A SURVEY STUDY EVALUATING PERSISTENCE FACTORS AMONG DENTAL HYGIENE STUDENTS

by © Mariane Kirolous A thesis submitted

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Abstract

There has been an increased number of students pursuing post-secondary education in recent years, however there is a need for additional research on factors fostering academic success and persistence. Minimal research surrounding the notion of persistence has been conducted within private college settings in Canada. Persistence is described as a student attribute that enables continued participation in post-secondary studies with the intent of graduating. A cross-sectional survey study was conducted to examine attitudes towards persistence amongst current students and recent graduates at The Toronto College of Dental Hygiene and Auxiliaries (TCDHA), a private Dental Hygiene College. An online survey questionnaire, the Institutional Integration Scales (IIS), developed by Pascarella and Terenzini (1980) was adopted and administered to students and graduates based on Tinto's (1975) model of Student Integration. One hundred and fifty-one (N=151) respondents completed the survey, representing a 42% response rate. The findings support the significance of social and academic integration factors, while highlighting the need for greater attention to initiatives that address multicultural sensitivity and diversity within TCDHA. The findings have implications for academic leaders, educators, and policy makers to enhance strategies that may promote and foster greater persistence amongst post-secondary students while promoting students' retention and graduation rates.

General Summary

Persistence is identified as a key student attribute that could influence post-secondary students' inclination to continue with their studies to graduation. There is limited research around the perceptions of persistence amongst post-secondary students participating in private colleges in Canada. Understanding student perceptions towards persistence factors has important implications for enhancing initiatives, programs and policies that can enhance student success. In this study, a survey of dental hygiene students and graduates of the Toronto College of Dental Hygiene and Auxiliaries (TCDHA) – a private post-secondary Dental Hygiene College – was undertaken using Pascarella and Terenzini's (1980) validated scale; the Institutional Integration Scales (IIS). Based upon Tinto's (1975) theoretical model of Student Integration, the study findings highlight the significance of social and academic interaction as contributors to student success. It suggests a need for greater attention to strategies for enhancing multicultural sensitivity and cultural diversity amongst the student body for positive student experiences.

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Chapter 1

1.1 Introduction

Accessing a post-secondary institution is considered the beginning of an academic and professional life journey that can lead to different possible outcomes (Finnie et al., 2010). However, there are many different pathways that students may select to pursue during their post-secondary studies. Some students decide to maintain their enrollment in their initial program until graduation, switching over to another program in the same institution or shifting to a new institution. Others may choose to change from a college to university setting and vice versa, leaving post-secondary education temporarily and returning later, or leaving it permanently and never returning (Finnie et al., 2010). Although Cefai et al. (2016) found that there has been a noticeable increase in students' participation in post-secondary education (PSE) over the years, it was argued that "it is not enough to look at access when the critical element is schooling attainment as defined by the successful completion of a PSE diploma or degree" (Finnie et al., 2010, p. 4). Barnett (2011) supported this argument by highlighting that although more students are now entering colleges compared to earlier years; a large number of them are either leaving during their first year or departing before a degree or credential attainment. Additionally, Farley (2017) suggested that over the course of the past 40 years, there has been increased access to higher education, but that has not been the same for either the success rate or students' persistence. In essence, Farley argued that degree completion does not always follow access into a post-secondary institution, and this underlines the need for examining persistence patterns over access.

Finnie et al. (2010) reported that persistence in post-secondary education is minimally studied compared to access. However, low persistence rates raise many concerns for students, institutions and society as a whole since post-secondary graduated students will certainly

contribute effectively towards their societies, and are more likely to defer from harmful behaviors (Barnett, 2011). Kennel and Ward-Smith (2017) emphasized this point by suggesting, "outcomes associated with the inability to persist include personal (attrition), organizational (retention), societal (graduate), and financial (debt)" (p. 63). In the United States, the National Center for Education Statistics (2002) reported that although community colleges enroll approximately half of the U.S. nation, only a third of these students would successfully graduate within a timeline of three years from their entrance date (Barnett, 2011).

Finnie and Qiu (2009) argued that although many studies in the past were conducted on access to PSE; there have not been enough studies on this subject in Canada and other countries. Finnie and Qiu suggested that this could be due to the relative novelty of 'persistence' as a new emerging topic in the world of research. Comparatively, persistence is a dynamic process that needs extensive examination (Finnie & Qiu, 2009). However, this can be challenging due to the limited and inadequate resources as this topic could potentially inquire a specific set of data in order to meet the data analysis requirement (Finnie & Qiu, 2009).

1.2 Definition of persistence

Kennel and Ward-Smith (2017) define the term persistence as "a person who goes on resolutely or stubbornly despite opposition, importunity, or warning: one who continues firmly or obstinately. Someone who persists may be described as having grit, determination, or commitment" (p .64.). In addition, they argued, "the term persistence often evokes the reflection of an adversity that an individual overcomes during the pursuit of a goal or dream" (p. 64). Persistence has been defined by Heid (2014) as "a personal characteristic in which an individual displays voluntary enduring commitment to a goal or course of action despite obstacles and/or opposition" (p. 44). Moreover, persistence can also be identified as a motivational characteristic for a task as it confirms its completion (Kennel & Ward-Smith, 2017).

From an academic perspective, "persistence is defined as a complex, multidimensional phenomena influenced by an interaction of personal, academic, and environmental factors" (Kennel & Ward-Smith, 2017, p. 62). Likewise, Hagedorn (2006) defined persistence among college students as a sequential enrollment in post-secondary studies towards degree completion. Conversely, she added that a non- persistent student is the one who exits PSE without degree completion and never returns (Hagedorn, 2006). Kennel and Ward-Smith (2017) defined a student who persists or who have the attributes of persistence as someone who continuously enrolls in full time education with two goals in mind; pursuing a degree and graduating. Likewise, "a persisting student has acquired the characteristics of academic aptitude, readiness, motivation, personality and student development" (Kennel& Ward-Smith, 2017, p. 64). Kennel and Ward-Smith further noted that the constructs required to achieve academic persistence include preparation, ability, and motivation. Similarly, Heid (2014) indicated that "the concept of persistence in an academic major includes the factors and influences that result in continued work toward a goal or achievement, even when barriers are perceived" (p. 44).

It is important to realize that persistence and retention are two terms commonly used in PSE interchangeably; where retention is described as an institutional measure, while persistence is described as a student trait (Kennel & Ward-Smith, 2017). The focus of the research reported in this thesis is 'persistence' as opposed to retention (Farley, 2017). In fact, many previous studies have focused primarily on the reasons as to why students leave programs instead of exploring the reasons for students' success and continuous enrollment in a program to graduation (Farley, 2017). Koch et al. (2014) supported this argument and claimed that the topic on identifying reasons leading to college students' persistence or departure has always been one of the popular researched topics in post-secondary education.

1.2.1 Significance of persistence

Persistence has been an ever-growing focal point for higher education research for many years due to its link to academic success (Dean, 2017; Kennel & Ward-Smith, 2017). Kennel and Ward-Smith (2017) indicated, "Persistence, as an academic and personal concept, is a phenomenon experiencing international concern among institutions of higher education" (p. 67). Barnett (2011) also reported there has been an increase in the study of factors influencing college students' persistence in response to the increased national concern regarding the high attrition rate of students enrolled in post-secondary institutions in the United States. However, Koch et al. (2014) argued that although there has been much research on persistence among college students, institutions are experiencing difficulty retaining their students. According to ACT (American College Testing) policy report prepared by U.S. scholars in 2010, 33.3% of postsecondary students did not return to PSE to resume their second year at college (Koch et al., 2014). In fact, it was reported that in the event of examining students from underrepresented minority groups, first generation, and low-income families; lower retention rates would be observed as a result (Koch et al., 2014).

Interestingly enough, persistence as a concept has been used as a measuring tool to determine the outcome of continuous involvement in a program, advancing career commitments, and the result of effort input when students are faced with obstacles (Kennel & Ward-Smith, 2017). Hence, it is essential to study and measure persistence so that interventions can be considered to assist students in overcoming obstacles along with improving their academic persistence, which could lead to course completion and graduation (Kennel & Ward-Smith, 2017). Furthermore, Heid (2014) suggested that data established on persistence could be a source of measurement to evaluate effectiveness of students' recruitment programs, and retention leading to degree completion and graduation. Graham et al. (2013) highlighted that "the concept of persistence originates in social and cognitive psychology as one manifestation of motivation"

(p. 1455). Graham et al. additionally argued that in education, motivation plays a significant role in student engagement, and that one of the most important constructs of motivation is self-efficacy, which is required for persistence.

1.3 Dental hygiene education and persistence

Dr. Smith, a Philadelphia dentist, studied the value of dental cleanings from 1894-1898 and in collaboration with another dentist Dr. Fones; he developed the first dental hygiene program to train dental hygienists (Lyle, 2014). Lyle (2014) defined the dental hygiene profession as "the science and practice of the recognition, treatment and prevention of oral diseases' and describes activities of a dental hygienist" (p. 228). The dental hygienist also provides "educational, clinical, research, administrative, and therapeutic services supporting total health through the promotion of optimal oral health" (Lyle, 2014, p. 228).

According to the Government of Canada (2017), employment growth in the Dental Hygiene profession in Toronto, Canada is expected to be strong with a small number of people expected to retire in 2018. Accordingly, in order to improve public access to dental care services the dental hygiene profession provides benefit to society as a whole. There is no question on the relevance of addressing factors and barriers that dental hygiene students' experience in pursuing their education. This is why the examination of such experiences is substantial for the development of improved support programs and a more health-oriented society. Hunter et al. (2015) indicate that one of the ways to increase access to dental care is through increasing the number of dental care providers.

Comparatively, minimal research has been conducted on private colleges and dental hygiene programs in particular. Bowman et al. (2015) have suggested a need for conducting studies in private college settings in order to develop better practical recommendations. According to a report by Human Resources and Social Development Canada and the Canada

Millennium Scholarship Foundation (2007), a lack of knowledge on Canada's private post-secondary educational system and the enrollment and graduation rate of students using this system was observed. An emphasis was placed on the importance of knowledge enhancement in this area, since 10% of Canada student loan programs are distributed to students who attend private career colleges. Barnett (2011) reported that minimal research has been conducted on students attending private colleges in spite of the evidence showing that those students are at a significant risk for non-persisting in this particular setting. Barnett additionally noted that early college departure is much more common among some particular groups of students and some institutions. Based on a community survey conducted on student engagement in 2002, it was shown that "community college students are three to four times more likely to reflect the factors that put students most at risk of not attaining a degree" (Barnett, 2011, p. 194). Nonetheless, colleges play a significant role and take a moral responsibility in ensuring that the programs and services offered to their students are well developed to warrant their success (Adams, 2011).

The results from the current research study would contribute to the existing literature and support institutional administrators, educators, researchers, and policy makers by means of expanding their knowledge encompassing persistence factors experienced by students. With this intention, new strategies will be identified to improve students' educational experiences and greater graduation rates in post-secondary institutions. In other words, when predictors and factors of success are recognized, it would be simple to draw attention to successful students as well as those who require further assistance such as academic support (Smith, 2017).

1.4 Study Purpose

The purpose of this study is to explore the nature and level of persistence factors perceived by dental hygiene students and recent graduates of a private Canadian post-secondary

college. Informed by Tinto's model of student integration, the study also seeks to examine demographic and student background characteristics that may influence such perception.

Chapter 2

2.1 Review of Literature

2.1.1 Theoretical framework of persistence

The literature involving persistence can be divided into two classifications where one focuses on rates of graduation, switching and leaving; while the second analyzes patterns to identify students' characteristics and other relevant factors (Finnie et al., 2010). Two of the popular theoretical models that are found in the literature on persistence are Tinto's model of 'Student Integration' and Bean and Metzer's model of 'Student Attrition' (Finnie et al., 2010). Moreover, there is an additional model found in literature named 'Swail's Geometric Model of Student Persistence and Achievement', developed by Swail (Swail, 2003).

In 1975, Tinto identified persistence as "a characteristic absent in students who exited institutions of higher education prior to graduation" (Kennel & Ward-Smith, 2017, p. 64). According to Tinto's model, as students initially enroll into PSE, they enter with multiple pre-entry characteristics including: age, race, gender, family structure, parental education, high school preparation, the skills, and abilities that they bring along with them upon their enrollment. In the same fashion, those factors help those students to formulate their initial goals, and commitment levels to their schoolwork (Finnie et al., 2010). Subsequently, students appear to develop their PSE experiences based on their specific institutions and this determines their level of academic, social engagement, and academic achievement (Finnie et al., 2010). Students' post-entry experiences can alter their initial goals and commitments and with these factors taken into account, persistence can be determined (Finnie et al., 2010). Tinto also claimed that in order to facilitate persistence, five conditions have to be present including: expectations, support, feedback, involvement, and learning (Kennel & Ward-Smith, 2017).

Tinto suggested that academic integration is an indicator for persistence, and he claimed that the absence of academic integration could lead to disappointment in the overall academic experience, where motivation declines and students are more likely to drop out of an institution (Kennel & Ward-Smith, 2017). Conversely, Tinto suggested that when students are integrated socially and intellectually within an institution, they are more likely to persist towards graduation (Kennel & Ward-Smith, 2017). Tinto emphasized that academic integration consists of two components including: sense of classroom membership, and ability to achieve academic success (Barnett, 2011).

However, not all scholars agreed that integration was a central component to student success (Barnett, 2011). In 1980, Bean and Metzer introduced their model that shifted the focus onto attrition (Kennel & Ward-Smith, 2017). This model introduced factors external to institutions, such as finances and peer pressure (Finnie et al., 2010).

It was highlighted that the student integration model identified academic performance as a determinant for academic integration, whereas post-secondary educational experiences in the students' attrition model were identified as the culprit for students' poor academic performance and signaled departure from the institution (Finnie et al., 2010). In other words, if students could not integrate into an institution, they would perform poorly academically, and this would be the first indication to signal their decision to leave the institution (Finnie et al., 2010). In summary, those two models suggest that persistence decisions of students in post-secondary education are influenced by pre- and post-entry experiences.

In 2003, Swail introduced his 'Geometric Model of Student Persistence and Achievement'. This model focuses on the student as a central element (Swail, 2004). Swail (2004) discussed the dynamics of three important forces including: cognitive (academic ability), social (peers and faculty interactions, personal attitudes, and cultural history) and institutional

(support programs, student services, curriculum, teaching and instruction). In Swail's model, he stressed the importance of combining the three forces to allow for three outcomes including: students' growth, development and persistence (Swail, 2004).

According to Kennel and Ward-Smith (2017), some scholars have described a persistent student as "one who has acquired the characteristics of academic aptitude, commitment, readiness, motivation, engagement and self-regulation" (p. 64). These characteristics may influence persistence and contribute to academic success, while other variables such as motivation, self-concept, and commitment could potentially affect persistence levels (Kennel & Ward-Smith, 2017). Similarly, other contributors to persistence could include social connectedness, perceived stress and support, self-motivation, and goal attachment (Kennel & Ward-Smith, 2017). Other scholars have additionally emphasized that classroom engagement experiences could reinforce academic persistence (Kennel & Ward-Smith, 2017).

2.1.2 Factors influencing persistence

A number of factors were reported as determinants for student persistence towards academic success and program completion. For instance, motivation was recognized for its influential role in students' persistence in PSE (Finnie et al., 2010). In educational contexts, it is important to make a distinction between the intrinsic and extrinsic categories of motivation (Lavigne et al., 2007). When someone is intrinsically motivated, "he or she does something for its own sake, for the pleasure experienced in the process" (Lavigne et al., 2007, p. 353). On the contrary, when someone is extrinsically motivated, it is perceived that "he or she engages in activities not for themselves but for instrumental reasons" (Lavigne et al., 2007, p. 353). Another factor positively related to student persistence is encouragement from family and friends (Trainor, 2000). Additionally, it has been suggested that when students' autonomy is supported and they feel that they have an active role in their education; their self-determined motivation

level can be influenced (Lavigne et al., 2007). This influence on self-determined motivation will enable persistence to be featured as a significant behavioral outcome (Lavigne et al., 2007). It is equally important to note that an increase in self-determined motivation has been linked to greater persistence in other relevant matters such as "better maintenance of weight loss among obese patients, greater long-term smoking cessation, greater adherence to medication programs" (Lavigne et al., 2007, p. 354). For instance, higher levels of self-determined motivation have been associated with increased persistence towards learning a second language in education literature (Lavigne et al., 2007).

Additionally, students from lower socioeconomic backgrounds were found to be less likely to persist as compared to those from higher socioeconomic backgrounds (Finnie et al., 2010). Likewise, students from higher socioeconomic backgrounds were found to switch to other institutions, but would elect to persist towards graduation (Finnie et al., 2010). It has been found that students tend to persist more and not leave their PSE if they accessed the programs that they are interested in (Finnie et al., 2010). Moreover, it was discovered that the lack of certainty in regards to students' career goals was among the factors for non-persistence; given that it can potentially have a negative effect on persistence (Parkin, & Baldwin, 2009). In some cases, students would not persist in a program if they realized that their program of study did not tailor their needs preceding enrollment (Parkin, & Baldwin, 2009).

It is equally important to note that increased persistence can be achieved by means of early identification of students at risk of leaving or switching and early intervention to guide them to desirable programs (Finnie et al., 2010). Vedartham (2017) indicated that some of the factors for at-risk students include: part/full time workers, those who do not utilize or seek advising services, others who lack motivation, and individuals with personal/family problems. The U.S. literature suggests that students who persisted through their studies were more

academically prepared as compared to others who dropped out (Finnie & Qiu, 2009). According to Kennel and Ward-Smith (2017), some of the influences that impact persistence based on the college experience persistence model include: precollege characteristics & experiences (in classroom, out of class, and curricular), sociodemographic traits, academic preparation, and students' performance. Dean (2017) supported this by declaring that one of the most popular student attributes referenced in persistence literature was the GPA and its impact on graduation rates. In a similar manner, there has been an evident link in research between student entry-characteristics and persistence based on demographic characteristics, or socioeconomic characteristics as opposed to personality traits (Dean, 2017). Additionally, Borghese and Lacey (2014) suggested that good grades and high GPA are major contributors to student success in post-secondary education.

Parkin and Baldwin (2009) listed gender as another factor that affects persistence, where men were less likely to persist in their post-secondary education compared to women. Dean (2017) has also supported that gender was a defining variable for persistence in post-secondary education, particularly for non-traditional students. Similarly, Dean confirmed that gender was recognized as the most significant predictor of persistence among community college students. Additionally, based on research examining race/ethnicity and gender grouping, it was found that females are superior achievers in higher education as opposed to males (Dean, 2017).

Nevertheless, supportive academic advising availability on campuses as well as strong learning support systems such as tutoring, supplemental instruction programs, learning communities, and mentoring programs have been identified as powerful tools in influencing students' success and persistence to graduation (Drake, 2011). Moreover, Parkin and Baldwin (2009) indicated that career guidance counsellors have a major role in improving student persistence in post-secondary institutions. Wright et al. (2012) supported this position by

affirming that career counselors have a responsibility to encourage mentoring services and other activities that would lead to students' success in college. Wright et al. reported that in the presence of greater support systems, there would be a direct increase in both GPA and academic persistence.

Moreover, out-of-class interactions including: communicating with peers and faculty have been shown to greatly influence persistence of students (Drake, 2011). Drake (2011) claimed that despite the significance of students' personal intentions and commitments to their degree completion as they enter the college, other divergent factors preceding entrance have been found to be more critical. Furthermore, students' daily interaction with others and their perceptions of those interactions was found to be key in determining their decision of whether to stay or depart from an institution. Koch et al. (2014) supported this point, where it was reported that involvement with faculty and peers has been shown to directly influence students' decision of whether to persist or leave their post-secondary institutions. In addition, greater persistence has resulted from engagement in academic and social activities among students living on campus and their interaction with faculty and other students (Koch et al., 2014). Wright et al. (2012) stated, "mentoring relationships provide excellent modeling opportunities for students and have been linked to increased self-efficacy, as well as increased academic persistence and GPA" (p. 303-304). According to Kennel and Ward-Smith (2017), out of classroom educational experiences such as service learning and learning communities have been shown to positively affect rates of persistence, in particular for students from diverse ethnic or racial backgrounds. Many researchers have concluded that integration and involvement are considered central to students' persistence (Barnett, 2011).

According to Wright et al. (2012), it has been shown that increased self-efficacy is highly related to increased academic persistence, which could lead to academic success. Wright et al.

reported “academic self-efficacy can be considered a student’s confidence in his or her abilities to be successful with academic tasks” (p. 295). Kennel and Ward-Smith (2017) suggested that academic self-efficacy was amongst the key factors that enhanced persistence and emphasized that academic self-efficacy is correlated to students’ grades. Therefore, grade point average (GPA) was one of the strongest predictors to determine students’ persistence (Kennel, & Ward-Smith, 2017). Furthermore, students who achieve well academically and possess a high level of determination upon college entrance are the ones who are more likely to earn a college degree with the intent of being immensely motivated to persist (Koch et al., 2014).

On the contrary, there is another classification of students who are considered non-traditional students and are identified as adults who voluntary choose to return to post-secondary education following a minimum of a five- year absence (McManus, 2014). Those students have environmental factors other than academic variables that influence their persistence in post-secondary education including: finances, employment, and family responsibilities (Koch et al., 2014). Trainor (2000) argued that non-traditional students’ persistence in higher education is strongly linked to all their other responsibilities external to college experiences and their ambient social environment. Likewise, Vedartham (2017) mentioned that challenges faced by students in their attempt to juggle work, home, and school pressures were amongst the factors that contributed to low persistence and completion rate for students in post-secondary education.

Trainor (2000) also stressed that environmental factors such as work can have a huge impact on persistence for non-traditional students in college programs. Additionally, when non-traditional students return to school, they assume new roles where they have to deal with obstacles including money, time and childcare. These obstacles could potentially be stress producing and negatively influence their persistence in post-secondary education (Trainor, 2000). Parkin and Baldwin (2009) additionally indicated that adults with children were less likely to

persist in their post-secondary education as compared to those with no children. Vedartham (2017) reported that non-traditional students possess different learning priorities and motivations where she stated "non-traditional students are consumer conscious, while learning is goal oriented; concepts have to bring them closer to their goals" (p. 41). Moreover, non-traditional students require a nurturing environment, where they can advance academically as they encounter new learning opportunities in/out a classroom setting in order to attain academic success (Vedartham, 2017).

Barnett (2011) suggested that validation from faculty and others on campus play a major role in student success and persistence, especially for non-traditional, underserved students, and those in community college settings in general. This validation process was defined as "interactions with students, initiated by faculty and others in the campus community, that engender feelings of self-worth and a belief in the students' ability to succeed in the college environment" (Barnett, 2011, p. 196). Barnett further described it "as involving demonstrations of recognition, respect, and appreciation for students and their families and communities" (p. 196). Additionally, Barnett claimed that when validation is achieved, students' academic integration and intent to persist in a program would be greatly influenced.

Bowman et al. (2015) identified other factors that influenced persistence including "a small program feel and close-knit, family-style community" (p. 128). They also indicated that clinical education experiences assist in expanding student persistence rates, where they can attain valuable opportunities to be in settings that resemble their future job settings. Clinical education experiences allow students to feel clinically integrated where they are given opportunities to interact and engage with others, while consistently being provided with feedback from peers and faculty (Bowman et al., 2015).

2.1.3 Previous studies on persistence

It appears that there has been minimal research to date on persistent factors in dental hygiene programs. However, a review of the literature revealed that persistence has been studied across some allied health professions and undergraduate university programs. Kennel and Ward-Smith (2017) conducted a study to analyze the concept of persistence and its application on nursing college students. The purpose of the study was to allow faculty to develop interventions, provide strategies to improve academic persistence, and enhance students' academic success in the program. Some of the variables examined in this study included pre-college characteristics and experiences (e.g., sociodemographic traits, academic preparation & performance, and student disposition), organizational context, and individual student experiences (e.g., in class, out of class, and curricular experience). The results of the study suggested that academic variables including academic aptitude, readiness, self- regulation and learning are non-modifiable. Nonetheless, they impact persistence and academic success. Therefore, interventions should consistently aim to increase such characteristics. On the other hand, personal persistence attributes that included precollege characteristics and experiences cannot be altered by interventions. It was found that some attributes are important to possess and may contribute to students' academic persistence and academic success. Those attributes included: motivation, commitment to a goal, self-regulation, and engagement in campus activities (e.g., utilizing academic support services,) constructive feedback from faculty, and peer learning. Both academic and personal variables were observed to be barriers to persistence. It was concluded that although some researchers view persistence as the students' responsibility, data have shown that it is substantial to seek interventions to improve academic persistence. This could be achieved by the means of overcoming obstacles that prevent students from completing their course of study.

Farley (2017) examined two groups of students including those who completed the first course in a nursing program along with others who could not complete it. This study attempted to identify differences in factors that either contributed to, or inhibited students' persistence. Those factors included: social, environmental and academic, institutional interaction, integration factors, college facilities, and peer support. The results of the study revealed that students' persistence and success in a program was multifaceted and that there were no statistically significant differences among the factors. The study concluded that interventions including faculty support, and student motivation are required for student success. Additionally, teamwork and collaboration are essential for greater persistence. Furthermore, the author recommended a need for future research through the investigation of other survey tools amongst first semester nursing college students.

In another study by Dean (2017), an examination was undertaken on the influence of specific student entry characteristics collected from an admission application (e.g., demographic characteristics such as age, sex, previous history of education, GPA) on students' persistence. The study was conducted on students in a nursing graduate program to help educators and student affairs personnel identify and provide support for students at risk. It was found that age and the type of graduate program of study had a major influence on students' persistence in that particular institution. Students who were three years younger than the average completed their program within four years of entry. Additionally, completion rates were high for practitioner-focused students including "advanced practice registered nurses, such as: clinical nurse specialists, nurse anesthetists, nurse-midwives, and nurse practitioners as compared to non-practitioner focused" (p. 1). Dean (2017) concluded that additional studies including longitudinal investigations were needed to examine pre-entry characteristics and other variables from larger sample populations from different geographical regions. Moreover, identifying students at risk

from the application process could be an early intervention that would assist educational professionals assess, support students' persistence, and achieve their academic and personal goals.

Vedartham (2017) conducted another study to investigate strategies that could increase persistence and success rates among students undertaking anatomy and physiology courses at a community college. The findings revealed that both academic and non-academic variables were linked to high persistence and success rates among students. Moreover, some of the key strategies to students' persistence and success included an assessment test, two preparatory biology courses, technology and teaching strategies. It was concluded there are multiple factors that would allow students to persist and reach course completion. These factors included students' preparation to take the assessment test, dedicated faculty who are committed to students' success, student-centered collaboration between administration and faculty, and various teaching methodologies. Vedartham suggested a need for further research to investigate the relationship between advisors' involvement in students' retention, success, and the impact of external agencies on students' persistence and success.

Bowman et al. (2015) conducted a study to view the perception of program directors on programmatic attributes that contributed to athletic training students' persistence. The results suggested that when students are provided with a student-centered approach and diverse clinical experiences, a pleasant atmosphere is available to support student learning. The student-centered approach included: program size, student engagement, program atmosphere, academic and clinical cohesion. It was concluded that program directors should try to provide students with individual attention so students could gain a sense of value and belonging. Likewise, small size programs are significant in fostering interpersonal relationships that can provide students with

various mentoring opportunities. Bowman et al. suggested the need for future studies to collect data from wider populations and examine programs in public and private settings.

A study conducted by Simon et al. (2015) on Quebec junior college students investigated the factors that affected their motivation and persistence in STEM programs. The results of the study indicated that students with positive emotions towards their education as well as those with higher levels of academic achievement were more likely to persist in STEM programs. It was concluded that students' achievement goals, self-efficacy, and perceived autonomy were factors that influenced intrinsic motivation and achievement which led to persistence in STEM programs. Besides that, it shed light on the importance of psychosocial variables, the importance of instructional methods, and interventions that promote student motivation and increase persistence.

Mays (2017) identified the characteristics of successful and unsuccessful nursing college students in a 2-year program. The independent variables used in the study included demographics, admission qualifications, and academic performance where they were utilized to predict impact on student success. The findings showed that there were no differences related to students' success based on demographic characteristics. The two distinguishing factors for students who successfully completed the first three semesters were the prerequisite GPA and the second semester grades. It was concluded that there was a need for policy change to increase the prerequisite GPA admissions requirement. Mays (2017) suggested a need for future research of the GPA prerequisite in order to offer acceptance to students who were academically prepared to assist with their successful completion of the program.

Smith (2017) examined the factors that had an impact on student success in a baccalaureate nursing program. The purpose of the study was to identify the effect of non-academic and academic variables on academic success defined as junior year GPA and

persistence. The results of the study showed that previous college GPA was a predictor for expected junior year GPA and persistence in the nursing program following the junior year.

In summary, the reviewed studies suggested a need for further research to examine factors that affected student persistence to graduation. Dean (2017) reported that "the majority of persistence studies in higher education are limited based on data from: single schools, small samples, retrospective data collected after the student has stopped persisting, and a narrow range of possible causal variables" (p. 58). Therefore, additional research on persistence factors among college students especially in the health care field would add to the knowledge base in this area.

2.1.4 Overview of Tinto's model of student integration

In 1975, Tinto "developed an explanatory, longitudinal model of the persistence/withdrawal process, known as the Student Integration Model, which was based on the degree of fit between the individual student and institutional environment" (Arnekrans, 2014, p. 17). This model suggests that the dropout process for students stems from the concept of academic and social integration within the institution (Arnekrans, 2014). The model suggested that students come to a specific college or university with diverse background characteristics including ethnicity, secondary school achievement, academic aptitude, family, educational, and financial contexts (Arnekrans, 2014). These characteristics may lead to the formation of initial commitments towards the goal of graduation from college and towards the particular institution, they are enrolled in (Arnekrans, 2014). Arnekrans (2014) believed that "together with these background characteristics, these initial commitments are hypothesized as influencing, not only how well the student will perform academically, but also how he or she will interact with and subsequently become integrated into, the institution's social and academic systems" (p.17-18). Therefore, if all aspects are equally considered, it could be concluded that the higher the level of social and academic integration for the individual, the greater could be his/her commitment to

their attending institution and goal of commitment to graduation. Ultimately, when goal and institutional commitments are present in addition to levels of integration, persistence will be positively influenced. Arnekrans emphasized the importance of enhancing integration in order to reduce the likelihood of students dropping out of institutions.

Tinto's model (Figure 1) seeks to explain the contributing factors to students' decision of dropping out from an institution based on their academic and social integration (Arnekrans, 2014).

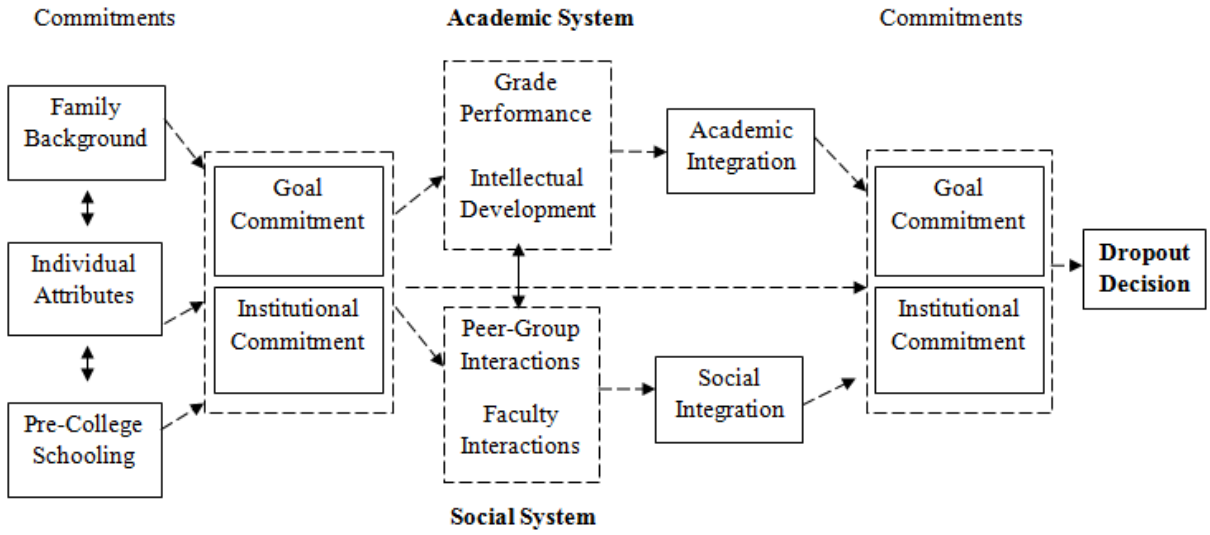

Figure 2.1 ***Tinto's Student Integration Model (1975)***

It has been shown in previous research that persistence in college is affected by two key components including academic and social integration (Lyons, 2007). Social integration in the campus could encompass "developing close friendships, memberships in clubs and groups, informal relationships with faculty and staff, and attendance at social or cultural campus events" (Lyons, 2007, p. 12). On the other hand, academic integration could include "academic achievement (e.g., GPA, dean's list, etc.), frequency of communications with advisors, formal

communications with faculty and career counselors, memberships in major clubs, and participation in study groups and internships" (Lyons, 2007, p. 12). In general, Tinto's model anticipated that college students have to make social and intellectual adjustments to their new surroundings in order to persist in college (Lyons, 2007).

According to Tinto's theory, a student's decision to remain or depart from a particular institution may be influenced by a number of integration factors between students and those that they interact with in a college environment (Lyons, 2007). Therefore, this theory suggests that principal determinants influencing educational goals and commitments towards an institution may include students' social and academic interactions within the institution (Lyons, 2007). This particular model "seeks to explain how interactions among different individuals within the academic and social systems of the institution and the communities, which comprise them, lead individuals of different characteristics to withdraw from that institution prior to degree completion" (Lyons, 2007, p. 6-7). The six key constructs of Tinto's model include:

1. Pre-entry attributes: age, gender, race, parental education, GPA;
2. Initial goals and commitments: commitment to level and type of education;
3. Institutional experiences: interactions with faculty and other students;
4. Integration: academic and social within the campus environment;
5. Subsequent goals and commitments: commitment to a particular institution;
6. Outcome: decision to stay enrolled and persist to graduation or to withdraw (Lyons, 2007).

According to Lyons (2007), Tinto claimed that students would choose to persist to graduation, if they sensed a strong connection on the social and academic levels towards their institution. Tinto concluded that a student's inability to integrate socially or academically in

an institution is considered a significant factor in their inability to persist at that particular institution (Lyons, 2007).

2.1.5 Discussion on the validity of Tinto's Student Integration Model

Lyons (2007) reported "many other researchers have validated the descriptive power of Tinto's model by operationalizing the key components of the theory and predicting departure decisions" (p. 9). For instance, Pascarella and Chapman (1983) conducted a study on different type of institutions including four year residential institutions, four year commuter institutions and two year commuter institutions to investigate the validity of Tinto's model. The study involved 2,326 freshmen students from 11 different post-secondary institutions, and the results supported the predictive validity of the model. Another study by Pascarella and Terenzini (1983) on 763 residential university freshmen students tested the validity of Tinto's model using a path analysis model, and found that the results were generally consistent with Tinto's model. Other studies in the U.S. higher education context have also applied the structural equation modelling (SEM) method to test Tinto's model (Chrysikos et al., 2017, p. 5). For instance, Braxton et al. (1995) conducted a study on 263 first- time freshmen students who entered four year colleges and universities and found that the magnitude of the indices indicated a good fit between Tinto's model and the data provided. In the UK higher education context, Chrysikos et al. (2017) conducted a study on 901 students where Tinto's model of student integration was applied using the Institutional Integration Scales (IIS) developed by Pascarella and Terenzini (1980). The results of the study demonstrated evidence of good validity, and the score values indicated that Tinto's model was a good fit of the data.

In the current study, a demographic form was created and distributed to students since Heid (2014) emphasized the significance of incorporating demographics in persistence studies, as they provide supportive data that could influence persistence on different levels. Heid (2014)

additionally mentioned that when demographic data are collected in a survey, they could assist researchers with the recognition of population peculiar characteristics. Additionally, Lyons (2007) argued "there is a substantial body of research suggests that the students' interactions with the college environment are not independent of particular background characteristics. Therefore, it stands to reason that these characteristics are influential in any aspect of student integration that is being examined in this study" (p. 34).

Accordingly, since there has been inconsistent research as to whether demographic characteristics will influence persistence or not and the fact that multiple researchers have emphasized the importance of assessing demographic variables, it would be beneficial to examine and explore these variables further. Hence, this current study sought to examine the different demographic characteristics for the dental hygiene students at TCDHA, to determine its consistency with previous research conducted on this topic. Burrus et al. (2013) have emphasized the significance of this by stating: "A multitude of background characteristics have been empirically linked to college persistence. Persistence theories hypothesize that background characteristics are particularly important in student persistence, because they affect how students engage, interact, and integrate into college environments" (p. 14). Additionally, there are a number of non-traditional students at TCDHA, hence, it will be interesting to identify if this factor can be a predictor variable to persistence. Thereby, the researcher will plan to look at a correlational analysis between demographic items and persistence attitudes.

Chapter 3

3.1 Methods

The purpose of this study was to evaluate the persistence factors experienced among dental hygiene students in a private college setting using a survey questionnaire. An online survey questionnaire was distributed to current and recent graduates at TCDHA. This chapter summarizes the survey design methodology employed to collect and analyze data to explore levels of perceived persistence amongst dental hygiene students, in addition to the demographic and background characteristics that may influence persistence.

3.1.1 Survey Study design

A cross-sectional survey study was undertaken. Lyons (2007) has defined a cross-sectional study as "an examination of a phenomenon that occurs one point in time" (p. 30). The survey questionnaire (Appendix B) consisted of two parts. Part one included six items and collected respondents' demographic information on the pre-entry attributes and family background characteristics including: parents' level of education, current average in the program, gender, ethnicity, and semester level.

Part two collected perceptions towards persistence factors using the Institutional Integration Scales (IIS) developed by Pascarella and Terenzini in 1980 (Lyons, 2007). The IIS is a 30-item Likert-type scale that asks respondents to indicate their level of agreement using "1 = Strongly Disagree" to "5 = Strongly Agree". Permission to adopt the IIS for use in the current study was received from the original authors. The IIS has been previously used in "a variety of studies examining undergraduate student persistence and retention" (Lyons, 2007, p. 32). Additionally, it has been reported that "the structure of the IIS is compatible for research involving college students, because it is relatively short and simple to administer" (Lyons, 2007, p. 32).

The IIS is divided into three scales including (Lyons, 2007, p. 32):

1. Social Integration
2. Academic Integration
3. Institutional Integration

The IIS is additionally divided into five subscales including (Lyons, 2007, p. 32):

1. Peer-Group Interactions
2. Interactions with Faculty
3. Faculty Concern for Student Development & Teaching
4. Academic & Intellectual development
5. Institutional & Goal Commitment

A copy of the online survey was posted on the college portal to be easily accessed by students as soon as they logged into the home page of the college. The questionnaire was developed as a Google survey through Google form platform. It is a web-based application that enables the creation of and collection of online survey responses in an online spreadsheet, where respondents are invited by email. Thereby, an email message was distributed to enrolled students at the time of the study that included a request for survey participation, along with an online link to the anonymous survey. Graduate respondents were also distributed an email message with a survey link. The Dillman method created by Hoddinott and Bass (1986) was applied for sending email reminders to all potential respondents. A total of three email messages were sent, where the first one was sent one week following the initial email, a second at week three, and a third at week seven from the initial email as a follow up for non-respondents.

The survey was anonymous, with no identifying information requested from respondents. All survey data was stored and accessed via a password protected computer owned by the researcher. A pilot of the survey questionnaire was also conducted with a small group of students

(N=3) at TCDHA prior to administration of the survey. The purpose of the pilot was to explore the readability and comprehension of survey question items by a small sample of respondents.

3.2 Validity & Reliability of the IIS

Creswell (2015) illustrated the importance and significance of both validity and reliability characteristics in instrument selection. Validity has been defined as "the development of sound evidence to demonstrate that the test interpretation (of scores about the concept or construct that the test is assumed to measure) matches its proposed use" (Creswell, 2015, p. 159). While reliability indicated "that scores from an instrument are stable and consistent" (Creswell, 2015, p. 159). Creswell elaborated on this by explaining that scores of an instrument should always be consistent, when administered multiple times by researchers and at various times.

Content validity for the IIS was established by Pascarella and Terenzini (1980), where few specific scales were constructed through Tinto's model of systematic analyses and educational research to measure for Academic Integration, Social Integration and Commitments (Lyons, 2007). Academic Integration was primarily determined by student's academic performance and intellectual development throughout college years (Lyons, 2007). On the other hand, Social Integration was primarily determined by the degree and level of correspondence between students and their social environment including extracurricular activities and peer group interactions (Lyons, 2007). Finally, the levels of social and academic integration would lead to an additional element, which is Commitment (Lyons, 2007). Commitment was primarily determined by the student's level of commitments to his/her institution and towards goals linked to graduation and career (Lyons, 2007). A various number of dimensions of social and academic integration and goal and institutional commitment were examined by Pascarella and Terenzini (1980), whereas series of five-response Likert items were developed (Lyons, 2007). The items on each scale were constructed to employ the various aspects of each dimension originally

developed by Tinto (Lyons, 2007). Pascarella and Terenzini (1980) established construct validity of the scales from the responses of 763 freshman college students through the utilization of factor analysis (Lyons, 2007). The authors performed a screen test, where the results yielded a solution of five factors with Eigenvalues including the range of 6.14 to 1.67 (Lyons, 2007). The five factor solutions were responsible for 44.5% of the variance in the correlation matrix (Lyons, 2007).

Additionally, Pascarella and Terenzini (1980) performed a multivariate analysis of covariance (MANCOVA) and a discriminant analysis to determine the predictive validity of the institutional integration scales resulting from the items (Lyons, 2017). Similarly, MANCOVA was utilized by the authors in order to determine if the institutional integration scales were differentiated significantly between persistent students from freshman year and those who voluntarily dropped out with the statistical control for the factors including the influence of all pre-enrollment variables, academic performance, and extracurricular involvement (Lyons, 2017). Moreover, a stepwise discriminant analysis and classification analysis were utilized to group discrimination and the predictive utility of the scales so variable contributions could be estimated (Lyons, 2017). When the integration scales were added, the stepwise discriminant analysis resulted in an increase in the canonical R^2 (explanation of variation in-group membership) of 21.5% (Lyons, 2017). In addition to this, each of the five scales showed a significant differentiation between freshman year persisters, and those who voluntarily dropped out at the univariate level, with freshman persisters mostly scoring higher on all factor scales than the group who voluntarily dropped out (Lyons, 2007).

A previous longitudinal study was conducted on 1,457 freshman students at Syracuse University with researchers reporting that institutional integration scales including peer group interactions, interactions with faculty, faculty concern for student development and teaching,

academic and intellectual development, and institutional and goal commitments showed an increase in identifying persistent students and dropouts (Lyons, 2007). Overall, the results from this study established support for the predictive validity of the major dimensions of Tinto's model. Hence, when performance of the five institutional integration scales was examined, it was suggested that those scales might be beneficial in the identification of college students who may potentially dropout (Lyons, 2007).

3.2.1 Discussion on the Reliability of the IIS

To establish reliability, Pascarella and Terenzini (1980) applied Cronbach's alpha reliability test for the scales with the resultant alphas as follows: Peer-Group Interactions = .84; Interactions with Faculty = .83; Faculty Concern for Student Development and Teaching = .82; Academic and Intellectual Development = .74; Institutional and Goal Commitment = .71 (Lyons, 2007, p. 36-37). Pascarella and Terenzini (1980) applied the Cronbach's alpha reliability test to each subscale. The results are represented below in Table 3.1 (Lyons, 2007, p. 32).

Table 3.1: ***Institutional Integrational Scales***

Scales	Subscales	Alpha Coefficient	Number of Items
Social Integration	Peer-Group Interaction	.84	7
	Interactions with Faculty	.83	5
Academic Integration	Faculty Concern for Student & Teaching	.82	5
	Academic & Intellectual Development	.74	7
Institutional & Goal Commitment		.71	6

In general, Lyons (2007) stated "several studies have addressed the reliability of the IIS using college student integration, persistence, and/or retention as the criterion. In general, reliability has averaged approximately .78" (Lyons, 2007, p. 37). Lyons (2007) indicated that other scholars such as Nunnally and Bernstein in 1978 reported that a reliability of coefficient of .70 is an acceptable rating. When a coefficient of .70 is present, this indicates that there is a consistency of 70% of an instrument and a chance for an error occurrence at 30% of the time, whereas complete consistency with minimal error indicates a coefficient of +1 (Lyons, 2007).

Generally, the IIS developed by Pascarella and Terenzini (1980) "has been one of the most prolific and valid instruments to assess academic and social integration, the major dimensions of Tinto's model" (Lyons, 2007, p. 27). It is considered a very useful tool to measure "college students' level of integration with respect to interactions with faculty, peers" (Lyons, 2007, p.27).

3.2.2 Survey Population

The study was conducted at a private Dental Hygiene College; Toronto College of Dental Hygiene and Auxiliaries (TCDHA) located in Toronto, Ontario in July 2019. The survey-questionnaire was distributed via e-mail to 362 potential respondents, including current students from all four semesters and those who graduated from the program within the last two years.

3.3 Ethical Review

Ethical approval (Appendix D) was obtained from both Memorial University of Newfoundland through the Interdisciplinary Committee on Ethics in Human Research (ICEHR) and the Toronto College of Dental Hygiene and Auxiliaries Inc. (TCDHA) for the research study. A consent form (Appendix A) was drafted for the purpose of the survey and it included various information such as; purpose & length of study, right to withdraw, possible benefits and risks associated with the study and important pointers on confidentiality, and anonymity measures.

Once participants clicked on the link to the survey, an informed consent form was displayed in order to be completed prior to proceeding to the online survey.

3.3.1 Data Analysis

Descriptive statistics and inferential statistical analyses were conducted to summarize and examine the collected survey questionnaire data. Descriptive statistical measures were used to summarize the frequency of responses on questionnaire items. Bivariate independent sample t-tests and multivariate linear regression analysis were used to analyze the effects of respondents' background characteristics on each of the dependent variables on each subscale and overall scale. Cronbach's alpha reliability test was used to examine internal consistency of the scale. Additionally, SPSS version 25.0 (Cohen et al., 2000) was used in this analysis.

Chapter 4

4.1 Results

The purpose of this study was to evaluate the nature and level of persistence factors experienced among dental hygiene students and recent graduates of a private college setting. This chapter summarizes the results of statistical analyses to examine the extent to which post-secondary dental hygiene students perceived various persistence factors. The analyses presented in this chapter include a descriptive statistical summary of the background demographic characteristics of the survey respondents, individual item ratings of the IIS survey questionnaire adopted for the study, and overall scale and subscale scores for the survey. Inferential statistical analyses, such as bivariate independent sample t-tests and multivariate linear regression, were additionally conducted to examine the influence of respondents' demographic and background characteristics on responses to persistence factors measured by the survey questionnaire used in the study.

The study design was cross sectional, using a validated survey-questionnaire that was distributed and completed online. The survey consisted of two parts. Part one collected demographic information surrounding respondents' pre-entry attributes and family background characteristics including: parents' level of education, current average in the program, gender, ethnicity, and semester level. Part two of the survey collected self-reported data using the Institutional Integration Scale (IIS) developed by Pascarella and Terenzini (1980). The IIS included 30 Likert-scale items scored using "1 = Strongly Disagree to 5 = Strongly Agree". The survey-questionnaire was distributed via email to 362 potential respondents including current students and recent graduates. A total of 151 surveys were completed, resulting in a response rate of approximately 42%. Statistical analyses were conducted using SPSS version 25.

4.1.1 Background and Demographic Characteristics of the Respondent Sample

Table 4.1 summarizes the respondents' characteristics based on age, gender, parental education and ethnicity. A majority of respondents (57.8%, N = 77) were between 18-25 years of age, while approximately 42% (N = 74) reported being between 26-55 years of age. A majority of respondents reported being female (94%, N = 141), father's education being college diploma or lower (72.90%, N = 102), and mother's education being college diploma or lower (72.10%, N = 106). As well, a majority of respondents reported ethnicity being "other" (57.80%, N = 85), while approximately 42 % of respondents reported being of "white" ethnicity (N= 62).

Table 4.2 summarizes the results for the 'Peer Interaction' subscale items to examine Dental Hygiene students' social integration experiences at TCDHA. In general, the majority of respondents indicated positive responses of strongly agree or agree across the subscale items. The highest mean score of 4.27 was reported for the item *"The student friendships I have developed at the college have been personally satisfying"* with 88.4% (n=130) of respondents indicating strongly agree and agree. The second highest mean score of 4.25 was reported for the item *"Since coming to this college I have developed close personal relationships with other students"* with 89.1% (n=132) of respondents indicating strongly agree and agree. The lowest mean score of 2.62 was reported for two items, with 55% (n=83) of respondents indicating strongly agree or agree that "*Few of the students I know would be willing to listen to me and help me if I had a personal problem"* and 51% (n=76) of respondents indicating strongly agree and agree with *"Most students at this college have values and attitudes different from my own".*

Table 4.3 summarizes the results for the 'Interactions with Faculty' subscale items. This subscale included items intended to examine dental hygiene students' perceptions of social integration experiences at TCDHA. In general, the descriptive statistics indicate that the majority

Table 4.1 ***Summary of Respondents' Background Characteristics***

	N	%
Age group (n=151)		
18-25 years	77	57.80
26-55 years	74	42.20
Gender (n=150)		
Female	141	94
Male	9	6
Father's education (n=140)		
≤ College diploma	102	72.90
University or Master's degree	38	27.10
Mother's education (n=147)		
≤ College diploma	106	72.10
University or Master's degree	41	27.90
Ethnicity (n=147)		
Other	85	57.80
White	62	42.20

Table 4.2 ***Summary of Peer Interaction Items***

Item	N	Strongly Agree n (%)	Agree n (%)	Not Sure n (%)	Disagree n (%)	Strongly Disagree n (%)	Mean	SD
Since coming to this college I have developed close personal relationships with other students	148	64(43.2)	68(45.90)	9(6.1)	3(2)	4(2.7)	4.25	0.87
The student friendships I have developed at this college have been personally satisfying	147	69(46.9)	61(41.5)	9(6.1)	4(2.7)	4(2.7)	4.27	0.90
My interpersonal relationships with other students have had a positive influence on my personal growth, attitudes, and values	151	61(40.4)	61(40.4)	18(11.9)	9(6)	2(1.3)	4.13	0.93
My interpersonal relationships with other students have had a positive influence on my intellectual growth and interest in ideas	151	51(33.8)	68(45)	9(12.6)	12(7.9)	1(.7)	4.03	0.92
It has been difficult for me to meet and make friends with other students *	150	11(7.3)	25(16.7)	16(10.7)	51(34)	47(31.3)	3.65	1.28
Few of the students I know would be willing to listen to me and help me if I had a personal problem *	151	40(26.5)	43(28.5)	20(13.2)	30(19.9)	18(11.9)	2.62	1.37
Most students at this college have values and attitudes different from my own *	149	27(18.1)	49(32.9)	36(24.2)	27(18.1)	10(6.7)	2.62	1.17
Total mean								**3.65**

**As per original scale properties, item is reverse-coded for calculating subscale and scale scores.*

Table 4.3 ***Summary of Interactions with Faculty Items***

Item	N	Strongly Agree n (%)	Agree n (%)	Not Sure n (%)	Disagree n (%)	Strongly Disagree n (%)	Mean	SD
My non-classroom interactions with faculty have had a positive influence on my personal growth, values and attitudes	147	36(24.50)	69(46.9)	30(20.4)	9(6.1)	3(2)	3.86	0.93
My non-classroom interactions with faculty have had a positive influence on my intellectual growth and interest in ideas	148	34(23)	69(46.6)	33(22.3)	8(5.4)	4(2.7)	3.82	0.94
My non-classroom interactions with faculty have had a positive influence on my career goals and aspirations	149	34(22.8)	75(50.3)	26(17.4)	10(6.7)	4(2.7)	3.84	0.94
Since coming to this college I have developed a close, personal relationship with at least one faculty member Since coming to this college, I have developed a close, personal relationship with at least once faculty member	145	29(20)	41(28.3)	25(17.2)	36(24.8)	14(9.7)	3.24	1.29
I am satisfied with the opportunities to meet and interact informally with faculty members	148	30(20.3)	71(48)	24(16.2)	19(12.8)	4(2.7)	3.70	1.02
Total mean:								**3.70**

Table 4.4 ***Summary of Faculty Concern for Student Development and Teaching Items***

Item	N	Strongly Agree n (%)	Agree n (%)	Not Sure n (%)	Disagree n (%)	Strongly Disagree n (%)	Mean	SD
Few of the faculty members I have had contact with are generally interested in students *	148	23(15.5)	67(45.3)	25(16.9)	30(20.3)	3(2)	2.48	1.05
Few of the faculty members I have had contact with are generally outstanding or superior teachers	149	1(.7)	24(16.1)	19(12.8)	70(47)	35(23.5)	2.23	1.01
Few of the faculty members I have had contact with are willing to spend time outside of class to discuss issues of interest and importance to students *	150	29(19.3)	55(36.7)	32(21.3)	28(18.7)	6(4)	2.51	1.12
Most of the faculty members I have had contact with are interested in helping students grow in more than just academic areas	149	39(26.2)	65(43.6)	28(18.8)	12(8.1)	5(3.4)	3.81	1.02
Most faculty members I have had contact with are genuinely interested in Teaching	149	43(28.9)	82(55)	9(6)	12(8.1)	3(2)	4.01	0.93
Total Mean:								**3.01**

** As per original scale properties, item is reverse-coded for calculating subscale and scale scores.*

of respondents strongly agreed or agreed with the items of this subscale. The highest mean score of 3.86 was reported for the item *"My non-classroom interactions with faculty have had a positive influence on my personal growth, values and attitudes"* with 71.4% (n=105) of respondents indicating strongly agree or agree. This was followed by a mean score of 3.84 for the item *"My non-classroom interactions with faculty have had a positive influence on my career goals and aspirations"* with 73.1% (n=109) of respondents agreeing. The last item with a mean score of 3.82 was *"My non-classroom interactions with faculty have had a positive influence on my intellectual growth and interest in ideas"* with 69.6% (n=103) agreeing. The lowest mean score of 3.24 was reported for the item "*Since coming to this college I have developed a close, personal relationship with at least one faculty member"* with 48.3% (n=70) agreeing.

Table 4.4 summarizes the results for the 'Faculty Concern for Student Development and Teaching' subscale items to examine dental hygiene students' 'Academic Integration' experiences at TCDHA. The majority of respondents reported strongly agree or agree responses across the subscale items. The highest mean score of 4.01 was reported for the item *"Most faculty members I have had contact with are genuinely interested in teaching"* with 83.9% (n=125) of respondents indicating strongly agree or agree responses. This was followed by a mean score of 3.81 for the item *"Most of the faculty members I have had contact with are interested in helping students grow in more than just academic areas"* with 69.8% (n=104) of respondents indicating strongly agree or agree. The lowest mean score of 2.23 was reported for the item *"Few of the faculty members I have had contact with are generally outstanding or superior teachers"* with 16.8% (n=25) of respondents indicating strongly agree or agree.

Table 4.5 summarizes the results for the 'Academic and Intellectual Development' subscale items further examine students' 'Academic Integration' experiences at TCDHA. The highest mean score of 4.18 was reported for the item *"My academic experience has had a*

positive influence on my intellectual growth and interest in ideas" with 91.4% (n=138) of respondents indicating strongly agree or agree. This was followed by a mean score of 4.01 for the item *"I am satisfied with the extent of my intellectual development since enrolling in this college"* with 81.5% (n=123) of respondents indicating strongly agree or agree. The following items had a mean score between 3.79 to 3.98 of respondents indicating strongly agree and agree:

- *"I am satisfied with my academic experience at this college"* (72%, n=108);
- *"My interest in ideas and intellectual matters has increased since coming to this college"* (80.1%, n=121);
- *"I have performed academically as well as I anticipated I would"* (79%, n=117).

The lowest mean score of 2.30 for this subscale was reported for the item *"Few of my courses this year have been intellectually stimulating"* with 66.2% (n=100) of respondents indicating strongly agree or agree. As for the item, *"I am more likely to attend a cultural event (i.e., concert, lecture, art show) now than I was before coming to this college"* 22.8% (n=34) of respondents reported a response of "Not sure".

Table 4.6 summarizes the results for the 'Institutional and Goal Commitments' subscale items for dental hygiene students' perceptions of 'Institutional integration' experiences at TCDHA. This subscale resulted in the highest average total mean score across items amongst the five subscales at M = 3.92. The highest mean score of 4.66 was reported for the item *"It is important for me to graduate from this college"* with 93.8% (n=121) of respondents indicating strongly agree or agree. Other high scoring items included "*Getting good grades is not important to me"* with 82.8% (M=4.30, n=101) of respondents indicating strongly disagree or disagree, and *"It is not important for me to graduate from this college"* with 83.7% (n=87) of respondents indicating strongly disagree or disagree. The lowest mean score of 2.88 was for the item *"It is*

likely that I will register at this college next fall" with 33.3% (n=26) of respondents indicating strongly agree and agree.

4.1.2 Effect of Background and Demographic Characteristics on Institutional Integration Scale (IIS) Scores

Tables 4.7 to 4.12 report the results of t-Test analyses comparing the effects of demographic and background characteristics on overall IIS and subscale scores.

Table 4.7 summarizes the mean scores and t-Test analysis results for differences based on the respondents' background characteristics for the 'Peer- Group Interactions' subscale. There were no statistical mean differences for any of the background characteristics including: age group, gender, parental education and ethnicity at the $p < .05$ level.

Table 4.8 summarizes the mean scores and t-Test analysis results for differences based on the respondents' background characteristics for the 'Interactions with Faculty' subscale. Again, there were no statistical mean differences for any of the background characteristics including: age group, gender, parental education and ethnicity.

Table 4.9 summarizes the mean scores and t-Test analysis results for differences based on the respondents' background characteristics for the 'Faculty Concern for Student Development and Teaching' subscale. A statistically significant main effect for ethnicity at the $p < .05$ level emerged. Respondents reporting being of "white" ethnic background (M=15.75, SD=3.23) scored higher than those respondents reporting being from the "other" ethnicity group (M=14.46, SD=2.52). There were no statistical mean differences for the remaining background characteristics including: age group, gender, and parental education within this academic integration scale.

Table 4.10 summarizes the mean scores and t-Test analysis results for differences based on the respondents' background characteristics for the 'Academic and Intellectual Development'

subscale. A statistically significant main effect for ethnicity at the $p < .05$ level was also found. Respondents reporting being of "white" ethnic background (M=26.05, SD=4.18) reported higher mean score than those reporting being of "other" ethnicity (M=24.63, SD=3.74). There were no statistical mean differences for the remaining background characteristics including: age group, gender, and parental education.

Table 4.11 summarizes the mean scores and t-Test analysis results for differences based on the respondents' background characteristics for the 'Institutional and Goal Commitments' subscale. There were no statistical mean differences at the $p < .05$ level for any of the background characteristics including: age group, gender, parental education and ethnicity.

Table 4.12 summarizes the mean scores and t-Test analysis results for differences based on the respondents' background characteristics for the overall, total IIS scale. Overall, a statistically significant main effect for ethnicity at the $p < .001$ level was found with respondents of "white" ethnic background (M=113.92, SD=11.37) reporting higher mean scores than respondents from "other" ethnic groups (M=97.60, SD=12.16). There were no statistical mean differences for the remaining background characteristics including: age group, gender, and parental education for the overall mean scale score.

Multivariate Regression analyses were also conducted to examine the effect of background and demographic characteristic variables across the IIS scale and subscales. A significant effect at the $p < .05$ level was found for the 'Faculty Concern for Student Development and Teaching' subscale. Ethnicity was found to have a significant effect on subscale scores with $p = 0.013$. A statistically significant effect at the $p < .001$ level was also found on the overall scale scores. Again, ethnicity of the respondent was found to affect the overall mean score on the IIS scale with $p = 0.009$.

Table 4.5 ***Summary of Academic and Intellectual Development Items***

Item	N	Strongly Agree n (%)	Agree n (%)	Neutral n (%)	Disagree n (%)	Strongly Disagree n (%)	Mean	SD
I am satisfied with the extent of my intellectual development since enrolling in this college	151	40(26.5)	83(55)	20(13.2)	6(4)	2(1.3)	4.01	0.82
My academic experience has had a positive influence on my intellectual growth and interest in ideas	151	48(31.8)	90(59.6)	7(4.6)	4(2.6)	2(1.3)	4.18	0.75
I am satisfied with my academic experience at this college	150	32(21.3)	76(50.7)	25(16.7)	13(8.7)	4(2.7)	3.79	0.96
Few of my courses this year have been intellectually stimulating *	151	32(21.2)	68(45)	28(18.5)	19(12.6)	4(2.6)	2.30	1.03
My interest in ideas and intellectual matters has increased since coming to this college	151	34(22.5)	87(57.6)	21(13.9)	6(4)	3(2)	3.95	0.84
I am more likely to attend a cultural event (i.e., concert, lecture, art show) now than I was before coming to this college	149	18(12.1)	45(30.2)	34(22.8)	34(22.8)	18(12.1)	3.07	1.23
I have performed academically as well as I anticipated I would	148	48(32.4)	69(46.6)	14(9.5)	14(9.5)	3(2.0)	3.98	0.99
Total Mean:								**3.60**

** As per original scale properties, item is reverse-coded for calculating subscale and scale scores.*

Table 4.6 ***Summary of Institutional and Goal Commitments Items***

Item	N	Strongly Agree n (%)	Agree n (%)	Not Sure n (%)	Disagree n (%)	Strongly Disagree n (%)	Mean	SD
I am confident that I made the right decision in choosing to attend this college	147	42(28.6)	49(33.3)	34(23.1)	17(11.6)	5(3.4)	3.72	1.10
It is likely that I will register at this college next fall	78	11(14.1)	15(19.2)	17(21.8)	24(30.8)	11(14.1)	2.88	1.28
It is important for me to graduate from this college	129	94(72.9)	27(20.9)	7(5.4)	1(.8)	0(0)	4.66	0.62
I have no idea at all what I want to major in *	90	7(7.8)	10(11.1)	22(24.4)	19(21.1)	32(35.6)	3.66	1.28
Getting good grades is not important to me *	122	6(4.9)	11(9.0)	4(3.3)	21(17.2)	80(65.6)	4.30	1.19
It is not important to me to graduate from this college *	104	8(7.7)	4(3.8)	5(4.8)	19(18.3)	68(65.4)	4.30	1.21
Total Mean:								**3.92**

** As per original scale properties, item is reverse-coded for calculating subscale and scale scores.*

Table 4.7 ***T-test Analysis of Peer- Group Interactions Subscale***

	N	Mean	SD	T	P
Age group				0.63	0.53
18-25 years	74	25.91	5.20		
26-55 years	69	25.39	4.54		
Gender				1.58	0.15
Female	134	25.79	4.92		
Male	9	23.67	3.84		
Father's education				0.94	0.35
≤ College diploma	98	25.88	4.76		
University or Master's degree	37	24.92	5.48		
Mother's education				1.56	0.12
≤ College diploma	101	26.05	4.65		
University or Master's degree	39	24.51	4.42		
Ethnicity				-1.63	0.107
Other	81	25.01	4.63		
White	58	26.41	5.26		

Table 4.8 ***T-test Analysis of Interactions with Faculty Subscale***

	N	Mean	SD	T	P
Age group				0.15	0.88
18-25 years	73	18.52	4.31		
26-55 years	69	18.41	4.54		
Gender				-0.97	0.36
Female	134	18.38	4.41		
Male	8	19.88	4.22		
Father's education				0.54	0.59
≤ College diploma	97	18.58	4.34		
University or Master's degree	35	18.09	4.68		
Mother's education				0.83	0.41
≤ College diploma	99	18.63	4.61		
University or Master's degree	39	17.97	3.95		
Ethnicity				-0.65	0.52
Other	78	18.12	4.42		
White	60	18.6	4.33		

Table 4.9 ***T-test Analysis of Faculty Concern for student Development and Teaching*** **Subscale**

	N	Mean	SD	T	P
Age group				-0.55	0.59
18-25 years	74	14.88	3.18		
26-55 years	72	15.14	3.54		
Gender				0.34	0.74
Female	137	15.02	2.92		
Male	9	14.78	2.04		
Father's education				-0.62	0.54
≤ College diploma	100	14.95	2.73		
University or Master's degree	36	15.33	3.32		
Mother's education				-0.52*	0.61
≤ College diploma	103	14.99	2.82		
University or Master's degree	40	15.28	3		
Ethnicity				-2.12	0.01
Other	82	14.46	2.52		
White	60	15.75	3.23		

Table 4.10 ***T-test Analysis of Academic and Intellectual Development Subscale***

	N	Mean	SD	T	P
Age group				-0.26	0.80
18-25 years	73	25.25	4.26		
26-55 years	72	25.42	3.74		
Gender				0.85	0.42
Female	136	25.39	4.04		
Male	9	24.44	3.16		
Father's education				0.68	0.50
≤ College diploma	100	25.48	3.94		
University or Master's degree	37	24.92	4.39		
Mother's education				0.69*	0.50
≤ College diploma	104	25.45	3.96		
University or Master's degree	39	24.92	4.16		
Ethnicity				-2.09	0.04
Other	79	24.63	3.74		
White	62	26.05	4.18		

Table 4.11 ***T-test Analysis of Institutional and Goal Commitments Subscale***

	N	Mean	SD	T	P
Age group				0.81	0.42
18-25 years	22	22.77	3.46		
26-55 years	23	21.87	4		
Gender				-0.32	0.76
Female	40	22.28	3.92		
Male	5	22.60	1.81		
Father's education				0.33	0.74
≤ College diploma	31	22.52	3.55		
University or Master's degree	11	22.00	4.66		
Mother's education				-0.15	0.88
≤ College diploma	31	22.35	3.45		
University or Master's degree	12	22.58	4.71		
Ethnicity				-1.26	0.22
Other	31	21.87	3.89		
White	14	23.29	3.26		

Table 4.12 ***T-test Analysis of Overall Scale***

	N	Mean	SD	T	P
Age group				0.15	0.88
18-25 years	19	103.53	15.46		
26-55 years	19	102.84	13.06		
Gender				-0.94	0.40
Female	34	102.56	14.40		
Male	4	108.50	11.70		
Father's education				2.01	0.67
≤ College diploma	27	106.33	11.92		
University or Master's degree	10	94.50	17.19		
Mother's education				0.71	0.49
≤ College diploma	25	104.44	12.54		
University or Master's degree	12	100.42	17.76		
Ethnicity				-4.1***	0.000
Other	25	97.60	12.16		
White	13	113.92	11.37		

Statistical significance: * p < 0.05, *** p < 0.001. Unequal variances assumed

Finally, the Cronbach's alpha reliability test was applied to examine internal consistency of the IIS used in the current study with dental hygiene respondents. To establish reliability, Pascarella and Terenzini (1980) applied Cronbach's alpha reliability test to each scale.

The resultant alphas from IIS established by Pascarella and Terenzini (1980) were as follows: Peer-Group Interactions = .84; Interactions with Faculty = .83; Faculty Concern for Student Development and Teaching = .82; Academic and Intellectual Development = .74; Institutional and Goal Commitment = .71 (Lyons, 2007, p. 36-37). According to Lyons (2007), other scholars such as Nunnally and Bernstein in 1978 stated that a reliability of coefficient of .70 is an acceptable rating. The results of the Cronbach's alpha reliability from the current study indicate a high reliability coefficient for the social integration scale including both subscales (Peer Group Interaction: 0.80, and Interaction with Faculty: 0.90) which is above the acceptable rating of 0.70. However, as for Academic Integration, the results for the Faculty Concern for Student development subscale indicated a lower reliability of 0.50, which could be attributed to a lower response rate on these items as some students may have perceived such questions as sensitive ones, and could have been uncomfortable sharing their answers. On the other hand, the Academic and Intellectual Development subscale indicated an acceptable rating of 0.70. The Institutional and Goal Commitment subscale scored the lowest reliability of 0.43, which might be attributed to a lower response rate to items on this subscale, particularly for questions 28-30. This subscale included the following items 28-30: *"I have no idea at all what I want to major in"*, *"Getting good grades is not important to me"*, *"It is not important to me to graduate from this college"*. Additionally, recent graduates most likely decided to not answer these questions as they could have been not applicable according to their current circumstances. Moreover, it is possible that some respondents were attending TCDHA as a stepping-stone to assist them in transferring to another institution in the future.

Despite these possible limitations, the overall score for all subscales of the current study was 0.90, which exceeded the acceptable rating of 0.70 and additionally exceeded the overall score results from the previous study conducted by Lyons (2007) on Track and Field Student-Athletes of the Atlantic Coast Conference. The reliability results from the Cronbach's alpha test conducted on the dental hygiene students at TCDHA in the current study are summarized in Table 4.13

Table 4.13 ***Cronbach's Alpha Reliability Results for Current Study***

Scale	**A**
Social Integration	
Peer Group Interaction	0.80
Interaction with Faculty	0.90
Academic Integration	
Faculty Concern for Student Development	0.50
Academic and Intellectual Development	0.70
Institutional and Goal Commitment	0.43
Overall Score	0.90

Chapter 5

5.1 Discussion

The purpose of this study was to evaluate the nature and level of persistence factors experienced amongst dental hygiene students enrolled in a private post-secondary college institution. This chapter presents a discussion on the findings from the study in relation to existing literature and evidence in the field of post-secondary education and considers the implications of the findings for the field of post-secondary education. Recommendations and acknowledgements of the limitations of the study will also be addressed in order to support future research in this area.

The theoretical framework used to support this study was based on Tinto's (1975) student integration model. Many scholars have discussed the various variables that can affect students' persistence, however among the variables that were consistently classified as predictors to persistence are academic, social integration and degree attainment commitment (Lyons, 2007). According to Tinto's theory, a student's decision to remain or depart from a particular institution results from multiple interactions between students and all others present on campuses (Lyons, 2007). Therefore, Tinto's theory suggests that the principal determinants of educational goals and commitments towards an institution are the student's social and academic interactions within the institution (Lyons, 2007). This particular model "seeks to explain how interactions among different individuals within the academic and social systems of the institution and the communities, which comprise them, lead individuals of different characteristics to withdraw from that institution prior to degree completion" (Lyons, 2007, p. 6-7). The application of Tinto's model in the current study was particularly significant, since Tinto hypothesized that when students feel a connection within their institution on the social and the academic level, they are more likely to persist to graduation (Lyons, 2007). Tinto indicated that a student's inability to

integrate socially or academically in an institution is considered a significant factor in their inability to persist at that particular institution (Lyons, 2007). This serves the purpose of the current study, as it seeks to determine the factors for persistence amongst dental hygiene students at TCDHA.

The findings from the current research study may contribute to the existing literature and support institutional administrators, educators, researchers, and policy makers by increasing knowledge on persistence factors experienced by students. Additionally, it may assist with the application of specific strategies to improve students' educational experience and increase graduation rates in post-secondary institutions. There is a need for research studies of this nature, particularly since minimal research has been conducted on private colleges. Additionally, there has been minimal research associated with students' persistence in a growing professional field such as dental hygiene. Therefore, future research in this area is deemed necessary due to the high demand for oral health care providers in order to accommodate the growing demands of the Canadian health care system.

Overall, the results indicated that ethnicity affected the mean scores on the subscales of 'Faculty Concern for Student Development and Teaching', 'Academic and Intellectual Development' and the overall mean IIS scale score. Respondents reporting "white" ethnic background typically reported higher mean scores than respondents of another ethnicity. The total mean scores for the five subscales (Peer-Group Interactions, Interactions with Faculty, Faculty Concern for Student Development and Teaching, Academic and Intellectual Development and Institutional and Goal Commitments) ranged between 3.01 and 3.92. The highest total mean score was reported for the 'Institutional and Goal Commitments' subscale, while the lowest total mean score was reported for the 'Faculty Concern for Student Development and Teaching' subscale. The findings from a study conducted by Lyons (2007) on Track and Field Student-

Athletes of the Atlantic Coast Conference were consistent with the results from this study. Lyons (2007) also reported that the 'Faculty Concern for Student Development and Teaching' subscale was scored as the lowest total mean amongst the five subscales. Lyons (2007) cross sectional survey study took place during the 2006-2007 academic year with a total of 367 track and field student-athletes respondents.

Findings from the subscales for 'Peer-Group Interactions' and 'Interactions with Faculty' suggest that students reported a general favorable opinion regarding their social integration experiences at TCDHA. The highest rated scores were reported for the following items: *"The student friendships I have developed at this college have been personally satisfying", "Since coming to this college I have developed close personal relationships with other students", "My non-classroom interactions with faculty have had a positive influence on my personal growth, values and attitudes".* The lowest rated scores were reported for the following items: "*Few of the students I know would be willing to listen to me and help me if I had a personal problem"* and *"Most students at this college have values and attitudes different from my own"* and "*Since coming to this college I have developed a close, personal relationship with at least one faculty member".*

These findings additionally reflect similar results from Lyons (2007) study on Track and Field Student-Athletes of the Atlantic Coast Conference. Lyons found that "Student-athletes rated highest on the integration subscale, Peer-Group Interactions, where student-athletes had developed close personal relationships with other students, and the friendships have been personally satisfying" (Lyons, 2007, p. 54). Other literature also supports the concept that out of classroom interactions with peers and faculty may influence students' persistence (Drake, 2011). Koch et al. (2014) emphasized that involvement with peers and faculty had shown a direct influence on students' decision to persist or leave their post-secondary institution, where high

persistence was a result of social engagement level and interaction within peers. Koch et al. undertook a longitudinal study by the Department of Education's National Center for Education Statistics to provide information on college students' experience over a six year period. Other scholars have concluded that integration and involvement are considered central to students' persistence (Barnett, 2011). Lyons has also suggested that students and faculty interactions "is a leading factor in student satisfaction and can be viewed as a powerful persistence and retention tool" (p. 55).

Previous literature suggests that social integration and involvement on a post-secondary education campus can affect students' persistence through the enhancement of their level of commitment to their studies and institution (Lyons, 2017). Overall, it was concluded that peer-group and interactions have a very positive outcome on persistence, where peer support was the strongest predictor of whether a student will persist or withdraw (Lyons, 2017). Similarly, this is congruent with Pascarella and Terenzini (1991) study, where their findings suggest that integration is improved when interactions on campuses are positive and reduced in presence of negative interactions (Lyons, 2007). Moreover, when students surround themselves with peers who share similar aspirations and goals, their level of motivation increases, as well as their likelihood to persist and graduate from the institution (Lyons, 2007). Therefore, this implies a need for consistent institutional efforts to promote and foster an environment that supports students' organizations and encourages social interactions. Institutions are solely responsible for the support of their r students' well-being on campus, while fostering positive interactions and improving campus integration. . Therefore, it is advised that opportunities for social interactions are available on campuses where students are encouraged to participate in different activities including clubs, organizations, and other extracurricular activities to increase integration levels (Weckman, 2000).

TCDHA has enhanced efforts to increase student social integration through different activities. One of the activities was to celebrate the dental hygiene week yearly, where everyone would be dressed in purple including faculty, staff, and students on the campus. A large purple cake would be served with hot chocolate to everyone, where opportunities for social integration are encouraged. Additionally, a poster contest during the hygiene week is always available and the semester group with the most submissions wins a pizza party. Therefore, this increases engagement among students from different semesters due to the highly competitive nature of this activity. Moreover, a carving competition for each semester is held annual during the month of October to increase participation and social integration among students. Therefore, such activities could contribute to a positive social environment at TCDHA and influence findings from the subscales for 'Peer-Group Interactions' and 'Interactions with Faculty'. This could further explain the reason as to why students reported a generally favorable opinion regarding their social integration experiences at TCDHA.

Findings from the subscales for 'Faculty Concern for Student Development and Teaching' and 'Academic and Intellectual Development' suggest that students report a generally favorable opinion regarding their academic integration experiences at TCDHA. The highest rated scores were reported for the following items: *"Most faculty members I have had contact with are genuinely interested in teaching"* and *"My academic experience has had a positive influence on my intellectual growth and interest in ideas".* The lowest rated scores were reported for the following items: *"Few of the faculty members I have had contact with are generally outstanding or superior teachers"* and *"Few of my courses this year have been intellectually stimulating".*

Wright et al. (2012) describe self-efficacy as students' confidence in their own ability to succeed within an academic task. Kennel and Ward-Smith (2017) suggest that academic self-efficacy is a key factor that enhances persistence, where there is a correlation between self-

efficacy and GPA indicating that the latter is a strong predictor in determining students' persistence. Koch et al. (2014) also recognized that students who achieve academic success and possess a high level of determination are highly motivated to persist upon college entrance. This notion was supported by the current study, as dental hygiene students expressed a high level of satisfaction with their academic experience, where their intellect level was enhanced according to their academic integration experiences. Barnett (2011) additionally indicated that academic integration significantly predicts the intent to persist, where faculty/staff interaction has been examined to predict students' academic integration and intent to persist in college. The findings from the current study were also consistent with previous research that has shown a positive correlation between students' self-efficacy and increased academic persistence leading to academic success (Wright et al., 2012).

The 'Institutional and Goal Commitments' subscale resulted in the highest average total mean score across items amongst the given 5 subscales. The highest rated scores were reported for the following item *"It is important for me to graduate from this college.* The lowest rated scores were reported for the following item "*It is likely that I will register at this college next fall".* This could be attributed to the fact that many respondents could be graduating in the subsequent year.

The results from the current study implied positive results from IIS on Social and Academic integration as well as Institutional Integration in general. However, the Faculty concern for Student Development and Teaching subscale (Academic Integration) reported the lowest rated scores for the following items: *"Few of the faculty members I have had contact with are generally outstanding or superior teachers"* and *"Few of my courses this year have been intellectually stimulating".* The lower score rating on these items could be attributed to the fact that a number of students did not respond to items on this subscale. However, with this being

said, it could bring forward an opportunity for enhancements in areas such as improving quality of teaching by instructors at TCDHA, as well as reviewing the curriculum to enable more innovative and stimulating teaching and learning while ensuring student success and retention.

Respondents' ethnicity appeared to be a key background characteristic affecting student perceptions of academic and institutional integration experiences. This finding was also consistent with previous work by Lyons (2007) on Track and Field Student-Athletes of the Atlantic Coast Conference. In Lyons's study, race was found to affect significant mean differences in academic integration experience scores for "white" Americans and students who selected the option of "other" in the race section. However, Lyons (2007) argued that "opportunities for students to engage in quality interactions and relationships with faculty who exhibit respect and concern for students is important and necessary regardless of race" (p. 57).

A number of studies have examined the effects of different background and demographic characteristics on integration and persistence amongst post-secondary students. Barnett (2011) sought to assess the validation experience, sense of integration, and persistence among 333 college students at a Midwest College in the U.S. in 2006. The study was designed to investigate students' interactions with faculty and explore factors that might influence student's persistence decisions. In this study, the effect of age, race/ethnicity, gender, parental education, and GPA were examined in relation to persistence. Both College GPA and number of credits students' attained were found to affect integration and persistence outcomes. However, there was no indication that ethnic background or other demographic variables had any influence on persistence. In another retrospective study, Cipher et al. (2017) conducted a predictive analysis study on 9,567 students enrolled in a Registered Nurse (RN) to Bachelor of Science in Nursing (BSN) program, to examine persistence and completion factors including graduation, timely

graduation, and discontinuation. The results indicated that white women were more likely to persist amongst other students.

Other background characteristics including age group, gender, and parental education did not demonstrate significant differences across any of the other subscales, or the overall scale adopted for the current study. Similarly, other studies in this area have shown inconsistent and mixed results where age was examined as one of the factors that affect persistence (Burrus et al., 2013). In one study, researchers examined 21 community colleges in the U.S., and found that older students were more likely to obtain a 2-year degree than younger students and persist, since they had the financial resources to fund their education (Burrus et al., 2013). Conversely, other studies have reported that older students were less likely to persist due to their family obligations and increased responsibilities in addition to their schoolwork (Burrus et al., 2013).

A majority of survey respondents in the current study reported being female (94 %, N = 141), and this is due to the fact that the dental hygiene profession is largely female dominated. However, the gender of survey respondents did not affect scores on the IIS, and this was consistent with the findings from a previous study conducted by Lyons (2007) on Track and Field Student-Athletes. According to Burrus et al. (2013), generally, research on gender has showed inconsistent results on the relationship between gender and persistence. However, "other research has found that gender interacts with variables such as race, and whether one has children to predict persistence" (Burrus et al., 2013, p.15). Parkin, and Baldwin (2009) found that women were more likely to persist to graduate as compared to male students. Moreover, older students, those with dependent children, or those who became parents experienced greater difficulty persisting. Burrus et al. suggests, "gender remains an important variable to capture in both the policy and research realm, because it serves as a powerful mediator and/or moderator on a host of persistence themes" (p. 15).

The findings from the current study and other literature suggest a need to address the significance of multicultural sensitivity in curriculum and amongst students and faculty in post-secondary settings. Moore (2011) conducted a study on 309 dental hygiene directors with a standard survey instrument from 175 dental hygienists of the National Dental Hygienists' Association (NDHA), 37 hygienists of the Hispanic Dental Association (HAD), with focus group interviews of dental hygiene directors, and minority dental hygienists in the U.S. The results confirmed that a low percentage of underrepresented minority students and faculty participated in dental hygiene programs. Moore indicated a consistent lack of diversity in the population that attends dental hygiene programs for several years. According to the study's findings, it was recommended that administrators in dental hygiene institutions recruit faculty from minorities in order to encourage diversity.

Alismail (2016) has additionally indicated a need for introducing professional preparation for multicultural training for teacher education programs and post-secondary institutions. This is necessary to provide teachers with practice in multicultural education in order to help them incorporate cultural diversity into the curriculum and campus (Alismail, 2016). According to Alismail, there should be a reconceptualization of multicultural education, where teachers' knowledge on different ethnicities could be broadened and teachers are allowed to become change agents. Institutions must commit to the development of strong support services for students from diverse backgrounds to ensure a welcoming and inclusive environment for learners, especially due to the growing population of diverse students.

Therefore, it is important to conclude that there needs to be a focus on minority groups within the Canadian post-secondary system to ensure the success of diverse students that make up a large number of the Canadian population. In return, this will increase persistence, graduation, and retention rates in Canadian institutions. This is very significant as the federal government

made an announcement in 2014 indicating the need to double the number of international students in Canada by 2025 to 450,000 (Mackinnon, 2015). The Canadian Bureau of International Education (CBIE) reported that Canada ranks seventh among educational destinations in the world (Mackinnon, 2015). It was reported that between the years 2001-2012, the international student population has grown from 136,000 to 265,000, which accounts for an approximate 94% growth rate (Mackinnon, 2015). The CBIE reported that Canada makes a profit of eight billion dollars annually from tuition and living expenses as revenue obtained from international students. Consequently, it is important to understand that "investing in international student recruitment is an important goal for the Canadian government" (Mackinnon, 2015, p. 54).

Hence, it is quite important to find ways to determine the best practices at post-secondary institutions in order to enhance multicultural sensitivity awareness for faculty and Canadian post-secondary institutions. Moreover, it is inevitable that gaining knowledge on cultural competence through training provides many opportunities for learning new strategies on how to perceive and act appropriately in unfamiliar environments (Mackinnon, 2015). Cultural competence will continuously be a skill in demand and evolving, therefore, continuous training is needed to acquire new knowledge on cultural diversity (Mackinnon, 2015). Mackinnon (2015) indicated a need to offer intercultural communications training for faculty and staff at Canadian post-secondary institutions to emulate new challenges arising because of increased diverse student populations.

Workshop training should be given to faculty at post-secondary institutions to promote greater reflection on teaching styles, curriculum challenges, and effect on international students' learning (Mackinnon, 2015). It is suggested that periodically, faculty should make new suggestions to modify the curriculum in order to allow additional diversity for future students (Mackinnon, 2015). Nonetheless, post-secondary institutions should provide ongoing support to

faculty when faced with frustrations or challenges in dealing with diverse students (Mackinnon, 2015). Additionally, Mackinnon (2015) suggested a designation for an entire unit at post-secondary institutions to fund the interculturalization of the campus. Moreover, online training components should be available to allow for a higher number of faculty participants to attend and learn about intercultural communication at their convenience (Mackinnon, 2015). Michalski et al. (2017) suggested that post-secondary institutions should enroll faculty members at no charge in professional development programs that foster the development of cross-cultural competencies within a campus. This is extremely important due to the growing diverse population enrolled in higher education institutions in Canada. Moore (2011) added that there should be programs in place to increase the minority population of students and faculty in institutions as well as faculty development training, mentoring programs, and cultural competency goals. Michalski et al. additionally indicated that faculty should be involved in on-campus activities targeted towards enhanced development and appreciation for on-campus diversity through participation in mandatory training. This training can be offered online for convenience and upon completion, a certificate can be obtained.

Moreover, the development of established resourced counselling, support services, and positive student-faculty interactions can foster a culture on-campus that encourages and accepts diversity and difference amongst students (Michalski et al., 2017). However, there will continuously be a need for creating programs designed for the recruitment and retention of underrepresented minority faculty to increase faculty diversity on campuses (Moore, 2011).

5.2 Implications

The findings of the current study suggest several implications, where there is a need for post-secondary institutions to foster social integration effectively. Moreover, institutions need to support faculty and student development, where multicultural sensitivity awareness is enhanced.

This section summarizes several of the suggestions described by the literature in this area in order to enhance persistence and increased retention rates in post-secondary institutions.

When considering the implications for fostering social integration in post-secondary institutions, it is beneficial to understand that learning could be facilitated when students are profoundly engaged on campuses, resulting in greater integration (Vasseur, 2015). Additionally, group-learning approaches should be promoted to help in students' progression and development, where they are encouraged to take ownership of their own learning. Vasseur (2015) suggested that social integration in post-secondary institutions can be fostered by employing teaching methods to stimulate students' learning through activities and assessment tasks which encourage students' engagement. Additionally, collaborative learning is a powerful tool that encourages student-teacher engagement, where social and academic engagement can be promoted to increase persistence (Vasseur, 2015). Moreover, advising faculty to establish and maintain personal relationships with students can be helpful to enhance student engagement and self-efficacy, and has been shown to be a strong indicator for persistence (Vasseur, 2015). Additionally, encouragement of faculty to provide positive support in increasing students' engagement in a course/learning has been shown to help with student development, persistence, and success (Vasseur, 2015). Nonetheless, it is important to understand that when students are engaged, they would develop a strong sense of belonging to their learning environment, and be more likely to integrate in their institution (Vasseur, 2015). Furthermore, it is critical to ensure that students feel acknowledged, and that their presence is important through formal, informal, social, and intellectual engagement between their peers and everyone else on the campus (Vasseur, 2015). Nonetheless, institutions should place efforts in maximizing communications with students on the various opportunities present across campuses including participation in clubs, organizations, and extracurricular activities (Weckman, 2000). Finally, the presence of a mentor can help students to

share their experiences and allow students to feel supported both psychologically and emotionally (Vasseur, 2015). Additionally, mentors can advise students on effective learning strategies, study skills, and provide them with campus tours, so students can identify the different services and resources available to them (Vasseur, 2015). Moreover, the implementation of orientation programs is very effective in initiating effective integration of the student and institutions (Vasseur, 2015). In addition, Morris-Compton (2013) indicated that counsellors and advisors in institutions need to take the role of following up with students about once or twice during the course of their semester in order for students to be reminded of the services (advising & counselling) and resources available that contribute to their support on campus.

When considering the implications that support faculty and student development, while increasing multicultural sensitivity awareness, it is important to acknowledge the fact that the general population of Canada has become more diverse. Yet, there has not been a substantial increase among dental hygiene professionals to represent this diversity. Moore (2011) has made several suggestions regarding dental hygiene programs including establishment of financial, social, and cultural support for underrepresented minority students. The suggestions additionally included the necessity to launch some mentoring and counselling programs for minority students. Moreover, developing a partnership between dental hygiene institutions and underrepresented minority organizations was deemed necessary to establish student professional organizations, in order to implement cultural competency programs for students and faculty (Moore, 2011). Finally, there need to be an establishment of pipeline programs by dental hygiene institutions in collaboration with elementary and secondary schools. This is rather significant for the recruitment of applicants from minority groups in order to increase ethnic and cultural diversification among students (Moore, 2011).

There is a need for greater collaboration between institutions of dental hygiene education and community-based organizations to formulate faculty development initiatives. As a result, there will be an increase in the employment of qualified minority educators from private practices of dental hygiene (Moore, 2011). Weckman (2000) stressed the need for the consistent hiring of diverse faculty in terms of ethnicity. It was also highly recommended that workshops in effective communication be delivered for faculty to improve their comprehension and communication skills in dealing with diverse students (Weckman, 2000). More importantly, faculty and staff on campuses have to be educated on the value of diversity as early as possible even during faculty and staff orientation (Weckman, 2000). Additionally, there should be continuous emphasis on the importance of dealing respectfully with everyone, while accepting all cultures (Weckman, 2000). Weckman (2000) suggested the formation of a list of resources to be available for all faculty and staff on campus, when diversity issues are encountered. Finally, there should be further research on methods of identifying effective strategies for minority student recruitment, retention, and graduation from dental hygiene programs (Moore, 2011).

5.3 Study Limitations

Although the results of the study were consistent with previous literature, there were a few limitations to note. For example, a considerable number of individuals did not respond to items on the Goal and Commitment scale, especially for questions 28-30. These items included *"I have no idea at all what I want to major in"*, *"Getting good grades is not important to me"*, *"It is not important to me to graduate from this college"*. Possibly, more graduates did not respond to those questions as they would have not been applicable to their current circumstances. In addition, another assumption could be that some of the current students attended TCDHA as a stepping-stone to help them to transfer to another institution gradually. It was observed that many of the respondents did not answer the two items on the questionnaire survey representing the

semester level and GPA. As a result, these items were excluded from the data analysis so that the data would not be compromised. It is likely that respondents not indicating a semester could have been graduates, part time, or repeating students.

The sample for this study was solely acquired from one private college in Toronto, Ontario which would obviously limit generalization to other institutions. Nonetheless, there had been limited research on persistence in the field of dental hygiene. Moreover, the sample could be considered small and this could increase the chances of sampling errors, and contribute to theoretical saturation (Cohen et al., 2000). Additionally, the sample used in this study would be considered a "convenience sample" where the researcher had access to participants and the institution (Cohen et al., 2000). This could be considered a limitation, but the researcher had no option of expanding the study across multiple institutions, due to resource limitations and difficulty of access. According to Cohen et al. (2000) "gaining access to people and institutions is one of the most difficult tasks any empirical research" (pg. 108).

The study findings could add to the limited Canadian literature and in particular, the Dental Hygiene profession and post-secondary education. Additionally, the future organization of a longitudinal study could be necessary for this type of research. This could be achieved through the examination of long-term changes that new student cohort perspectives could experience based on new initiatives undertaken by their institution, to improve student persistence.

Chapter 6

6.1 Conclusion

The purpose of the study was to evaluate persistence factors among dental hygiene students at TCDHA. The findings of the study suggest a need for fostering social integration experiences within post-secondary institutions, while increasing faculty and student development support for multicultural sensitivity awareness to maximize student persistence. It is critical to emphasize the importance of diversity acceptance and awareness to all faculty, staff, and among students in any given institution due to the growing diverse post-secondary student population in Canada. The results of this study support the literature on the importance of social and academic integration in increasing student persistence in post-secondary education. The subscales on Peer-Group Interactions, and Interactions with Faculty had favorable responses among students at TCDHA. These responses highlight the significance of social integration among students in post-secondary institutions, as they were consistent with previous literature on persistence. Therefore, an increase in persistence in dental hygiene institutions would ultimately result in an increased number of graduates, who can provide oral health care to Canada's growing diverse population.

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Appendix A

Informed Consent Form

Title: *Evaluating persistence factors among dental hygiene students*

Researcher(s): Mariane Kirolous, Master of Education (post-secondary studies), Memorial University of Newfoundland, mkirolous@mun.ca

Supervisor(s): Vernon Curran PHD, Associate Dean of Educational Development, Faculty of Medicine, Memorial University of Newfoundland, vcurran@mun.ca

You are invited to take part in a research project entitled "Evaluating persistence factors among dental hygiene students."

This form is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. It also describes your right to withdraw from the study. In order to decide whether you wish to participate in this research study, you should understand enough about its risks and benefits to be able to make an informed decision. This is the informed consent process. Take time to read this carefully and to understand the information given to you. Please contact the researcher, Mariane Kirolous, if you have any questions about the study or would like more information before you consent.

It is entirely up to you to decide whether to take part in this research. If you choose not to take part in this research or if you decide to withdraw from the research once it has started, there will be no negative consequences for you, now or in the future.

Introduction:
My name is Mariane Kirolous, a clinical/didactic instructor at TCDHA who is currently on a maternity leave. I am also a master's student at Memorial University of Newfoundland, department of Education. As part of my Master's thesis, I am conducting research under the supervision of Dr. Vernon Curran.

Purpose of Study:
The purpose of this study is to evaluate the persistence factors experienced among dental hygiene students in a private college setting as TCDHA. Inspired by Tinto's model of student integration, the researcher will examine students' demographics along with constructs from Tinto's model to determine the persistent factors that can lead to academic success and degree completion. There has been very little research associated with students' persistence in a growing field such as; dental hygiene. Therefore, more research in this area is needed due to the high demand for oral health care providers to accommodate the growing demands of the Canadian health care system.

The results from this study will help college administrators, educators, policy makers, and researchers to further understand the different persistent factors among college students in order to increase their retention and graduation rates.

What You Will Do in this Study:
You will participate in an anonymous online survey in which you will be asked to complete two parts. Part one will collect demographic information to indicate the pre-entry attributes and family background characteristics including parents' level of education, current average in the program, gender, ethnicity, and semester level (ie.1,2,3,4) for a total of 6 questions.

Part two will collect data using the Institutional Integration Scales (IIS). The IIS contains a Likert scale which includes the following responses: 1 (Strongly Disagree), 2 (Disagree), 3 (Not Sure), 4 (Agree), and 5 (Strongly Agree) for a total of 30 questions.

Please be advised that you may skip any questions that you do not wish to answer.

Length of Time:
The time required to participate in the survey is an approximate time of 10-15 minutes.

Withdrawal from the Study:
If you decided to withdraw from participating in the survey questions, you can close that page and no data will be saved unless the "submit" button is pressed at the end of the survey.

If in the case that you have submitted your survey answers and decided to have your data removed, please be advised that your data cannot be removed as it has been submitted, but be assured that it remain anonymous.

Possible Benefits:
This report will be beneficial to students and the institutions as it will assist administrators in understanding the different persistent experienced by dental hygiene students during their post-secondary education to help them succeed. Potentially this would also increase students' participation, persistence and retention in post-secondary institutions.

Possible Risks:
No possible risks are identified in this study

Confidentiality:
The ethical duty of confidentiality includes safeguarding participants' identities, personal information, and data from unauthorized access, use, or disclosure.

Participating students at TCDHA will not be identified as well as those who have decided to withdraw from participation with no impact on their grades.

Anonymity:
Anonymity refers to protecting participants' identifying characteristics, such as name or description of physical appearance.

Data obtained from the participants can be reported without identifiers. Every reasonable effort will be made to ensure your anonymity. You will not be identified in publications without your explicit permission.

Use, Access, Ownership, and Storage of Data:
All Electronic data files will be accessed and stored by a password protected computer owned by the researcher. I, the researcher and my supervisor Dr. Curran will be the only personnel who have access to the data on electronic format. Data will be kept for a minimum of five years, as required by Memorial University's policy on Integrity in Scholarly Research

Third-Party Data Collection and/or Storage:
Data collected from you as part of your participation in this project will be hosted and/or stored electronically by google and is subject to their privacy policy, and to any relevant laws of the country in which their servers are located. Therefore, anonymity and confidentiality of data may not be guaranteed in the rare instance, for example, that government agencies obtain a court order compelling the provider to grant access to specific data stored on their servers. If you have questions or concerns about how your data will be collected or stored, please contact the researcher and/or visit the provider's website for more information before participating. The privacy and security policy of the third-party hosting data collection and/or storing data can be found at: https://www.google.com/policies/privacy/

Reporting of Results:
Upon completion, my thesis will be available at Memorial University's Queen Elizabeth II library, and can be accessed online at: http://collections.mun.ca/cdm/search/collection/theses.

Sharing of Results with Participants:
The final report will be available on TCDHA portal so it can be accessible for a view by all participants.

Questions:
You are welcome to ask questions before, during, or after your participation in this research. If you would like more information about this study, please contact: Mariane Kirolous at kmarianic@yahoo.com. Dr. Curran Vernon, my supervisor can also be reached at vcurran@mun.ca.

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research, such as the way you have been treated or your rights as a participant, you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 709-864-2861.

Consent:
By completing this survey questionnaire, you agree that:

- You have read the information about the research.
- You have been advised that you may ask questions about this study and receive answers prior to continuing.
- You are satisfied that any questions you had have been addressed.
- You understand what the study is about and what you will be doing.
- You understand that you are free to withdraw participation from the study by closing your browser window or navigating away from this page, without having to give a reason and that doing so will not affect you now or in the future.
- You understand that this data is being collected anonymously and therefore your data **cannot** be removed once you submit this survey.
- By consenting to this online survey, you do not give up your legal rights and do not release the researchers from their professional responsibilities.

Submitting this survey constitutes consent and implies your agreement to the above statements.

Appendix B

PART I: Demographic form

Please check in the appropriate response for the following items (You may skip any questions that you do not wish to answer):

1. **Gender:**
   - □ Male
   - □ Female
   - □ Non-binary

2**. Ethnicity (please check one only):**
   - □ Aboriginal (Inuit, Métis, North American Indian)
   - □ Arab/West Asian (e.g., Armenian, Egyptian, Iranian, Lebanese, Moroccan)
   - □ Black (e.g., African, Haitian, Jamaican, Somali)
   - □ Chinese
   - □ Filipino
   - □ Japanese
   - □ Korean
   - □ Latin American
   - □ South Asian
   - □ South East Asian
   - □ White (Caucasian)
   - □ Other

3**. Age group:**
   - □ Below 18
   - □ 18-25
   - □ 26-35
   - □ 36-45
   - □ 46-55
   - □ Above 55

4**. Semester:**

- □ 1
- □ 2
- □ 3
- □ 4
- □ Not applicable

5**. Current Average%:**

- □ Below 70%
- □ 70-79%
- □ 80-90%
- □ Above 90%
- □ Not applicable

6. Highest level of Parental Education completed:

Father

- □ Graduate degree (e.g., MSc, Med)
- □ Undergraduate University degree (e.g., BA, BSc)
- □ College degree (e.g., Diploma)
- □ Some College
- □ High School Diploma
- □ Lower than High School

Mother

- □ Graduate degree (e.g., MSc, Med)
- □ Undergraduate University degree (e.g., BA, BSc)
- □ College degree (e.g., Diploma)
- □ Some College
- □ High School Diploma
- □ Lower than High School

PART II: Institutional Integration Scales (Pascarella & Terenzini, 1980)

Peer- Group Interactions	**Strongly Agree**	**Agree**	**Not Sure**	**Disagree**	**Strongly Disagree**
1. Since coming to this college I have developed close personal relationships with other students	5	4	3	2	1
2. The student friendships I have developed at this college have been personally satisfying	5	4	3	2	1
3. My interpersonal relationships with other students have had a positive influence on my personal growth, attitudes, and values	5	4	3	2	1
4. My interpersonal relationships with other students have had a positive influence on my intellectual growth and interest in ideas	5	4	3	2	1
5. It has been difficult for me to meet and make friends with other students	5	4	3	2	1
6. Few of the students I know would be willing to listen to me and help me if I had a personal problem	5	4	3	2	1
7. Most students at this college have values and attitudes different from my own	5	4	3	2	1

Interactions with Faculty	**Strongly Agree**	**Agree**	**Not Sure**	**Disagree**	**Strongly Disagree**
1. My non-classroom interactions with faculty have had a positive influence on my personal growth, values and attitudes	5	4	3	2	1
2. My non-classroom interactions with faculty have had a positive influence on my intellectual growth and interest in ideas	5	4	3	2	1
3. My non-classroom interactions with faculty have had a positive influence on my career goals and aspirations	5	4	3	2	1
4. Since coming to this college I have developed a close, personal relationship with at least one faculty member	5	4	3	2	1
5. I am satisfied with the opportunities to meet and interact informally with faculty members	5	4	3	2	1

Faculty Concern for Student Development and Teaching	**Strongly Agree**	**Agree**	**Not Sure**	**Disagree**	**Strongly Disagree**
1. Few of the faculty members I have had contact with are generally interested in students	5	4	3	2	1
2. Few of the faculty members I have had contact with are generally outstanding or superior teachers	5	4	3	2	1
3. Few of the faculty members I have had contact with are willing to spend time outside of class to discuss issues of interest and importance to Students	5	4	3	2	1
4. Most of the faculty members I have had contact with are interested in helping students grow in more than just academic areas	5	4	3	2	1
5. Most faculty members I have had contact with are genuinely interested in Teaching	5	4	3	2	1

Academic and Intellectual Development	**Strongly Agree**	**Agree**	**Not Sure**	**Disagree**	**Strongly Disagree**
1. I am satisfied with the extent of my intellectual development since enrolling in this college	5	4	3	2	1
2. My academic experience has had a positive influence on my intellectual growth and interest in ideas	5	4	3	2	1
3. I am satisfied with my academic experience at this college	5	4	3	2	1
4. Few of my courses this year have been intellectually stimulating	5	4	3	2	1
5. My interest in ideas and intellectual matters has increased since coming to this college	5	4	3	2	1
6. I am more likely to attend a cultural event (i.e., concert, lecture, art show) now than I was before coming to this college	5	4	3	2	1
7. I have performed academically as well as I anticipated I would	5	4	3	2	1

Institutional and Goal Commitments	**Strongly Agree**	**Agree**	**Not Sure**	**Disagree**	**Strongly Disagree**	**Not applicable**
1. I am confident that I made the right decision in choosing to attend this college	5	4	3	2	1	
2. It is likely that I will register at this college next fall	5	4	3	2	1	
3. It is important to me to graduate from this college	5	4	3	2	1	
4. I have no idea at all what I want to major in	5	4	3	2	1	
5. Getting good grades is not important to me	5	4	3	2	1	
6. It is not important to me to graduate from this college	5	4	3	2	1	

Appendix C

Recruitment Letter for Participants

My name is Mariane Kirolous, a clinical/didactic instructor at TCDHA who is currently on a maternity leave. I am also a student in the Faculty of Education at Memorial University of Newfoundland. I am conducting a research project called *Evaluating persistence factors among dental hygiene students* for my master's degree under the supervision of Dr. Vernon Curran. The purpose of the study is to evaluate the persistence factors experienced among dental hygiene students in a private college setting.

I am contacting you to invite you to participate in an anonymous online survey in which you will be asked to complete two parts. Part one will collect demographic information to indicate the pre-entry attributes and family background characteristics including parents' level of education, current average in the program, gender, ethnicity, and semester level (ie.1,2,3,4) for a total of 6 questions.

Part two will collect data using the Institutional Integration Scales (IIS). The IIS contains a Likert scale which includes the following responses: 1 (Strongly Disagree), 2 (Disagree), 3 (Not Sure), 4 (Agree), and 5 (Strongly Agree) for a total of 30 questions. Participation will require 10-15 minutes of your time and will be completed at your own convenient time and location.

If you are interested in participating in this study, please click on the link below to access the online survey. The link is: https://forms.gle/aMo6sB44wH39ZqocA

I would like to clearly inform you that the study is not a course / program or college requirement, and that participation will not be known or reported.

If you have any questions about me or my project, please contact me by mkirolous@mun.ca

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research, such as your rights as a participant, you may contact the Chairperson of the ICEHR at icehr.chair@mun.ca or by telephone at 709-864-2861.

Appendix D

Ethics Approval Letter

MEMORIAL UNIVERSITY

Interdisciplinary Committee on
Ethics in Human Research (ICEHR)

St. John's, NL Canada A1C 5S7
Tel: 709 864-2561 icehr@mun.ca
www.mun.ca/research/ethics/humans/icehr

ICEHR Number:	**20200030-ED**
Approval Period:	July 5, 2019 – July 31, 2020
Funding Source:	Not Funded
Responsible Faculty:	Dr. Vernon Curran Faculty of Medicine
Title of Project:	*Evaluating persistence factors among dental hygiene students*

July 5, 2019

Mrs. Mariane Kirolous
Faculty of Education
Memorial University of Newfoundland

Dear Mrs. Kirolous:

Thank you for your correspondence of May 16 and July 4, 2019 addressing the issues raised by the Interdisciplinary Committee on Ethics in Human Research (ICEHR) concerning the above-named research project. ICEHR has re-examined the proposal with the clarification and revisions submitted, and is satisfied that the concerns raised by the Committee have been adequately addressed. In accordance with the *Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans (TCPS2)*, the project has been granted *full ethics clearance* to July 31, 2020. ICEHR approval applies to the ethical acceptability of the research, as per Article 6.3 of the *TCPS2*. Researchers are responsible for adherence to any other relevant University policies and/or funded or non-funded agreements that may be associated with the project.

The *TCPS2* **requires** that you submit an Annual Update to ICEHR before July 31, 2020. If you plan to continue the project, you need to request renewal of your ethics clearance and include a brief summary on the progress of your research. When the project no longer involves contact with human participants, is completed and/or terminated, you are required to provide an annual update with a brief final summary and your file will be closed. If you need to make changes during the project which may raise ethical concerns, you must submit an Amendment Request with a description of these changes for the Committee's consideration prior to implementation. If funding is obtained subsequent to approval, you must submit a Funding and/or Partner Change Request to ICEHR before this clearance can be linked to your award.

All post-approval event forms noted above can be submitted from your Researcher Portal account by clicking the *Applications: Post-Review* link on your Portal homepage. We wish you success with your research.

Yours sincerely,

for Kelly Blidook, Ph.D.
Vice-Chair, Interdisciplinary Committee on
Ethics in Human Research

KB/lw

cc: Supervisor – Dr. Vernon Curran, Faculty of Medicine

On Jul 14, 2020, at 8:50 AM, dgulliver@mun.ca wrote:

Interdisciplinary Committee on
Ethics in Human Research (ICEHR)

ICEHR Approval #:	20200030-ED
Researcher Portal File #:	20200030
Project Title:	*Evaluating persistence factors among dental hygiene students*
Associated Funding:	Not Funded
Supervisor:	Dr. Vernon Curran
Clearance expiry date:	**July 31, 2021**

For updated information on research activities in Level 2, please see https://www.mun.ca/research/ethics/humans/icehr/** *COVID-19 Pandemic Advisory* ** [June 25, 2020]

Dear Mrs. Mariane Kirolous:

Thank you for your response to our request for an annual update advising that your project will continue without any changes that would affect ethical relations with human participants.

On behalf of the Chair of ICEHR, I wish to advise that the ethics clearance for this project has been extended to **July 31, 2021**. The *Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans* (TCPS2) requires that you submit another annual update to ICEHR on your project prior to this date.

We wish you well with the continuation of your research.

Sincerely,

DEBBY GULLIVER
Interdisciplinary Committee on Ethics in Human Research (ICEHR)
Memorial University of Newfoundland
St. John's, NL | A1C 5S7
Bruneau Centre for Research and Innovation | Room IIC 2010C
T: (709) 864-2561 |
www.mun.ca/research/ethics/humans/icehr | https://rpresources.mun.ca/