Law	Married/Common Law/Living Together
3	Separated	Separated
4	Divorced	Divorced
5	Widow(er)	Widow(er)

**56. How satisfied are you with your educational experience in the NEPS program?**

q056 LUT=Satisfaction

LUT=Satisfaction

Value	Handle	Title
1	very satisfied	very satisfied
2	satisfied	satisfied
3	dissatisfied	dissatisfied
4	very dissatis.	very dissatisfied
5	unsure	unsure/don't know

**57. How well do you believe your educational program has prepared you for nursing practice?**

q057 LUT=PgmQuality

LUT=PgmQuality

Value	Handle	Title
1	Very well	Very well
2	Well	Well
3	Not well	Not well
4	Poorly	Poorly
5	Unsure	Unsure/don't know

**58. Do you plan to pursue graduate studies (Masters/PhD) at some time in the future?**

q058 LUT=YesNo

LUT=YesNo

Value	Handle	Title
1	Yes	Yes
2	No	No

**59. Do you have any additional comments regarding the education you received in the NEPS program?**

q059 {Open Ended}



**60. We are interested in contacting you two (2) years from now and again in five (5) years from now in order to learn from you about your career decisions.**

**If you would agree to us contacting you two years from now, please identify your present address and also 2 contacts, such as parents or siblings, from whom we could obtain current contact information at that time, should you move.**

q060\_1\_1 {type in} **Name:**  
 q060\_1\_2 {type in} **Present Mailing Address:**  
 q060\_1\_3 {type in} City or Town:  
 q060\_1\_4 {type in} Province/State:  
 q060\_1\_5 {type in} Postal Code/Zip Code:  
 q060\_1\_6 {type in} Phone:  
 q060\_1\_7 {type in} Email:

q060\_2\_1 {type in} **Contact Link #1:**  
 q060\_2\_2 {type in} Relationship:  
 q060\_2\_3 {type in} Mailing Address:  
 q060\_2\_4 {type in} City or Town:  
 q060\_2\_5 {type in} Province/State:  
 q060\_2\_6 {type in} Postal Code/Zip Code:  
 q060\_2\_7 {type in} Phone:  
 q060\_2\_8 {type in} Email:

q060\_3\_1 {type in} **Contact Link #2:**  
 q060\_3\_2 {type in} Relationship:  
 q060\_3\_3 {type in} Mailing Address:  
 q060\_3\_4 {type in} City or Town:  
 q060\_3\_5 {type in} Province/State:  
 q060\_3\_6 {type in} Postal Code/Zip Code:  
 q060\_3\_7 {type in} Phone:  
 q060\_3\_8 {type in} Email:

**61. Would you like a summary of the findings of this study?**

q061 LUT=Results  
 q061\_email {type in}  
 q061\_1 {type in} Street:  
 q061\_2 {type in} City or Town:  
 q061\_3 {type in} Province/State:  
 q061\_4 {type in} Postal Code/Zip Code:

**LUT=Results**

Value	Handle	Title
1	Results-Email	Yes, please send results to email address given on previous page
2	Results-Mail	Yes, please send results to mailing address given on previous page
3	Results-Email	Yes, please send results to the following email address
4	Results-Mail	Yes, please send results to the mailing address below
5	Results-Mail	No, I do not wish to receive the results

## Appendix B

### Information Sheet Consent Form

**Title of Study:**

*Nursing Education Program of Saskatchewan (NEPS) Program Exit  
(Anticipatory Employment) Survey*

**Researchers:**

Joan E. Sawatsky (RN, MCEd)  
Professor, College of Nursing  
Phone: 306-966-6256

Gail Laing (RN, PhD)  
Professor, College of Nursing  
phone: 306-966-6229

**Purpose of the Study:**

On behalf of the College of Nursing, University of Saskatchewan, and the Nursing Division, Saskatchewan Institute of Applied Science and Technology, we are conducting this study in order to begin to track the career path of NEPS graduates, and to identify trends over time. This will provide the program with valuable feedback that will be critical for further program development, and nursing recruitment and retention decisions.

This questionnaire represents one phase of a three phase study. We are inviting your participation at this point in your career, and we intend to contact you again to invite your participation in a follow-up survey two years after graduation, and again five years after graduation. In that way, we hope to be able to increase our understanding of your experience as you enter the work force and factors which influence your employment decisions as you move on in your career.

Although the data from this study will be published and presented at conferences, the data will be reported in aggregate form so it will not be possible to identify individuals. The data will become a part of the College of Nursing Student Database, which is protected by required security protocols.

The University of Saskatchewan Advisory Committee on Ethics in Behavioral Research approved the survey on ethical grounds on June 9<sup>th</sup>, 2002.

This questionnaire will take approximately 15-20 minutes to complete. Your participation is completely voluntary, and there are no penalties or repercussions for choosing not to participate.

Completion of the questionnaire signifies that you understand the purpose and protocol of this study, and that you agree to participate.

If you have any questions regarding the study, you may contact the Office of Research Services at 306-966-4053, or contact either one of the researchers at the numbers given above. This information sheet is to be kept by you for your own records.

Appendix C



**UNIVERSITY OF SASKATCHEWAN  
BEHAVIOURAL RESEARCH ETHICS BOARD**

<http://www.usask.ca/research/ethics.shtml>

**NAME:** Marlene Smadu (Carmen Anderson)  
Nursing

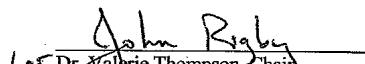
**Beh #05-164**

**DATE:** July 7, 2005

The University of Saskatchewan Behavioural Research Ethics Board has reviewed the Application for Ethics Approval for your research study "Barriers to Timely Graduation in Undergraduate Nursing Education Program of Saskatchewan Students" (Beh 05-164).

1. Your study has been APPROVED.
2. Any significant changes to your proposed method, or your consent and recruitment procedures should be reported to the Chair for Research Ethics Board consideration in advance of its implementation.
3. The term of this approval is for 5 years.
4. This approval is valid for one year. A status report form must be submitted annually to the Chair of the Research Ethics Board in order to extend approval. This certificate will automatically be invalidated if a status report form is not received within one month of the anniversary date. Please refer to the website for further instructions <http://www.usask.ca/research/behavrsc.shtml>

I wish you a successful and informative study.

  
Dr. Valerie Thompson, Chair  
University of Saskatchewan  
Behavioural Research Ethics Board

VT/cc

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Room 1607, 110 Gymnasium Place, Box 5000 RPO University, Saskatoon SK S7N 4J8 CANADA  
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<http://www.usask.ca/research>

