



University of
Southern
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GENDER-DIFFERENTIATED MOTIVATION AND ACADEMIC SELF-CONCEPT AS PREDICTORS OF STUDENT RETENTION AMONG COMMUNITY COLLEGE STUDENTS

A Thesis submitted by

Mona Nouroozifar, M.B.A.

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ABSTRACT

Introduction: Attrition (students who neither complete nor return to study) in community colleges has become a major focus of education research over the last four decades. This represents a loss of time and money for the student and potential damage to their careers and future earnings, a loss of revenue and status for the education provider, and a loss to the community in terms of the potential social and economic impact. Researchers have tried to identify factors that shape student attrition. **Purpose:** The purpose of this cross-sectional thesis study was to establish associations between variables such as gender-differentiated motivation styles and academic self-concept with student attrition in a community college population. **Methods:** A cross-sectional design was used in this study. Instrumental motivational orientation, integrative motivational orientation, and academic self-concept were treated as independent or predictor variables contributing to the dependent variable of student persistence, while demographic characteristics including gender, age, and premature college departure or graduation from the program acted as mediators between the independent variables. This quantitative research used a convenience sampling method. All participants were students enrolled in semester one of the two-year full-time diploma programs within the Faculty of Applied Science and Technology and the Faculty of Business at Humber College. Participants were asked to compete

two questionnaires: the Self-Description Questionnaire II (SDQ II) and the Motivation Scale Questionnaire. **Result:** The sample size for this study consisted of 339 students across the two recruiting periods (Cohort 1 $n = 110$, Cohort 2 $n = 129$). The drop-out rate by the end of their 2nd semester was 18.3%. Integrative Motivational Style did not significantly differ by gender, $t(294) = 1.772, p = .077$, nor did Instrumental motivational style, $t(294) = -1.229, p = .220$. Integrative Motivational Style significantly correlated with Academic Self Concept score when controlling for gender, partial $r = -.278, p < .001$. Integrative Motivational Style scores also correlated within both the male participants, $r = -.214, p = .04$, and within the female participants, $r = -.322, p < .001$. Instrumental Motivational Style score significantly correlated with Academic Self Concept score when controlling for gender, partial $r = -.142, p = .015$. For females, the correlation was significant, $r = -.171, p = .015$, but for males there was no significant relationship, $r = -.081, p = .44$. Academic Self Concept score had a significant zero-order association with 1st semester attrition, with higher score predicting less attrition overall, $\chi^2(1, N = 318) = 6.489, p = .011$. Academic Self Concept score had no zero-order association with 2nd semester attrition, $\chi^2(1, N = 285) = 2.366, p = .124$. Instrumental Motivational Style did not have any zero-order association with 1st semester attrition, $\chi^2(1, N = 299) = 0.718, p = .397$ but had a marginally significant zero-order association with 2nd semester attrition, $\chi^2(1, N = 267) = 3.643, p$

= .056. Integrative Motivational Style score had no zero-order association with 1st semester attrition, $\chi^2(1, N = 299) = .718, p = .379$. For 2nd semester attrition, integrative style alone did predict attrition, $\chi^2(1, N = 267) = 7.868, p = .005$. **Limitation:** While this thesis study offers data on the relationship between academic self-concept and motivational orientation as pertaining to student retention, it had limitations related to the research design, the sampling approach and sample size. The study design used a self-report survey method where critics questioned their validity and reliability. A non-random, convenience sample was used, thereby limiting the generalizability of the results. Finally, this study had a small sample size which could explain the failure to detect any gender differences as being due to lower statistical power. **Conclusion:** The findings provide evidence that academic self-concept is predictive of *first* semester attrition, while integrative motivational style, and instrumental to some extent, are predictive of *second* semester attrition. The result contradicts many previous studies on gender differences, having found no difference in attrition rate between genders. These results offer moderate support for aspects of Spady's and Tinto's models that describe academic self-concept as a powerful factor accounting for student attrition. They are also partly consistent with Bean and Metzner's model where motivational style impact students' academic experience and result in premature attrition. **Future Research:** To understand the mediators of attrition/persistence among

college students, replications and expansions of the current research are necessary.

CERTIFICATION OF THESIS

I Mona Nouroozifar declare that the PhD Thesis entitled Gender-differentiated motivation and academic self-concept as predictors of student retention among community college students is not more than 100,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references, and footnotes. The thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

Date:

Endorsed by:

Dr. Jeffrey Soar

Principal Supervisor

Dr. Lynda Crowley-Cyr

Associate Supervisor

Student and supervisors' signatures of endorsement are held at the University.

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This journey signifies support of many people in my life. It also signifies sacrifices made to push forward and persevere despite many challenges and obstacles along the path.

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CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION TO CHAPTER ONE

This thesis study is an investigation into the phenomenon of student attrition in community college settings—a persistent and challenging problem among community colleges in Ontario since their establishment in the 1960s. According to a recent report by College Ontario (2019), 23% of college students dropped out of their program during the 2018–2019 academic year—a similar premature withdrawal rate to the overall rate in Canada. In the United States, the average attrition rate for private and public colleges was 40%, and 75% of these departures were first generation students (Kantrowitz, 2021; National Student Clearing House Research Centre, 2022). In Australia, the National Centre for Vocational Education Research (2020) reported a similar overall attrition rate of 40% for students who started training in 2015. Similar patterns have also been observed in European countries (Heublein et al., 2017).

To better understand the problem, the research reported in this thesis explored this issue at Humber College in Toronto. This research is important to me from a personal, academic and professional perspective. I began working in the college sector in 2005 as a contract faculty member and currently hold the position of Associate Dean, Mathematics, Research Skills & Analysis at Humber—the largest Community College in Canada, with over

30,000 fulltime students and over 20,000 part-time students each year. As a college administrator, I continue to support learners through their education and strive to help every student achieve their best at Humber and beyond. My work in the last fifteen years has been actively involved in initiatives that foster student support and help with graduation efforts. On a personal note, it is important to me that I understand attrition, theorise about the factors I have encountered, and reflect on what I have learned as an academic and administrator at Humber. I am committed to the belief that education can transform lives for the better, and to that end, seek to expand our understanding of the causes of student attrition in post-secondary environments.

The objective of this thesis was therefore to contribute to the field's body of knowledge by examining the factors that lead to college students in Canada and other countries to drop out without completing their program.

This chapter provides the background and overview of the research problem and the scholarly value of this thesis, outlines its structure and process, and describes the theoretical models it is built upon.

1.2 DEFINITION OF TERMS

- College: A post-secondary education institution that offers applied programs including two-year diplomas.
- Diploma: A formal award indicating satisfactory completion of a two-year college program.

- Attrition: When a student (1) leaves their college program during any point in a semester, or (2) completes a semester but fails to register for the following semester (Gallie, 2005; Pascarella et al., 1981).
- Premature departure/attrition: When a student enters a community college but leaves before completion and does not return to their original program (Bonham & Luckie, 1993).
- Persistence: Continuous enrollment of a student from semester to semester, and from year to year.
- Retention: Continuous enrollment until a student completes their diploma (Kerka, 1998).
- Instrumental motivational style: A style of motivation that focuses on the utilitarian (Gardner, 1985, p. 11) or “pragmatic value of achievement” (Gardner & Lambert, 1959, p. 267). For example, an instrumentally motivated person might learn a language to gain employment (Gardner, 1985).
- Integrative motivational style: A style of motivation where the focus is not on specific goals with a utilitarian purpose, but rather more general goals with less concern for immediate utility. For example, an integratively oriented person might learn a language so they can communicate with other linguistic groups and learn more about their life or culture (Gardner, 1985).
- Gender-differentiated motivational style: The notion that males and

females are motivated differently, and that this difference leads to different behaviours (Zangeneh, 2015).

- Self-concept: An individual's overall view of themselves across various dimensions of perception that are based on self-knowledge and the evaluation of their own capabilities formed through experiences with, and interpretations of, their environment (Byrnes, 2003; Eccles, 2005).
- Academic self-concept: An individual's beliefs and perceptions about their own academic abilities or skills (Bong, 2004; DiPerna et al., 2007).

1.3 BACKGROUND

Since the late 1970s, college and university education has been a significant determinant of socio-economic success (Carnevale et al., 2016; Employment and Social Development Canada [ESDC], 2019; Statistics Canada, 2019). In 2013, it was estimated that 65% of jobs required a post-graduate certificate, college diploma or university degree in Canada (Statistics Canada, 2015). In 2020, nearly 87% of employed Canadians had a post-secondary education, earning higher incomes and experiencing more job opportunities than those with only a high school diploma (Statistics Canada, 2021). Community colleges offer a comprehensive range of career-oriented programs, and as such, are critical for meeting the labour demands of the challenging economies in both the United States (Jacobson et al., 2005;

Marcus, 2003) and Canada (AMESITE, 2021; Association of Canadian Community Colleges, 2009; Collège de l'Île, 2017; Economic Impact Study, 2022).

In Canada, there were almost 2 million students enrolled in public universities and colleges in 2017 (Statistics Canada, 2018), up from approximately 1.6 million in 2005. The main factor behind this growth has been an increasing demand for trained and educated labour (Bicakova et al., 2019). The aims of public post-secondary education and training are to prepare individuals to find and maintain employment, to meet the needs of employers in changing modern work environments, and to support the economic and social development of their local and diverse communities (Ontario Ministry of Training, Colleges, and Universities, 2015).

Despite the growth in student enrolments, student attrition remains a major challenge for the education sector. The high attrition rates in both U.S. and Canadian colleges and universities have been a long-standing problem identified in studies since the 1970s (Childs et al., 2016; Demetriou & Schmitz-Sciborski, 2011; Ferreyra et al., 2017; Grayson & Grayson, 2003; Hanson, 2021; HEQCO, 2020; Jackson & Cook, 2016; Ma & Frempong, 2013; Maritime Provinces Higher Education Commission, 2018; Parkin & Baldwin, 2009; Pascarella, 1980; Spady, 1970; Tinto, 1993; Venegas-Muggli, 2019;). However, most research on this problem to date has been conducted in the United States rather than in Canada.

Early studies on attrition rates found that community college students were more likely to drop out (43.6%) than those in university (18.8%; Bradburn, 2002). This early research identified that most of the attrition in community colleges occurred within the first year of enrollment (Tinto, 1993), and this continues to be the case. A recent study found that 30% of first year college students did not complete their first year of study (Hanson, 2021). But although student attrition is one of the most studied topics in the field of education, the existing models are limited to results from university populations and do not adequately explain the higher attrition among community college students noted by Bradburn (2002).

Students have cited several reasons for leaving their college program prematurely (e.g., Bonham & Luckie, 1993; Bradburn, 2002; Drea, 2004; Pascarella & Terenzini, 1977; Spady, 1970; Tinto, 1975, 1987; UPCEA, 2021). Some students point to juggling work and family responsibilities (Sosu & Pheunpha, 2019), while others are concerned about their readiness for coursework or finding time to study on campus (Bailey et al., 2004; Gouveia, Beckett & Nouroozifar, 2019; Nouroozifar & Jivani, 2019; Tinto, 1993).

The literature on the major critical periods for student attrition suggest that behaviours associated with eventual attrition can start from the first class of the first semester, through to the end of the second semester (Bradburn, 2002; Driscoll, 2007; Horn, 1998; UPCEA, 2021). Bradburn (2002) found student attrition to be highest in the first year and lowest in the

third year. Driscoll (2007) similarly found that the first semester of community college is a crucial point in determining students' academic future. Those whose first experiences were less successful and who had negative perception of their academic abilities were far less likely to persist towards their goals.

1.4 STATEMENT OF THE PROBLEM

Attrition (students who neither complete nor return to study) in community colleges has become a major focus of education research in Canada and the United States over the last four decades (Demetriou & Schmitz-Sciborski, 2011). According to Pascarella and Terenzini (2005), this increase in interest relates to: (a) increased diversity among students in post-secondary environments (Herzog, 2022); (b) newer models on how students learn and acquire information; (c) the impact of information technology on classroom and learning behaviours (Burns, 2022); (e) newer directions in policies (Silverstein et al., 2007); and (f) a greater interest in student outcomes from regulatory bodies (Delva et al., 2019; Lennon, 2016). Despite the increased attention in recent decades, research has not been able to adequately explain premature departure of students in the community college setting (Engle, Greene & McClenney, 2016; Fisher & Engemann, 2009; Ishitani, 2016; McMurray & Sorrells, 2009; Roman, 2007).

Historically, researchers (e.g., Pascarella, 1980; Parkin & Baldwin, 2009; Spady, 1970; Tinto, 1993) have described the factors impacting post-

secondary student attrition rate based on three dimensions: (1) student characteristics (including demographic characteristics like age, gender, or ethnicity, and psychological variables like attitudes and motivation), (2) institutional characteristics (e.g., peer mentoring, counseling and learning support, financial support, or academic support), and (3) student-institution interactional characteristics. Such descriptions have resulted in diverse findings and interpretations.

Various studies have focused on describing attributes or factors associated with premature program departure, including student integration (Chrysikos et al, 2017; Tinto, 1975), financial difficulty and the influence of friends (Bean & Metzger, 1985; Haktanir et al., 2021; Leary & DeRosier, 2012; Ouairi & Yousfi, 2015; Vichana, 2012), perceived stress, self-efficacy, and occupational goal planning activities (Bartmote-Aufflick et al., 2015; Samuel & Burger, 2020; Sandler, 2000; Zollars et al., 2019), student involvement (Astin, 1984; Duque, 2013; Thomas et al., 2021), motivation (Cunningham, 2013; Porter & Swing, 2006; Suhlmann et al., 2018; Tayebi et al., 2021) and gender (Heigle & Pfeiffer, 2019; Lambert, Zeman & Bussière, 2004; Ma & Frempong, 2018; Zaheer et al., 2016).

Gender as a factor linked to attrition has yielded considerable but inconsistent results and interpretations. Some studies have reported higher attrition among male students (Baxter, 2004; Bussière, 2004; Donnell, 2015; Kim et al., 2015; Ma & Frempong, 2008; Parkin & Baldwin, 2009), while

others have reported higher attrition among female students (Chen, 2015; Khanam & Quraishi, 2016; Looker & Lowe, 2001; Paura & Arhipova, 2016; Thiessen, 2001; Tinto, 1993), and some have found no difference (Almas et al., 2016; Aquino, 1990; Chang & Changtzen, 2020; Fischbach, 1990; Mohammadi, 1994; Summers, 2000).

Few studies have examined the effect of motivation as a factor, especially in community college settings, and no published studies on the effect of gender-differentiated motivational style on student attrition were found in this research. Further, few studies have focused on first-year attrition from a community college perspective (Andreu, 2002; Aulck & West, 2017; Reason, 2003).

1.5 PURPOSE OF THE STUDY

This cross-sectional research explored these gaps by examining potential factors that can impact student attrition in the community college setting, from the perspective of promoting retention and student success. Cross-sectional research is a form of observational design where “the investigator measures the outcome and the exposures in the study participants at the same time” (Setia, 2016, p. 261).

The purpose of the research reported on in this thesis was to establish potential associations between variables such as gender-differentiated motivation styles and academic self-concept with student attrition in a community college population. Instrumental motivational orientation,

integrative motivational orientation, academic self-concept, and gender were treated as quasi-independent or predictor variables, with the dependent variables of 1st semester and 2nd semester student attrition.

The research aimed to contribute to the literature on post-secondary education and provide further empirical evidence upon which college administrators can develop educational policy and practices that promote positive learning outcomes for college students.

1.6 THESIS STRUCTURE

The thesis consists of five chapters. This introductory chapter provides an overview of the research problem, objectives and context, then a review of the relevant theoretical landscape by examining models of student attrition in post-secondary education. These include Spady's Model of the Drop out Process (MDP), Tinto's model of Conceptual Schema for Drop out (CSD), and Bean and Metzner's Model of Student Attrition. The chapter concludes with the supporting study concepts and the thesis hypothesis.

Chapter Two reviews the relevant literature in the field of education, particularly as it relates to the relationship between student attrition and the variables of academic self-concept and motivational orientation. This chapter will focus on the mediating role of gender when reviewing the literature on academic self-concept and motivation. The first section of the chapter describes the search strategy that was used to identify any relevant literature. The second and third sections delve into the relationships that self-

concept, motivation and gender may have with post-secondary attrition.

Chapter Three begins with an introduction to the research study's philosophical orientation and assumptions. The following sections describe the study design, research questions and null hypotheses. Later sections describe the study population, recruitment and sampling methods, the instruments used, the study procedure, and the data collection and analysis. The last sections discuss ethical concerns and participant compensation. Together, these first three chapters build the theoretical base of the research focus, which is on the interrelated roles of academic self-concept, motivation, and attrition among college students.

Chapter Four presents the findings from the survey and answers the thesis question of whether female students display more integrative motivational style, higher academic self-concept, and more persistence in academic studies than males. This chapter begins with descriptive statistics on the sample, including demographic characteristics, high school grades, academic self-concept scores, motivational style scores, and the observed attrition rates. The next section includes bivariate and multivariate analyses assessing the relationship between academic self-concept and gender-specific motivation as predictors of post-secondary student attrition. The last section describes an exploratory analysis outside the scope of the study hypotheses to discover any further possible relationships between these variables in combination with other mediators and/or selection criteria.

Chapter Five presents the study's contributions to the literature, conclusions of the objectives stated in Chapter Three, challenges that shaped the outcome, and suggestions for future research.

1.7 OBJECTIVES

The objective of this research was to underscore the complexity and multiplicity of factors that shape college student attrition, and to highlight the different terminology and wide-ranging factors considered by various researchers that could create methodological challenges for empirical research.

1.8 CONTEXT: POST-SECONDARY COMMUNITY COLLEGES IN CANADA

In North America, community colleges are post-secondary education institutions that offer various applied programs, including two-year diplomas and three-year advanced diplomas. These institutions were created to meet the need for national workforce retraining (Maine Community College, 2007).

The Ontario community college system was established in 1965 with an amendment to the *Department of Education Act*, Bill 153, that proposed to create the Colleges of Applied Arts and Technology (CAATs; Ontario Department of Education, 1967). Many colleges subsequently opened their doors in 1965, and by 1967 Ontario was home to 24 colleges.

There are four fundamental principles that underlie the establishment of community colleges in Ontario (Ontario Department of Education, 1967),

prescribing that they must:

1. Incorporate vocational and avocational education as part of their curriculum to facilitate vertical and horizontal mobility.
2. Develop educational programs that meet the ambitions and occupational needs of students.
3. Work in collaboration with the private sector and public agencies to ensure programs serve the changing needs of a technological society.
4. Be dedicated to progress through research.

Since the early 1970s, college administrators and other stakeholders have been concerned about the attrition rate in Ontario's post-secondary colleges. Several studies (e.g., Donner & Lazar, 2000; Finnie, Childs, & Qiu, 2010; Fisher & Engemann, 2009; Janosz et al., 2011; Lopez-Rabson & McCloy, 2013; Mackay, 2014; Zhao & McCloy, 2009) have estimated the attrition rate to be between 25% and 50%. A review of the literature suggests several potential factors that can help to explain this situation.

1.9 FACTORS AFFECTING STUDENT ATTRITION

Over the last four decades, academics and researchers have tried to identify factors that shape student attrition to address the long-standing problem of high attrition among post-secondary students. These attempts have mainly focused on student demographics and characteristics (Grossett, 1989; Leppel, 2005; Littlejohn et al., 2016; Mattison, 2021; Milligan & Littlejohn, 2017; Rendon, 1994; Zhai & Monzon, 2001), academic

preparedness (Gouveia, Beckett & Nouroozifar, 2019; Jeffreys, 1998; Nouroozifar & Jivani, 2019; Reason, 2003; Stinebrickner & Stinebrickner, 2012), ethno-racial variables (Anonymous, 2005/2006; Cubeta, Travers, & Scheckley, 2001; Hu & St. John, 2001; Li et al., 2017; Lofstrom, 2007; Ong & Witte, 2013), and institutional variables (Abdul Latif Jameel Poverty Action Lab [J-PAL], 2019; Astin, 1975; Hawley & Harris, 2005; Sosu & Pheunpha, 2019; Spady, 1971; Volkwein & Strauss, 2004).

1.10 MODELS OF STUDENT ATTRITION

The existing attrition models on post-secondary student attrition are specifically based on four-year degree institutional frameworks. Some of these models (Bean & Metzner, 1985; Pascarella & Terenzini, 1980; Spady, 1970; Tinto, 1975) have influenced and shaped the mainstream research on student attrition in higher education. While some models have focused on relationships between demographic variables and enrollment patterns (Astin, 1993; Pascarella & Terenzini, 1980, 1983), others have focused on the relationship between social integration and self-concept (Bean & Eaton, 2000; Pascarella, 1980; Pascarella & Chapman, 1983; Pascarella, Duby, & Iverson, 1983; Terenzini & Pascarella, 1980; Tinto, 1975, 1987). In either case, these models have mainly focused on students' enrolment circumstances during student interactions with the post-secondary environment.

1.10.1 Spady's Model of the Drop out Process

Many scholars consider Spady's Model of the Drop out Process (MDP; Spady, 1970, 1971) to be the first theoretical model of student attrition that initiated the subsequent era of attrition model development (Berger et al., 2012; Demetriou & Schmitz-Sciborski, 2011; Habley et al., 2012). This model assumes that both academic and the social systems shape the process of student attrition, whereby social and academic satisfaction and institutional engagement and commitment determine in higher education outcomes.

Spady argued that students who failed to identify with other students' values and experiences and integrate into the college's academic and social systems were more likely to leave their programs unfinished. In his revised model (Figure 1.1; Spady, 1971), he incorporated structural relations and peer support and argued that academic self-concept was a powerful factor accounting for student attrition. Other researchers have also recognized the importance of academic self-concept for the related outcome of students' academic achievement (Ajmal & Rafique, 2018; Hansen & Henderson, 2019; Lyon, 1993; Marsh et al., 1988; Marsh & Shavelson, 1985; Shavelson & Bolus, 1982; Wu et al., 2021).

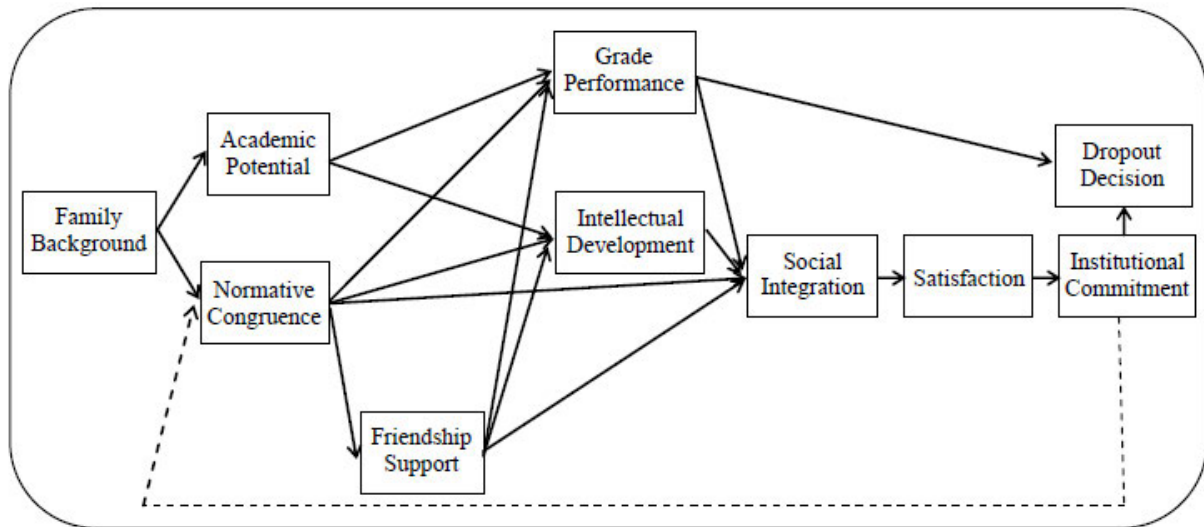
1.10.2 Tinto's Institutional Departure Model

Also widely cited in the literature, Tinto's (1975) Institutional Departure Model of student attrition uses a wider lens to include personal and institutional attributes, arguing that these factors strongly shape students' academic success and persistence. According to this model, students enter

post-secondary education with a set of personal attributes (e.g., academic

Figure 1.1

The Model of the Dropout Process (MDP; Spady, 1971)

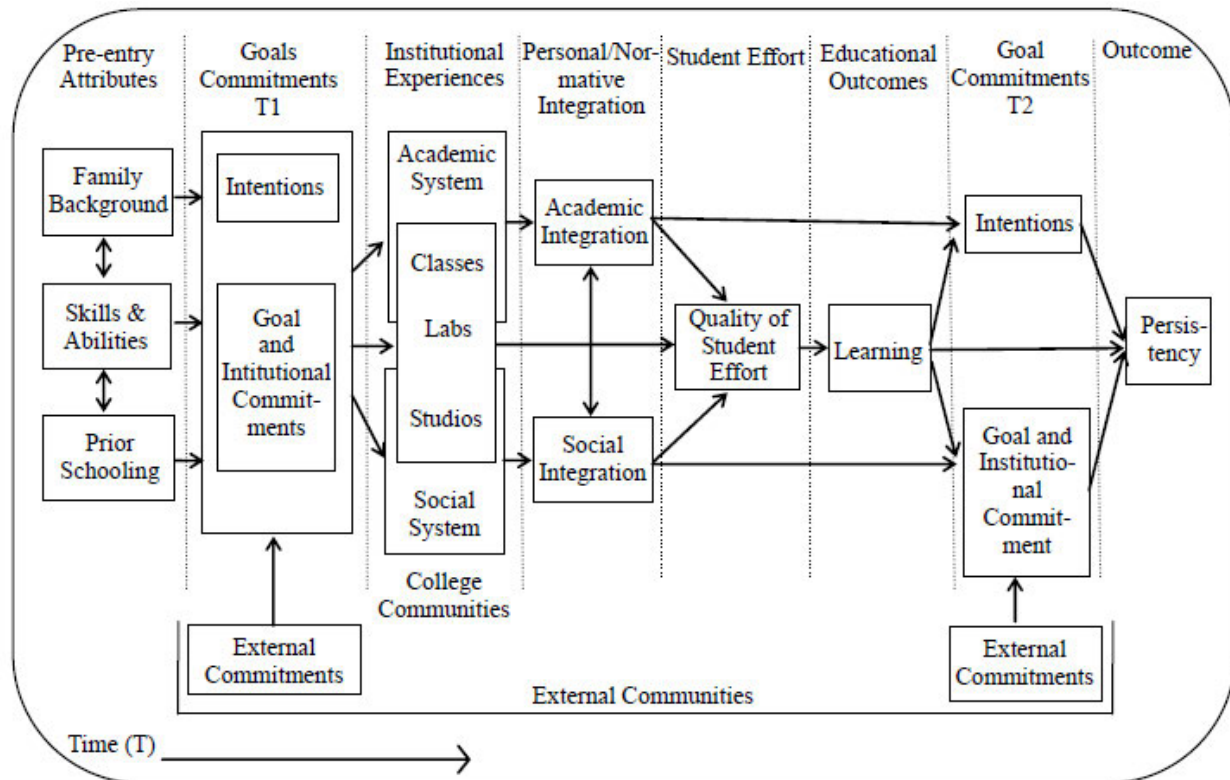


preparedness), that may not be compatible with an optimal college experience (e.g., grade performance, intellectual development, interactions with peers and faculty), and therefore may transfer to another program or leave college prematurely. It postulates that students' pre-college attributes such as family background, skills/abilities, and prior schooling—in addition to their commitment to the college and to graduation—influence their social and academic integration into the college. In turn, their integration is a primary determining factor for their likelihood to persist to graduation.

In a later revision of this model, Tinto (1982) highlighted factors that had limited the predictability of the model (Figure 1.2), broadly including (1) student variables, (2) environmental factors, and (3) group differences.

Figure 1.2

The Institutional Departure Model (Tinto, 1982)



Like Spady's model, the Institutional Departure Model included students' academic self-concept and institutional integration as predictors of student attrition, of which the former is relevant to the current thesis' hypothesis. Since Tinto's proposal, there has been a growing body of empirical research demonstrating a positive correlation between academic self-concept and academic success (e.g., Akande, 1997; Fincham et al., 2021; Hotulainen & Shofield, 2003; Hunt & Loxley, 2021; Marsh, 2004;

Montague & Garderen, 2003; Pyryt & Mendaglio, 1994; Ziegler, Heller, & Broome, 1996).

Missing from Tinto's personal attributes, however, is the role of motivational orientation, which Zangeneh (2015) has highlighted as a strong predictor of student success and persistence.

1.10.3 Bean and Metzner's Non-Traditional Undergraduate Student Attrition Model

Bean and Metzner's model (1987) focuses on the interaction between psychological variables (e.g., motivation, stress, and study habits) and environmental variables (e.g., program advising, external encouragement), and argues that attrition can be predicted by certain interactions between them in their conceptual framework (Figure 1.3). This model is relevant to the current thesis because it considers motivation as one of the psychological variables. They argued that low scores on these variables could negatively impact students' academic experience and result in premature departure (Bean & Metzner, 1985).

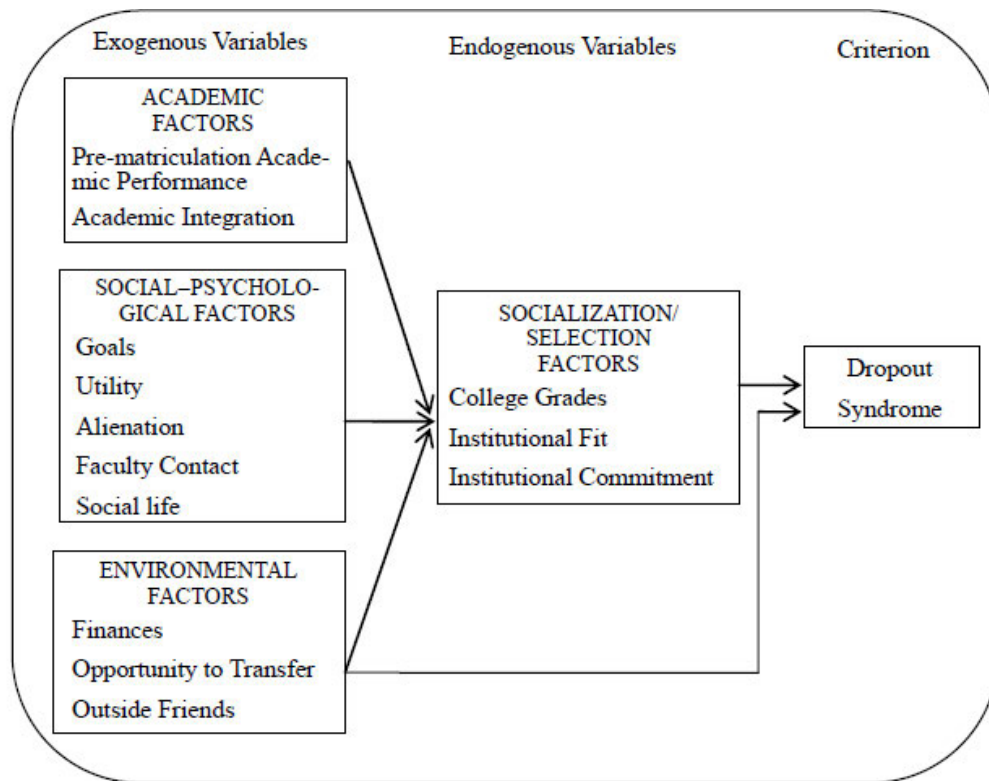
1.11 SUPPORTING STUDY CONCEPTS

Most attrition cases occur when students withdraw from college during their first or second semester. First-semester attrition has been the focus of several studies (Akerman et al., 2013; Andreu, 2002; Bargmann et al., 2022; Berens et al., 2019; Cofer & Somers, 2001; Comford, 2016; Driscoll, 2007; Fink et al., 2020; Kuh, 2008; Leary & Bryner, 2021; Ng, 2021; Padgett et al.,

2013; Reason, 2003; Rice, 1983; Roland et al., 2018; Runner-Rioux et al., 2018; Tinto, 1997; Walsh & Kurpius, 2016). Sadler et al. (1997) attempted

Figure 1.3

The Non-traditional Undergraduate Student Attrition Model



to develop a model that could predict student attrition during the students' first year, using data from 2,209 students from the College Student Information System. They examined variables that were available to the college at four distinct stages: (1) prior to the start of the first semester; (2) at the end of third week of classes in the first semester; (3) at mid-term; and (4) at the end of the first semester. They found that three variables effected retention: (a) gender, (b) having many unearned courses/credits, and (c)

many meetings with the program administrators triggered by falling behind academically.

Despite the myriad of student attrition research studies, one factor that has been largely overlooked has been gender-differentiated motivation. Understanding if and how gender relates to specific types of motivation could help to better predict student attrition, and research on these relationships is lacking.

1.12 THESIS HYPOTHESIS

The research reported in this thesis was based on the following hypothesis: The influences of academic self-concept and integrative or instrumental motivational orientation affect the decisions of students to stay or leave college. The thesis further questions whether female students would display higher levels of integrative motivational style and academic self-concept than males, and hence higher persistence in post-secondary education.

This chapter has reviewed the substantial body of literature that has emerged since the 1970s describing the various models developed to predict college student retention. The next chapter reviews the literature that focuses specifically on student retention, discusses the significance of academic self-concept in determining academic success, and how motivational style could predict retention differentially depending on gender.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION TO CHAPTER TWO

As outlined in Chapter 1, the gender gap in post-secondary education is a symptom of complex issues, as is the problem of premature college departure (Almås et al., 2016). This chapter overviews the relevant literature on academic self-concept and motivational orientation and their relationship to premature college departure. It will also explore the interaction of gender with these constructs. The first section describes the search strategy used to identify relevant literature. The second and third sections examine self-concept and motivation, and how they interact with gender in association with post-secondary student attrition.

2.2 REVIEW SOURCES AND SEARCH STRATEGY

This literature review was conducted in accordance with PRISMA guidelines, which are widely cited as providing an evidence-driven reporting system for Systematic Reviews and Meta-analyses (Moher et al. 2009). Between January 2017 and December 2021, several electronic databases were thoroughly searched, including PubMed, PsycINFO, ScienceDirect, Academic Search Complete, ERIC, PsycARTICLES, Web of Science, and Wiley Online Library. The following search terms were used: academic self-concept (self-concept OR academic self-concept OR math self-concept OR reading self-concept) AND motivation OR motivational orientation (instrumental OR integrative OR internal OR external) AND college (higher-

education OR community college OR college OR postsecondary) AND drop out OR attrition OR persistence OR at-risk OR academic performance AND gender. For more details, see chapter 4, section 4.2.

2.3 SELF-CONCEPT

The idea of self-concept has a long and interesting history dating back to ancient Greek philosophy (De Landazuri, 2015; Hattie, 1992; Moore, 2015). Plato and Socrates both laid the foundation for the concept of self and self-knowledge through their writings and teachings, but it is in the contemporary empirical literature where a clearer definition of self-concept as an essential component of human personality is found (Schroeders & Jansen, 2022; Zahra, 2010). Self-concept often refers to the perceptions one has about their physical, social, and psychological competence (Schroeders & Jansen, 2022; Zahra, 2010). These perceptions encompass multiple features, attributes, capacities, deficiencies, characteristics, relationships, and values that would describe a person (Schroeders & Jansen, 2022; Zahra, 2010). Coutelle et al. (2020) used a similar definition, describing self-concept as knowledge or beliefs about the self. Shavelson et al. (1976) described it as a multidimensional construct with academic self-concept as a component.

2.4 ACADEMIC SELF-CONCEPT

Academic self-concept is defined as the mental representation of one's self-evaluation of their abilities or progress in an academic environment (APA Dictionary of Psychology, 2020; Bracken et al., 2009; Brunner et al., 2010;

Han, 2019). Benner and Mistry (2007) defined it as “the personal beliefs someone develops about their academic abilities or skills” (p. 141). According to this definition, an individual's academic self-concept is part of their natural growth, developing in childhood and progressing with the mental and physical growth that comes with age. Benner and Mistry (2007) argue that early socialization factors shape academic self-concept to a great degree.

Marsh et al. (2017) considered academic self-concept to be one of the most fundamental concepts in social science. Like Shavelson et al. (1976), Marsh argued that self-concept is an important multidimensional construct in psychology, and that academic self-concept was one of its components (Trautwein et al., 2009; Marsh & Martin, 2011).

There is currently no consensus on the definition of self-concept in the literature. A quick scan suggests that it is frequently used as a substitute for terms such as self-regard, self-identity, self-esteem, self-perception and/or self-efficacy (Ahmed & Bruinsma 2006; APA Dictionary of Psychology, 2020; Cicero, 2017; Du Plessis, 2005; Jansen et al., 2015, Karimova & Csapó, 2020; Rüschenpöhler, 2019). Shavelson et al. (1976) were the first to develop an empirical model of self-concept, wherein they argued that it is comprised of a *global* self-concept that can be divided into *academic* and a *non-academic* domains. This formulation was later reported by Miller (2002) and Schmidt et al. (2017).

Although global self-concept is viewed as important in academic

learning (Ahmed & Bruinsma, 2006; Beasley & Garn, 2013; Ben-Eliyahu et al., 2017; Smith, 2019a), several researchers have identified academic self-concept in particular as a better predictor of academic success (e.g., Hansen & Henderson, 2019; Honicke & Broadbent, 2016; Jansen et al., 2015; Khalaila, 2015; Kumar, 2001; Marsh et al., 2017; Smith, 2019b).

2.5 ACADEMIC SELF-CONCEPT AND ACADEMIC ACHIEVEMENT

Academic self-concept has been a focus of research since the introduction of the Academic Self-Concept Model by Shavelson et al. (1976). In several papers published between 1990 and 2000, Dweck and colleagues argued that students' academic persistence and success were related to how they develop perceptions about their own academic abilities (Dweck, 1990, 1996, 1999; Dweck et al., 1995; Gervey et al., 1999). Later, Bennett (2009) examined the existing empirical literature on academic self-concept and produced a three-dimensional view of academic self-concept encompassing (1) self-perception of one's academic competence, (2) self-confidence to deal with academic life, and (3) how well one perceives themselves to fit into an academic environment.

Some empirical studies, including those mentioned above, provided a basis for subsequent research examining the relationship between academic self-concept and academic outcomes. This increase in attention led to the emergence of a body of research demonstrating that academic self-concept is positively associated with academic achievement (e.g., Alschuler & Yarab,

2018; Badali, et al., 2022; Marsh, 2004; Marsh et al., 2011; Marsh et al., 2018; Montague & Garderen, 2003; Muljana & Luo, 2019; Pyryt & Mendaglio, 1994), and with post-secondary school retention (Astin & Oseguera, 2003, 2005; Robbins et al., 2004; Smith & Van Aken, 2022). Numerous cross-cultural studies have also reported that students with higher academic self-concept tend to achieve higher academic success (Akande 1997; Hotulainen & Shofield, 2003; Marsh 2004; Marsh et al., 2016; Marsh et al., 2019; Pyryt & Mendaglio, 1994; Ziegler, et al., 1996).

2.6 ACADEMIC SELF-CONCEPT AND RETENTION

Student retention rate is considered an important measure of success for post-secondary institutions, and while extensive literature suggests academic self-concept is related to academic achievement, factors such as motivation and psychological wellbeing are also relevant (Álvarez-Díaz et al., 2021; Beaton et al., 1996; Garaigordobil & Berrueco, 2007; García-Crespo et al., 2021; Hattie, 2009; Karaman et al., 2021; Marsh & Hau, 2003; McBride et al., 2021; Möller et al., 2020; Morales-Vives et al., 2020; Mullis et al., 2016; Richardson et al., 2012; Schutze et al., 2021; Stankov, 2013; Stankov et al., 2014; Suárez-Álvarez et al., 2014). A positive correlation between a strong academic self-concept and student retention has also been reported in the post-secondary education context (Haktanir et al., 2021; House, 1992; Stephenson et al., 2020). A longitudinal study by Guay et al. (2004) found academic self-concept to be positively correlated with both educational

achievement and persistence, demonstrating the importance of academic self-concept in investigations of post-secondary educational outcomes. As university and college attrition rates have become a major concern for educators, administrators and policy makers, many post-secondary institutions now have a dedicated officer or even a department for managing student retention efforts.

Various models describing the relationship between academic self-concept and academic outcomes were found in the literature search. One supported by good evidence is a bidirectional model in which both academic self-concept and academic outcomes (including achievement and retention) reciprocally reinforce each other (Beaton et al., 1996; Hellas et al., 2018; Marsh & Hau, 2003; Möller et al., 2020; Mullis et al., 2016; Steegh et al., 2019; Beaton). It has been reported that the development of academic self-concept is shaped by various psychological, social and cultural variables (Harter, 2012; Koivuhovi et al., 2020; Marsh, 1987; Marsh et al., 2017; Marsh et al., 2021; Wolff et al., 2021). Among these, the influence of gender has been examined to some extent (Eccles et al., 1993; Galindo-Domínguez, 2019; Grygiel et al., 2017; Herrera et al., 2020; Malo-Cerrato et al., 2011). Some argue that male and female students throughout their academic life are affected differently not by an inherent gender-based disparity in academic ability, but primarily by how they *perceive* their own capabilities (Grygiel et al., 2017; Marsh et al., 2021; Wolff et al., 2021). Specifically, several studies

have indicated that girls exhibit lower academic self-concept than boys (Akande, 1997; Kelly & Jordan, 1990; Ziegler et al., 1996; Fryer et al., 2018; Ertl et al., 2017; Mowahed et al., 2020).

While research on gender differences and student retention within university and college population has recently increased, the role of gender as a discrete factor has been considered only marginally (Nichols & Stahl, 2019; Conger & Long, 2010; Buchmann, 2009; Ewert, 2012).

2.7 GENDER AND ACADEMIC ACHIEVEMENT

Gender-based differences in child development have been known to exist for several decades. For example, gender-differentiated verbal and mathematical competencies are commonly studied in the educational literature. Maccoby and Jacklin (1974) summarized the findings of over 1400 studies on these gender differences, including differences in visual system maturation in infants (Conel, 1963), sensitivity to touch and play behaviour in infants (Kagan, 1971), perceptual motor abilities in older children (Anastasi, 1958), verbal aggression in older children (Freedman & Sears, 1965), performance on visual-auditory or visual-spatial reinforcement in older children (Bryden, 1972), and afterimage experience in adulthood (Brownfield, 1965). Despite this, Maccoby and Jacklin did not identify a clear and consistent pattern. Critics (e.g., Block, 1976) argue that Maccoby and Jacklin were inconsistent in their selection criteria (e.g., choosing mixed sample of studies, mostly with weak statistical power due to small sample

size), as well as in the method they used to determine gender difference (e.g., using vote-counting to estimate effect size).

More recent research has described gender differences in students' performance, including in the rate of brain development (Jiang et al., 2019; Marco et al., 2019; Gomez et al., 2011; Naomi, 2018), cognition (Hodgins, 2008), and behavioural learning (Mahmud & Nur, 2018). Gender has become a commonly studied variable in the education literature, with many reporting that differential outcomes between male and female students (e.g., Al-Farhan & Dauletova, 2019; Hedges & Olkin, 1985; Hunter et al., 1986; Hyde, 2014). Specifically, several studies have reported that male students display higher performance on various cognitive and behavioural activities than female students (e.g., Zaharim et al., 2013; Okwelle et al., 2018).

Recent studies have highlighted inconsistencies in the literature on gender differences in academic competencies (Andrews, 2018; Cutumisu & Bulut, 2017; Fisher et al., 2020; Jungert, 2019; Maloy et al., 2022; Pederson, 2019; Plante et al., 2019; Steegh et al., 2019). For example, gender gaps have been reported in Iceland, Finland, and Canada in which females perform better than males in mathematics, science and reading (Cutumisu & Bulut, 2017; Halldórsson & Ólafsson 2009)., while contradictory findings in Kenya, Israel and Ireland have pointed to males outperforming females in math (Aurah, 2017; Cahan et al., 2014; Close & Shiel, 2009). In a meta-analysis on the topic, Hyde (2014) argued against any strong

differences attributable to gender, with most studies in this analysis showing small effect sizes under $d = 0.2$.

2.7.1 Gender Patterns in Reading and Mathematics

Achievement

Gender differences seem to be less noticeable in mathematics than in reading achievement. For instance, while several studies have found girls to be considerably stronger in reading than boys (e.g., Mullis et al., 2008; Plante et al., 2019), others including the Third International Mathematics and Science Study (TIMSS; as cited in Mullis et al., 2008) have had mixed findings regarding gender differences in mathematics. According to the TIMSS, while males scored higher in mathematics in some European countries, females scored higher in other European countries, and there were no gender differences in few other European countries (Mullis et al., 2008). Meanwhile, other research (e.g., Tsui & Rice, 2002; Steegh et al., 2019) has found no gender differences in mathematical achievement.

2.7.2 Gender, Academic Achievement, and Culture

In places where males outperform females in math, some research attributes this difference to subtle socio-cultural barriers to women's participation in mathematical fields. These include having a sense of belonging in mathematics, flexibility in negotiating family responsibilities, mathematical confidence, systemic factors, historical precedents, and female representation among high school math teachers (Brown et al., 2020;

Caponera & Losito, 2016; Dronkers & Kornder, 2015; Graff, 2013; Johnson, 2017; Lacampagne et al. 2007; Leder, 2015; Bottia et al., 2015). In alignment with these, Simon et al. (2016) found that while masculine personality characteristics were not necessarily rewarded in the STEM fields, feminine traits were sometimes penalized.

Further, some research indicates that a student's motivation to excel at school can be predictive of their future academic achievement. Van de Gaer et al. (2006) argued that underachievement among boys is related to their attitudes towards school and schoolwork. Other research simply suggests that boys and girls differ in their attitude towards education (e.g., Ehrman et al., 2003; El-Dib, 2004; Huang & Uba, 1992; Zangeneh, 2015; Zangeneh et al., 2004; Kirk, 2019; Grygiel, 2017; Gujare & Tiwari, 2016; Zaccone & Pedrini, 2019).

2.8 MOTIVATION THEORY

The earliest interest in the psychological construct of motivation emerged in the early 20th century, with Henry Murray's seminal Theory of Psychogenic Needs (Xu et al., 2020). Murray viewed motivation as a dynamic trait that could enhance learning, describing it as a drive to "accomplish something difficult to overcome obstacles and attain a high standard; to excel oneself; to rival and surpass others" (Murray, 1938, p. 164), and developed the Thematic Apperception Test as a measure for it. Murray's formulation of motivation inspired Hull in devising his Drive Reduction Theory

(Hull, 1943), which explains motivation as biological needs driving behaviour that leads to gratification of those needs. During the same period, Maslow (1943) published his famous model of a hierarchy of five independent human needs and motives (see Rogers, 1957 for further description of Maslow's model). Maslow defined motivation as a set of reasons why people behave as they do, that occurs when a need that the individual wants to satisfy is aroused.

2.8.1 Behaviourism & Reinforcement

Later interest in the concept of motivation can be traced back to the era of behaviourism and the empirical literature on reinforcement learning (Bolles, 1975; McClelland, 1975), wherein it was believed that all behaviour is a result of reinforcement (i.e., learned). B.F. Skinner (1953), the leading theorist in this area, identified four types of reinforcers: (1) positive reinforcers, which increase the future likelihood of a behaviour they were made contingent upon, (2) negative reinforcers, which increase the likelihood of a behaviour by removing a negative stimulus; (3) positive punishments, which decrease the likelihood of a behaviour by imposing a negative consequence (e.g., traffic tickets for speeding); and (4) negative punishments, which decrease the likelihood of a behaviour by removing or withholding something of value (e.g., suspending one's driver's licence; Skinner, 1938).

2.8.2 Cognition

Many researchers have argued that simple reward and punishment approaches have limited utility in shaping and modifying human behaviours, are not very effective (e.g., paying attention in students), and are vulnerable to decay over time (Shank, 2010). This view led to an emergence of interest in cognitive explanations for learning (Tolman, 1922, 1932, 1938), wherein cognitive processes serve as mediating factors in reward or punishment contingencies (Tolman & Honzik, 1930). According to this approach to motivation, individuals can engage in learning by (1) monitoring their own behaviour, (2) setting specific goals, (3) using metacognitive strategies, and (4) taking responsibility for their own reward (Crippen & Antonenko, 2018). In other words, one can be in charge of their own learning process. Several researchers have noted limitations with this approach (e.g., rewarding oneself undeservedly; Speidel & Tharp, 1980; Wall, 1983). These limitations, coupled with advancing views on motivation, led to the emergence of a newer approach in the 1970s when it was argued that behaviour is not a consequence of an action, but rather is shaped by cognition (Bandura, 1977). Some of these views focused on the concepts of self-efficacy, attribution, and self-worth.

2.8.3 Self-Efficacy

According to Bandura (1982), self-efficacy describes "judgments of how well one can execute courses of action required to deal with prospective

situations” (p. 122). He argued that self-efficacy is a major predictor of effort and persistence, and determines goal setting (Bandura, 1982; see also Eccles & Wigfield, 2002, for further discussion). Numerous empirical studies indicate that people with high self-efficacy are more motivated on various tasks (e.g., Li & Park, 2021; In'am et al., 2021; Kuo et al., 2017).

2.8.4 Attribution

Another area of motivation research is related to the concepts of attribution and locus of control. According to the theory of locus of control, those who feel more in control of their own circumstances are more likely to be motivated (Eccles & Wigfield, 2002; Yang & Quadir, 2018). And this can be related to attribution—an individual’s perception about the causes of their failure or success on a task (Struthers et al., 2005)—being internal or external.

2.8.5 Self-Worth

Self-worth is the third concept focused on by the emergent views of the 1970s. According to self-worth theory, an individual's ultimate goal in life is to find self-acceptance, which is often found through achievement (Snyder et al., 2021). This suggests that people attempt to improve their self-worth and attribute the causes of outcomes in their life in a way that maximizes their sense of control and confidence (Snyder et al., 2021). According to several empirical studies, a common attribution among college students for failing to perform well is a lack of effort (Krull, 2001; Weiner, 2004; Tulis & Ainley,

2011). It is further argued that this type of attribution helps individuals to avoid tasks they are not confident they can perform successfully (Covington & Omelich, 1979, as cited in Eccles & Wigfield, 2002).

2.9 MOTIVATION TYPES: INSTRUMENTAL VS. INTEGRATIVE

A considerable body of literature has emerged in recent decades that points to the importance of motivation in driving academic success or failure, as opposed to explaining it by ability or skills alone (Graham & Hudley 2005; Pintrich, 2003; Schunk & Zimmerman, 2007). This suggests that factors such as motivation could be important in shaping academic outcomes.

Historically, psychological and educational researchers have treated the construct of motivation as unidimensional and have failed to distinguish different types (Deci & Ryan, 2008a, 2008b). This was challenged by a proposed multidimensional model of motivation by Deci and Ryan (2000, 2008a, 2008b) that included intrinsic motivation (also referred to as integrative motivation), extrinsic motivation (also referred to as instrumental motivation), and amotivation. Several studies subsequently examined the role of these different dimensions of motivation in students' academic outcomes (e.g., Areepattamannil & Freeman, 2008; Areepattamannil et al., 2011; Becker et al., 2010; Lee et al., 2010). It has been argued that the constructs of instrumental and integrative motivation were used to formulate other, more widely used academic motivation theories, including self-determination theory (Deci & Ryan, 2008b; Niemiec et al., 2010;

Vansteenkiste et al., 2008) and attribution theory (Weiner, 2006).

An effort to reach a goal, as well as any action that results from this effort, can be the consequence of motivation that is generated internally (i.e., intrinsic or integrative motivation; Liu et al., 2018; Ryan & Deci 2000; Stevens & Gibson, 2017) or externally (i.e., extrinsic or instrumental motivation; Afshar et al., 2014; Ning, 2020; Safotso & Tompte, 2018; Yu, 2019; APA Dictionary of Psychology, 2020). Ryan and Deci (2000) argued that the orientation of motivation relates to the underlying attitudes and goals that lead to a particular action. If the outcome results from external factors, then motivation is extrinsic (or instrumental) and the person's focus is outside their self. On the other hand, if the outcome results from internal factors, then motivation is intrinsic (or integrative), and the person's focus is on factors within the self.

Gardner and Lambert (1959) developed the Orientation Index as an instrument to measure motivational orientations. According to this index, individuals are motivated largely to achieve two goals, represented by the integrative-instrumental dichotomy (Gardner & Lambert, 1959; Gardner, 1985; 2002; Gardner, 2020; Zangeneh, 2015). Integrative motivation is described as a combination of attitudinal, goal-directed, and motivational attributes (Dörnyei, 2019) wherein one is motivated to pursue goals like post-secondary education because they feel it is inherently rewarding (Gogol et al., 2014). This type of motivation is characterized by curiosity, open-

mindedness, and genuine interest in knowledge acquisition (Al-Hoorie & MacIntyre, 2020; Gardner, 1985; 2002; Gardner, 2020; Gardner & Smyth 1981; Lamb 2004).

In contrast, instrumental motivation is generally described as the willingness or desire to gain something practical from a task, such as the completion of college education to get a job (Al-Hoorie & MacIntyre, 2020; Masgoret & Gardner 2003; Gardner, 1985; Gardner, 2020; González Ardeo, 2016; Hudson, 2000). With instrumental motivation, the purpose of education is more utilitarian in nature, where the goals are to meet the requirements for graduation, get a good job, increasing their earning power, or gain higher social status (Gogol et al., 2014). Levesque and colleagues (2011) argued that externally shaped behaviours are present when there are specific external outcomes or possibilities. Consequently, individuals are more likely to quit their activity in the absence of specific external outcome or reward.

2.10 MOTIVATION AND ACADEMIC ACHIEVEMENT

Research indicates that motivation is linked to academic persistence and success, and is predictive of learning outcomes (e.g., Amrai et al., 2011; Arens et al., 2019; Dickhäuser, 2016; Graham & McKenzie, 2017; Izuchi & Onyekuru, 2017; Jansen et al., 2015; Kushmand et al., as cited in Broussard, 2002; Lohbeck, 2018; Raufelder et al., 2016; Ryan & Connell, 1989; Slinger, 2015; Thompson & Verdino, 2019; Wong et al., 2017). Yet, much of the

available evidence on academic achievement and motivation is inconsistent, contradictory, and largely inconclusive. Moreover, there is a paucity of literature on academic achievement within the community college context—much of the research has been limited to university settings and populations.

Several studies have reported a positive correlation between high levels of integrative motivation and academic persistence (Asmar et al., 2011; Brubacher & Silinda, 2019; Fong et al., 2018; Gardner & Lambert, 1972; Gardner, 1985; Heid, 2016; Janke, 2020; Jento et al., 2018; Mnyandu, 2001; Rump et al., 2017; Rutledge, 2019). Clément et al. (1977) used the Attitude Scale with Canadian high school students at the beginning and the end of a school year and found that students with more integrative orientations tended to persist more. Furthermore, they reported that the attitudes of those who dropped out early changed for the worse and that they felt alienated as they left school. Instrumentally oriented motivation may have played an important role in their attrition experience. Zangeneh (2015) reported similar findings in a study of high school students in Toronto, finding instrumental motivational orientation to be positively correlated with attrition. Kirk (2019) further found that male (but not female) Early Childhood Studies students with extrinsic (i.e., instrumental) motivation were more likely to drop out than those with intrinsic (i.e., integrative) motivation. And Zaccone & Pedrini (2019) found that while intrinsic motivation had a positive effect on learning, extrinsic motivation had a negative effect—particularly for boys.

Not all studies have reported similar findings regarding motivational orientation and retention/attrition. Several studies have linked instrumental motivation with persistence rather than integrative motivation (e.g., Al-Ta'ani, 2018; Boddy, 2020; Hammoudi, 2019; Kirk, 2020; Meyer & Thomsen, 2018; Morgan, 2021; Saito-Abbott & Samimy, 1997; Savage et al., 2019; Speiller, 1988; Tanvir & Chounta, 2021; Vollet & Kindermann, 2020). These researchers argue that students often resort to instrumental motivation for a practical reason such as getting a salary bonus or joining a university.

On the other hand, another series of studies have indicated that both integrative and instrumental motivational style play an important role in academic performance (e.g., Deci & Ryan, 2008a, 2008b; Liu et al., 2011; Masum, 2016; Muftah & Galea, 2013; Güvendir, 2016; Fischer et al., 2019; Topcu & Leana-Tascilar, 2018). Turhan (2020) conducted a meta-analysis on the results of studies that considered gender and academic motivation in Turkey between 2004 and 2019, and found no effect of gender on academic motivation. Other research has also failed to find any gender differences in this regard (Anierobi, 2019; Colangelo et al., 1987; Hotulainen & Shofield, 2003; Pajares & Graham, 1999; Peteros et al., 2020).

There is a clear lack of consensus in the literature on which type of motivation is most associated with student retention or attrition. Emerging findings do, however, point to a link between gender and motivational style. Although research has been inconsistent about the nature of motivation

(integral versus instrumental) among females and males, many researchers have suggested a gender difference in motivational orientation (Arnold & Rowaan, 2014; Ehrman et al., 2003; El-Dib, 2004; Frenzel et al., 2010; Grygiel, 2017; Gujare & Tiwari, 2016; Huang & Uba, 1992; Kirk, 2019; Nagy et al., 2010; Ramos Salazar, 2018; Sun, 2020; Watt, 2004; Zaccone & Pedrini, 2019; Zangeneh, 2015; Zangeneh et al., 2004). What appears less ambiguous is that treating and examining gender and motivation as silos fails to predict student achievement.

2.11 GENDER-DIFFERENTIATED MOTIVATIONAL STYLE

The current literature on gender differences and motivational orientation lacks conclusive evidence (Buser et al., 2012; Carvalho, 2016; Chou & Zhang, 2018; Fisher et al., 2020; Nausheen et al., 2020; Sener & Erol, 2017; Steegh et al., 2019; Su et al., 2015; Urhahne et al., 2012; Watt et al., 2012). Gardner et al. (2004) reviewed the literature on Second Language Learning and argued that female subjects generally employ an integrative motivational orientation more often than males, while males tend to employ instrumental motivational orientations. He pointed to evidence suggesting an association between integrative motivation and academic success, whereas Zangeneh (2015) found instrumental motivation to be associated with *lower* academic success.

Other studies suggest that females cite a larger variety of reasons for pursuing education than males, which could be related to gender-specific

motivational orientations (El-Dib, 2004; Hong-Nam & Leavell, 2006; Peacock & Ho, 2003; Wan, 2017). Schmitz (1996) found that male students had more externally/instrumentally defined reasons for studying English such as "I need an A grade for future graduate school entrance," while female students were more motivated by internal reasons such as "I am motivated to study psychology because I enjoy learning about the subject." Zangeneh (2015) argued that these differences may relate to gender-specific differences in learning styles and motivation. Research has shown that female students generally have more favourable attitudes towards school and value education and self-knowledge (i.e., integrative motivational style) more than male students do (Bassi et al., 2007; Xiong, 2010; Adachi, 2015; Wan, 2017; Şener & Erol, 2017; Asif et al., 2018; Oga-Baldwin & Fryer, 2020)

Conversely, Lukmani (1972) studied 60 Marathi-speaking female high school students in India who wanted to learn English but were not interested in learning about Western culture. From the student's perspective, the English language represented a pathway to a better living standard. According to Lukmani, the students' instrumental motivation scores correlated significantly with their English proficiency scores. Other studies have similarly found instrumental motivation to be key for language learning (e.g., Hong & Ganapathy, 2017; Rozmatovna, 2020; Aspuri et al., 2019).

Psychological constructs such as academic self-concept and motivational orientation are important correlates of premature college

attrition, as demonstrated by a large body of evidence. The literature in this field indicates that academic self-concept and motivational orientation scholars have attempted to develop more effective models to assess the associations of academic self-concept motivation with post-secondary attrition. Despite increasing interest in this topic over the past six decades, the research has not been able to fully capture the factors of attrition among community college students. Much of the available evidence on the relationship between academic self-concept and motivation as a predicting factor for post-secondary student attrition has been mixed and largely inconclusive. There is also limited understanding of the role gender plays in this equation. In sum, there remains a gap in the research on the relationship between academic self-concept, gender-differentiated motivational orientation, and college attrition.

The next chapter describes the research design and methodology used to examine this gap.

CHAPTER 3: METHODOLOGY

3.1 INTRODUCTION TO CHAPTER THREE

The previous chapter's literature review exposed a lack of understanding of the role of gender as a discrete factor in determining the relationships between gender, motivation and self-concept, and attrition rates of college students. This chapter begins with an introduction to the thesis study's philosophical orientation and assumptions. The following sections describe the thesis study design, research question and null hypotheses. The later sections describe the study population and the recruitment and sampling methods used, the instruments used, the study procedure, data collection and analysis. The last sections of this chapter discuss details around ethics and participant compensation.

3.2 PHILOSOPHICAL ORIENTATION

This thesis study used a quantitative research method, with a worldview based on post-positivist philosophical orientation (Phillips & Burbules, 2000). This approach to social research aims to use a natural science framework to examine and explain social phenomena. This approach operates based on five tenets (Mertens, 2010): (1) there are patterns and regularities (causes and consequences) in the social world that mirror the natural world, (2) patterns and regularities that are assumed in the first tenet exist independent of individual's experience, (3) theories and explanations are valid when they are empirically observed, (4) appropriate tools and

techniques must be used to investigate patterns and regularities in the social world, and (5) social researchers should be objective and take a value-neutral stance.

Creswell (2013, p. 7) sums up this approach as: "data, evidence, and rational considerations shape knowledge." In practice, the researcher collects information using instruments based on measures completed by the participants or by observations recorded by the researcher" (as cited in Creswell 2013, p. 7).

3.3 DESIGN

The purpose of this cross-sectional thesis study was to establish potential associations student attrition has with variables such as gender-differentiated motivation styles and academic self-concept in a community college population. Instrumental motivational orientation, integrative motivational orientation, and academic self-concept were treated as independent or predictor variables, with a dependent variable of student persistence, while demographic characteristics including gender, age, and premature college departure or graduation from the program acted as mediators between the independent variables.

Table 3.1*Research Questions and Variables*

Research questions	Independent variable	Dependent variable
Q1. What is the relationship between integrative motivational style and gender?	Integrative motivational style; Gender	
Q2. What is the relationship between instrumental motivation and gender?	Instrumental motivational style; Gender	
Q3. What is the relationship between academic self-concept and integrative motivational style when controlling for gender?	Academic self-concept; Integrative motivational style; Gender	
Q4. What is the relationship between academic self-concept and instrumental motivational style when controlling for gender?	Academic self-concept; Instrumental motivational style; Gender	
Q5. What is the relationship between academic self-concept and first semester attrition when controlling for gender and motivational styles?	Academic self-concept; Gender Motivational styles	First semester attrition

Q6. What is the relationship between academic self-concept and second semester attrition when controlling for gender and motivational styles?	Academic self-concept; Gender Motivational styles	Second semester attrition
Q7. What is the relationship between integrative motivational style and first semester attrition when controlling for gender and academic self-concept?	Integrative motivational style; Gender Academic self-concept	First semester attrition
Q8. What is the relationship between integrative motivational style and second semester attrition when controlling for gender and academic self-concept?	Integrative motivational style; Gender Academic self-concept	Second semester attrition
Q9. What is the relationship between instrumental motivational style and first semester attrition when controlling for gender and academic self-concept?	Instrumental motivational style; Gender Academic self-concept	First semester attrition
Q10. What is the relationship between instrumental motivational style and second semester attrition when controlling for gender and academic self-concept?	Instrumental motivational style; Gender Academic self-concept	Second semester attrition

3.4 NULL HYPOTHESES

The null hypotheses that were tested and drawn from the research questions were:

1. There is no relationship between integrative motivational style and gender.
2. There is no relationship between instrumental motivational style and gender.
3. There is no relationship between academic self-concept and integrative motivational style when controlling for gender.
4. There is no relationship between academic self-concept and instrumental motivational style when controlling for gender
5. There is no relationship between academic self-concept and first semester attrition when controlling for gender and motivational styles.
6. There is no relationship between academic self-concept and second semester attrition when controlling for gender and motivational styles.
7. There is no relationship between integrative motivational style and first semester attrition when controlling for gender and academic self-concept.
8. There is no relationship between integrative motivational style and second semester attrition when controlling for gender and academic self-concept.
9. There is no relationship between instrumental motivational style and first semester attrition when controlling for gender and academic self-concept.

10. There is no relationship between instrumental motivational style and second semester attrition when controlling for gender and academic self-concept.

3.5 POPULATION

The population examined in this study included students admitted to semester one of a two year full-time academic diploma program at Humber College, studying in either the Faculty of Business or the Faculty of Applied Science and Technology. Participants were recruited by accessing the database of the registered students maintained by Humber College. Participant inclusion criteria included: (1) being registered and enrolled in full time two-year academic diploma program at Humber College (2) having begun their first semester with at least 60% of course-load in Fall of 2018 (cohort 1) or Winter 2019 (cohort 2).

3.6 HUMBER COLLEGE

The Colleges of Applied Arts and Technology (CAATs) were established by provincial legislation in 1967 in response to the need for a skilled workforce. Humber College is Canada's premier the largest college offering 192 Fulltime programs that range from apprenticeships to degrees and graduate certificate programs from two main campuses. More than 27,000 fulltime students attend Humber annually and on average 10,000 students graduate annually from the institution (Humber College, n.d.).

The Ministry of Advanced Education and Skills Development partially funds public colleges in the Province of Ontario. In recent years, there have been changes to ways in which Ontario Colleges are funded, including a new funding formula introduced in Fall 2019 that considered performance-based and tie-in measures such as student retention and graduation rates. Due to the sensitive nature of this topic and unwillingness of other institutions to share retention and persistence data, this research focused on records available at the researcher's Institution, Humber College.

3.7 RECRUITMENT METHODS

This quantitative research used a convenience sampling method (Dillman, 2000). Students from the Faculty of Business and the Faculty of Applied Science and Technology's two-year diploma programs were invited to participate in a ten-minute survey administered online. The selection criteria for these participants were based on fulltime semester one enrollment in their program. For the purposes of this study, fulltime enrolment was defined as a course-load of between 60% and 100% in each semester. Participants were matched for gender, age, and initial post-secondary term.

3.8 SAMPLING

All students enrolled in semester one of the two-year full-time diploma programs within the Faculty of Applied Science and Technology and the Faculty of Business were contacted in the Winter (January program start date) and Fall of 2018 (September start date). To examine possible

differentiating student factors, the two recruited groups were separated by semester start date. Students were sent an email invitation by the research assistant (RA) to participate in the study, and the data was also collected by the RA.

3.9 SURVEY INSTRUMENTS

3.9.1 Part 1 – Demographic Questions

The first part of the survey asked questions related to demographic characteristics, asking participants to report their age, gender, and past high school grades in English, mathematics, and overall. They were asked to report their grades on a 4-point scale ranging from 4 = *A (90% to 100%)* to 1 = *F (below 50%)*.

3.9.2 Part 2 – The Self-Description Questionnaire II (SDQ II)

Academic self-concept was measured by three sets of sub-measures of the Self-Description Questionnaire II: mathematics, verbal, and general (Marsh, 1992). All items in the SDQ-II are measured on a 6-point Likert scale ranging from 1 = *false* to 6 = *true*. To prevent positive response bias, 50% of the items for each subtest are negatively worded. Marsh (1992) reported a measure of internal consistency coefficients ranging from .83 to .92 for all SDQ-II subtest scores.

3.9.3 Part 3 – The Motivation Scale Questionnaire

The Motivational Scale questionnaire, adapted from Gardner and Lambert (1972), includes 28 items examining instrumental motivation (e.g.,

“In order to obtain a more prestigious job later on”) and four items to examine integrative motivation (e.g., “Because I really like going to school”), with good internal consistency ($\alpha = .91$). To reduce bias in choosing only one side of the rating scale, half of the items are negatively worded. The statements are rated on a five-point Likert type scale from “Strongly disagree” to “Strongly agree.” Items were scored as from 1 to 5, summed, and then divided by the total possible score ($5 \times 28 = 140$).

3.10 PROCEDURES

The survey for this study was hosted and administered online via the Survey Monkey platform. A link was emailed to all participants who agreed to participate in the study. An informed consent form was displayed on the webpage as an opening page of the survey. Participants were asked to click on the button stating, “I agree to complete this questionnaire.” The participants were required to confirm that they were 18 years old or older. By doing so, participants communicated their intention to participate and complete the questionnaire. Participants were asked to provide a current email address for the purpose of contacting winners of a prize-drawl incentive.

To encourage a high response rate, an email notification was sent to students by the RA highlighting the importance of their input for the project ten days before the questionnaire was made available online. To increase participation and reduce error associated with low response rates, the RA

followed up with potential participants at three intervals if they had not yet responded to the invitation.

- Phase one: The RA emailed a URL address of the thesis study's survey to all potential participants
- Phase two: Students who had not responded received an email reminder of their invitation to participate
- Phase three: Students who had not responded received a second email reminder two weeks later
- Phase four: Students who had not responded received a final email reminder emphasizing the significance of their participation in the study.

3.11 DATA COLLECTION

Data collection began at the start of the first term by requesting data from Humber College's registrar office regarding gender, admission date and program of study for all participants.

Next, enrollment data from all participants were collected and checked from the college's record system to determine each student's *enrollment status* (Active, Non-Active) at two important points in time: (1) at the start of the second semester to confirm *term-over-term* attrition; and (2) at the start of the third semester to confirm *year-over-year* attrition. Students who were classified as active were those who remained enrolled in their program of study, while students classified as non-active were those who failed to complete their program and were no longer enrolled

After the survey data was downloaded from Survey Monkey, this institutional data was then combined with the students' survey responses in Excel spreadsheets to conduct the data analysis.

Table 3.2. *Data Sources and Related Research Questions*

Research question	Data collection tool
1. What is the relationship between integrative motivational style and gender?	Motivation Scale Questionnaire Demographics section of the survey.
2. What is the relationship between instrumental motivational style and gender?	Motivation Scale Questionnaire Demographics section of the survey.
3. What is the relationship between academic self-concept and integrative motivational style when controlling for gender?	Self-Description Questionnaire-II Motivation Scale Questionnaire Demographics section of the survey.
4. What is the relationship between academic self-concept and instrumental motivational style when controlling for gender?	Self-Description Questionnaire-II Motivation Scale Questionnaire Demographics section of the survey.
5. What is the relationship between academic self-concept and first semester attrition when controlling for gender and motivational styles?	Self-Description Questionnaire-II Motivation Scale Questionnaire Student's enrollment status Demographics section of the survey

6. What is the relationship between academic self-concept and second semester attrition when controlling for gender and motivational styles?	Self-Description Questionnaire-II Motivation Scale Questionnaire Student's enrollment status Demographics section of the survey
7. What is the relationship between integrative motivational style and first semester attrition when controlling for gender and academic self-concept?	Self-Description Questionnaire-II Motivation Scale Questionnaire Student's enrollment status Demographics section of the survey
8. What is the relationship between integrative motivational style and second semester attrition when controlling for gender and academic self-concept?	Self-Description Questionnaire-II Motivation Scale Questionnaire Student's enrollment status Demographics section of the survey
9. What is the relationship between instrumental motivational style and first semester attrition when controlling for gender and academic self-concept?	Self-Description Questionnaire-II Motivation Scale Questionnaire Student's enrollment status Demographics section of the survey
10. What is the relationship between instrumental motivational style and second semester attrition when controlling for gender and academic self-concept?	Self-Description Questionnaire-II Motivation Scale Questionnaire Student's enrollment status Demographics section of the survey

3.12 DATA ANALYSIS

After the survey data was downloaded into Excel spreadsheets, the data was coded into numeric values, with negatively worded items reverse-coded, and subscale scores were calculated. The data was then imported into SPSS for statistical analysis.

The ten primary research questions and additional exploratory analyses called for six different types of statistical tests. These tests and their rationale are detailed below.

3.12.1 Independent Samples *t*-test

The first two research questions asked about the difference between genders on both instrumental and integrative motivational styles. Because there were only two participants with a non-binary gender, these were excluded from the analysis and hence a binary independent variable of gender remained. Because the dependent variables of the motivational style scores approximated continuous data, the independent samples *t*-test was chosen. While the distribution of scores were not always normal, the *t*-test has been shown to be robust to non-normality when distributions are approximately symmetrical. For those that were skewed, Logarithmic transformations were applied to compensate.

3.12.2 Pearson Correlation

The next two research questions asked about the relationship between academic self-concept and both integrative and instrumental motivational

styles, while controlling for gender. Because both variables are continuous, Pearson correlation was used. To control for the third variable of gender, two separate methods were used.

3.12.2.1 *Partial Correlation*

First, the analysis was done as a partial correlation, with gender entered as a controlling variable in SPSS.

3.12.2.2 *Fisher r-to-z transformation and z-test.*

Second, this question was analyzed by splitting the data by gender and then using a simple Pearson correlation within each segment. I then used VassarStats' correlation coefficient comparison calculator (Lowry, n.d.), which utilizes Fisher's r-to-z transformation and z-test was used to test the significance of the difference between the coefficients.

3.12.3 *Non-parametric tests*

Research questions 4 through 10, as well as many of the exploratory analyses, asked how certain independent variables were associated with student attrition, a binary outcome. Because the dependent variable was categorical and dichotomous (drop out or not), the following nonparametric methods were applied.

3.12.3.1 *Chi-Square Test for Independence*

The exploratory analyses looked at how binary demographic variables related to attrition (another binary variable). The most straightforward test for a 2x2 contingency table like this is the Chi-Square Test for Independence.

3.12.3.2 Univariate Logistic Regression

The exploratory analysis also looked at scale variables including the scale scores as zero-order predictors of attrition. Testing this called for logistic regression where the binary dependent variable was regressed on the single scale independent variables. These analyses were also run prior to the full tests for research questions 4 through 10, in order to establish a baseline before adding controlling variables.

3.12.3.3 Hierarchical Multiple Logistic Regression

Research questions 4 through 10 were about the predictive power of instrumental or motivational style on attrition while controlling for gender and academic self-concept, and conversely academic self-concept while controlling for gender and instrumental/integrative motivational style.

To pinpoint these independent variables while controlling for the others, a hierarchical logistic regression model was used. First, the control variables were entered in Step 1 of the model, with attrition as the outcome variable. Then in Step 2, the variable in question was entered, and the change in model strength was tested for whether it was a significant improvement and indicates predictive power separate from the Step 1 variables.

3.13 INSTITUTIONAL RESEARCH & ETHICS APPROVAL

Research ethics guidelines influence how scientists balance cost and benefit to individuals and wider society, ensures transparency and accountability, and helps to avoid misrepresenting research data by

promoting the truth. The guidelines followed in this thesis are published in Tri-Council Policy Statement (TCPS) by the national granting councils: the Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council of Canada (NSERC), the Social Sciences and Humanities Research Council of Canada (SSHRC; Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada & Social Sciences and Humanities Research Council of Canada, 2010), and both institutions' ethics guidelines. To establish trust and mutual respect with the participants, this research followed the following ethical principles:

3.13.1 Informed Consent

This thesis complies with all the ethical requirements for Higher Degree Research at the University of Southern Queensland. This requires compliance with the National Health and Medical Research Council guidelines used in Australian Universities. Further, this thesis complies with all the ethical requirements at Humber College.

Prior to their participation in this thesis study, participants were provided with an information sheet and a consent form. These documents describe what the research involves, the potential risks and benefits that might occur by taking part in the study and make clear that participation is voluntary (Canadian Institutes of Health Research et al., 2010). Consent was obtained from each participant in line with TCPS guideline requirements

(chapter 3c). These requirements ensure that the participants' privacy is not violated (Canadian Institutes of Health Research et al., 2010).

The thesis study survey (including consent form) was made available electronically through use of the Survey Monkey platform. Participants accessed the survey through a unique URL emailed to those who agreed to participate.

3.13.2 Privacy

This research study was approved by both Humber College's Research Ethics Board (RP-0204) and USQ's research ethics Committee (H18REA232). Participants were assured anonymity and informed that their personal information would be de-identified. Although confidentiality does not sufficiently satisfy the privacy criteria, it is essential that all related documents including consent forms, personal demographic datasheet, and survey are stored securely (Streubert & Carpenter, 1999). As such, written and electronic records/data and other sensitive information were stored in a secure location, accessible only to the PI and RA. The data was anonymous and could not be tracked to any participant or matched to other data sources. In addition, although the server did not have encryption software, it required an authorized password to access information.

All original data will be securely destroyed after a period two years from the completion of this study.

3.13.3 Compensation for Participants

Participants were compensated by qualifying for a random draw of \$5, \$10, \$20, and \$50 gift cards. A total of \$500 was set aside for this purpose. Participants who chose to withdraw were not disadvantaged as their name remained in the prize draw pool. Contact details provided for the prize draw were kept separate from the study data.

This chapter outlined the study design, methods and data analyses used in the thesis. The following chapter will present the results.

CHAPTER 4: RESULTS

The previous chapter provided a rationale for this thesis, and described the study design, sampling method, data analyses, and the data management plan used. This chapter will outline the results of the data analyses.

4.1 INTRODUCTION TO CHAPTER FOUR

This chapter presents the results of a survey of 336 college students from Humber College in Toronto. The findings from this survey will answer the thesis question of whether female students display higher levels of integrative motivational style, more positive academic self-concept, and higher academic persistence than male students.

This chapter consists of four main sections. It begins with the results of the literature review. The next section continues with descriptive statistics on the sample, including demographic characteristics, high school grades, academic self-concept scores, motivation scores and attrition rates. The next section includes bivariate and multivariate analyses assessing the relationship between academic self-concept and gender-specific motivation as predictors of post-secondary student attrition. The last section describes an exploratory analysis outside the scope of the study hypotheses, in order to discover any further possible relationships between these variables in combination with other mediators and/or selection criteria.

4.2 REVIEW SOURCES AND SEARCH STRATEGY

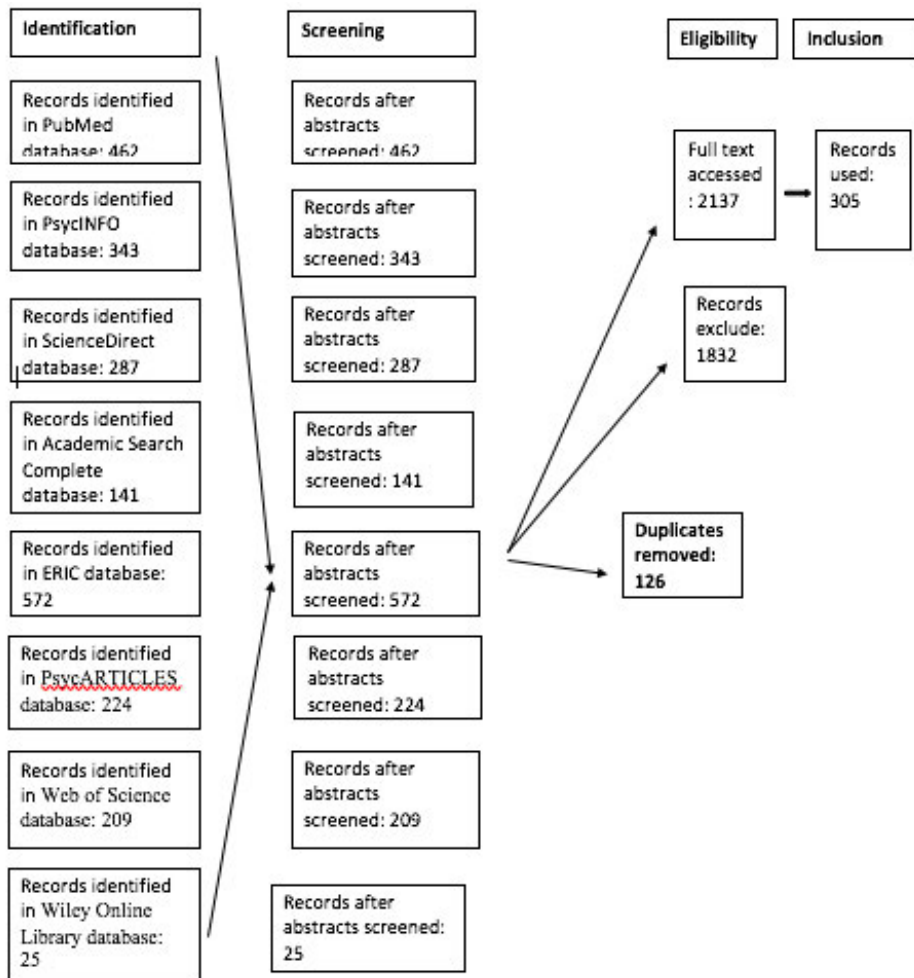
This literature review was conducted in accordance with PRISMA guidelines, which are widely cited as providing an evidence-driven reporting system for Systematic Reviews and Meta-analyses (Moher et al. 2009). Between January 2017 and December 2021, several electronic databases were thoroughly searched, including PubMed, PsycINFO, ScienceDirect, Academic Search Complete, ERIC, PsycARTICLES, Web of Science, and Wiley Online Library. The following search terms were used: academic self-concept (self-concept OR academic self-concept OR math self-concept OR reading self-concept) AND motivation OR motivational orientation (instrumental OR integrative OR internal OR external) AND college (higher-education OR community college OR college OR postsecondary) AND drop out OR attrition OR persistence OR at-risk OR academic performance AND gender. A total of 2263 sources were identified in the search process (PubMed, $n = 462$, PsycINFO, $n = 343$, ScienceDirect, $n = 287$, Academic Search Complete, $n = 141$, ERIC, $n = 572$, PsycARTICLES, $n = 224$, Web of Science, $n = 209$, Wiley Online Library, $n = 25$).

Throughout the search process, the title and abstract of each paper was screened for keywords including academic self-concept, instrumental motivational style, integrative motivational style, college attrition, and college persistence. In the next step, potentially relevant studies were scanned for eligibility, after which 1832 sources were excluded as unsuitable (see Figure

4.1). An additional 126 sources were excluded due to duplication, leaving a total of 305 remaining sources that were used in the literature review.

Figure 4.1

The Search Diagram



These sources were organized into three categories based on the topics of interest they focused on: self-concept, gender, or motivation, each of which comprised further sub-categories. Self-concept included “academic self-concept” and “post-secondary attrition” subcategories; gender included “gender and academic achievement” and “gender patterns in reading and

mathematics achievement;” motivation was further categorized into “motivation and academic achievement” and “gender-differentiated motivational style.”

4.3 DEMOGRAPHIC CHARACTERISTICS

The sample size for this study consisted of 339 students across the two recruiting periods (Cohort 1 $n = 110$, Cohort 2 $n = 129$). The gender balance reflected the overrepresentation of females in the sample student population, with 226 females and 110 males, as well as 3 others. The mean age was 23 years ($SD = 6.58$), with a median of 20 years.

Table 4.1

Demographic Data

		Cohort 1		Cohort 2		Total	
		Count	%	Count	%	Count	%
Gender	Male	59	34.5%	51	30.4%	110	32.5%
	Female	112	65.5%	114	67.9%	226	66.7%
	Other	0	0.0%	3	1.8%	3	0.9%
First Generation	No	138	80.7%	116	69.1%	254	74.9%
	Yes	29	17.0%	49	29.2%	78	23.0%
	No answer	4	2.3%	3	1.8%	7	2.1%
Nationality	International	70	41.0%	131	78.0%	201	59.3%
	Domestic	99	57.9%	35	20.9%	134	39.5%
	No answer	2	1.2%	2	1.2%	4	1.2%
Faculty	Business	138	80.7%	122	72.6%	260	76.7%
	Applied Tech	33	19.3%	46	27.4%	79	23.3%

The breakdown of gender, first-generation and international students, and the Humber Faculty affiliation at time of enrollment is shown in Table 4.1, and the self-reported high school grade achievement is in Table 4.2.

Table 4.2

Self-Reported High School Grades

		Cohort 1		Cohort 2		Total	
		Count	%	Count	%	Count	%
High School English Grades	A+	31	18.1%	14	8.3%	45	13.3%
	A	61	35.7%	55	32.7%	116	34.2%
	B	60	35.1%	69	42.1%	129	38.1%
	C or lower	18	10.5%	29	17.3%	47	13.9%
	No answer	1	0.6%	1	0.6%	2	0.6%
High School Math Grades	A+	32	19.0%	15	9.3%	15	9.3%
	A	51	30.4%	41	25.3%	41	25.3%
	B	44	26.2%	54	33.3%	54	33.3%
	C or lower	41	24.4%	52	32.1%	52	32.1%
	No answer	0	0.0%	1	0.6%	1	0.3%
Overall High School Grades	A+	21	12.3%	11	6.6%	32	9.4%
	A	79	46.2%	68	40.5%	147	43.4%
	B	59	34.5%	74	44.1%	133	39.2%
	C or lower	12	7.0%	15	8.9%	27	8.0%

Note: A+ = 90-100%, A = 80-89%, B = 70-79%, C = 60-69%, D = 50-59%.

4.4 ACADEMIC SELF CONCEPT AND MOTIVATIONAL STYLE

The primary predictor variables in this study were Academic Self Concept (ASC) score and Motivational Style (MS) score, each of which had three subscales. Table 4.3 breaks down the average ASC scores, while Table 4.4 breaks down MS scores.

Table 4.3

Mean ASC Scores

		Cohort 1	Cohort 2	Total
ASC Math	Male	.72	.62	.67
	Female	.64	.56	.60
	Overall	.67	.58	.62
ASC English	Male	.74	.70	.72
	Female	.76	.75	.75
	Overall	.75	.73	.74
ASC General	Male	.81	.74	.78
	Female	.82	.81	.81
	Overall	.81	.79	.80
Total ASC	Male	.75	.68	.72
	Female	.74	.70	.72
	Overall	.74	.69	.72

Table 4.4. *Mean MS Scores*

		Cohort 1	Cohort 2	Total
Instrumental MS	Male	.32	.34	.33
	Female	.34	.35	.34
	Overall	.33	.35	.34
Integrative MS	Male	.41	.46	.43
	Female	.39	.41	.40
	Overall	.40	.43	.41
Total MS	Male	.40	.42	.41
	Female	.38	.39	.38
	Overall	.38	.40	.39

4.5 ATTRITION RATES

The primary dependent variable for the study were 1st semester attrition and 2nd semester attrition. Overall, 62 of 339 (18.3%) students dropped out by the end of their 2nd semester (Table 4.5). First semester attrition made up 34 of these (10%), and 28 of the remaining 277 (9.2%) dropped out during or immediately after the 2nd semester.

Table 4.5. *First and Second Semester Attrition Rates*

		Cohort 1		Cohort 2		Total	
		Count	%	Count	%	Count	%
1 st Semester	Remained	153	91.7%	152	92%	305	90%
	Dropped Out	18	8.3%	16	8%	34	10%
2 nd Semester	Remained	144	94.1%	133	87.5%	277	90.8%
	Dropped Out	9	5.9%	19	12.5%	28	9.2%
Total (Either Semester)	Remained	144	84.2%	133	79.2%	277	80.7%
	Dropped Out	27	15.8%	35	20.8%	62	18.3%

4.6 BIVARIATE ANALYSIS: PRIMARY RESEARCH QUESTIONS

To answer the thesis research questions, the PI formulated research hypotheses that presumed differences or relationships in any direction, opposed to the null hypothesis of none. The alpha level for all analyses was set at $\alpha = .05$.

4.6.1 Motivational Style (MS) and Gender

Research questions 1 and 2 asked whether integrative and/or instrumental MS differed by gender. Independent samples *t*-tests were used to compare the distributions of scores of males and females.

4.6.1.1 Integrative MS and Gender.

- $H_0: \mu_{\text{male}} = \mu_{\text{female}}$, i.e., Males and females have equal integrative MS scores.

- $H_1: \mu_{\text{male}} \neq \mu_{\text{female}}$, i.e., Males and females have different integrative MS scores.

The results showed that integrative MS did not significantly differ by gender, $t(294) = 1.772, p = .077$.

4.6.1.2 Instrumental MS and Gender.

- $H_0: \mu_{\text{male}} = \mu_{\text{female}}$, i.e., Males and females have equal instrumental MS scores.
- $H_1: \mu_{\text{male}} \neq \mu_{\text{female}}$, i.e., Males and females have different instrumental MS scores.

Because instrumental MS scores had a skewed distribution, a logarithmic transformation was made before applying the t -test. When doing so, they did not differ by gender, $t(294) = -1.229, p = .220$.

4.6.2 Academic Self-Concept (ASC) and Motivational Style (MS)

Research questions 3 and 4 asked whether integrative and/or instrumental MS were correlated with ASC, independent of any mediating effect of gender. This analysis consisted of two approaches. First, partial correlation analysis was used with gender as a controlled variable. Second, Fisher r -to- z transformation was used to compare the coefficients with a z -test after calculating the correlations within each gender individually.

4.6.2.1 ASC – Integrative MS Correlation.

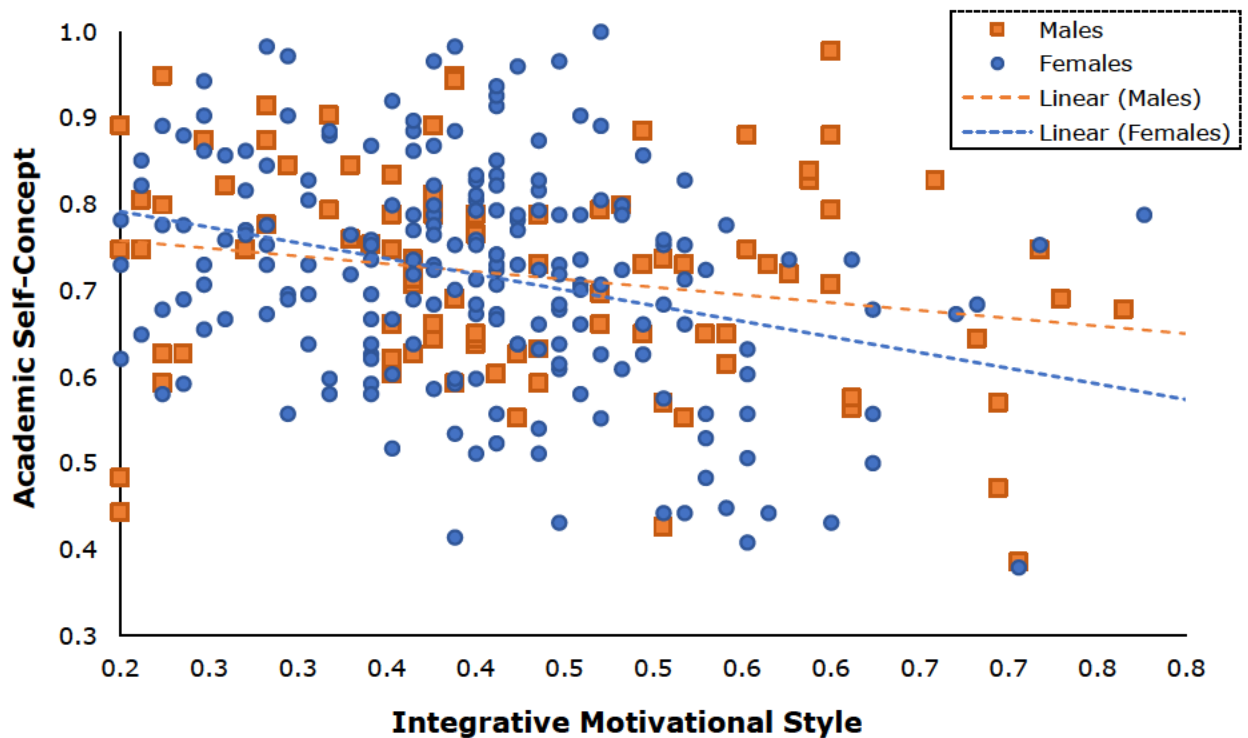
- $H_0: \rho = 0$, i.e., ASC and integrative MS have no relationship when controlling for gender.
- $H_1: \rho \neq 0$, i.e., ASC and integrative MS are correlated when controlling for gender.

Integrative MS significantly correlated with ASC score when controlling for gender, partial $r = -.278, p < .001$. They also correlated within the males, r

= $-.214$, $p = .04$, and within the female participants, $r = -.322$, $p < .001$ (Fig. 4.2). The z-test comparing these r coefficients showed no statistically significant difference between males and females, $z = 0.92$, $p = .358$.

Figure 4.2

ASC Score Correlation with Integrative MS for Males and Females



4.6.2.2 ASC – Instrumental MS.

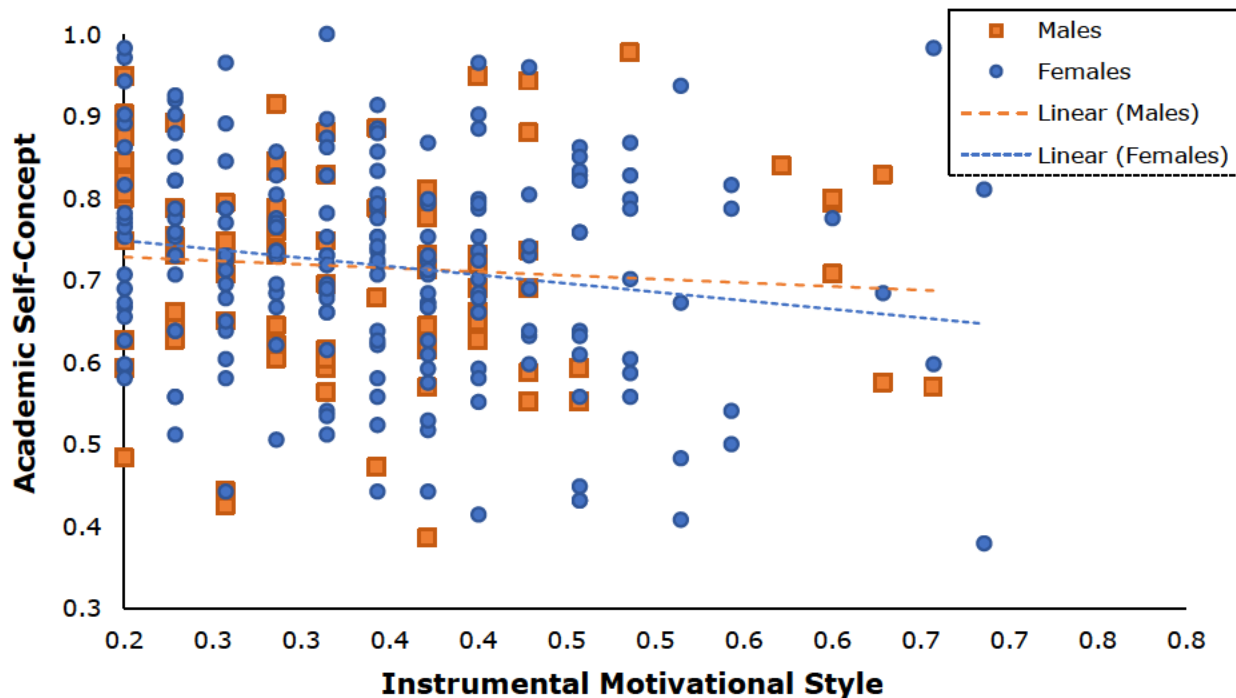
- H_0 : $\rho = 0$, i.e., ASC and instrumental MS have no relationship when controlling for gender.
- H_1 : $\rho \neq 0$, i.e., ASC and instrumental MS are correlated when controlling for gender.

Similarly, instrumental MS score significantly correlated with ASC score when controlling for gender, partial $r = -.142$, $p = .015$. For females, the correlation was significant, $r = -.171$, $p = .015$, but for males there was no

significant relationship, $r = -.081$, $p = .44$ (Figure 4.3). However, despite this, the z-test did not indicate a significant difference between the correlation coefficients, $z = 0.72$, $p = .236$.

Figure 4.3

ASC Score Correlation with Instrumental MS for Males and Females



4.6.3 Academic Self Concept as a Predictor of Attrition

Research questions 5 and 6 asked whether ASC score would predict student attrition independent of any mediating effects of gender and/or motivational styles. To test this, a baseline was established to determine whether ASC score was a zero-order predictor of attrition in a single-variable logistic regression. To separate any association from MS and gender, a hierarchical model was used with those variables entered into Step 1 of the model, and then ASC score added in Step 2. If Step 2 significantly increased

the power of the model, it would indicate a predictive power of ASC score independent of gender and MS.

4.6.3.1 Zero-Order Associations. For 1st semester attrition, ASC score had a significant zero-order association with 1st semester attrition, with higher score predicting less attrition overall, $\chi^2(1, N = 318) = 6.489, p = .011$. ASC score had no zero-order association with 2nd semester attrition, $\chi^2(1, N = 285) = 2.366, p = .124$.

4.6.3.2 ASC – 1st Semester Attrition.

- $H_0: \beta = 0$, i.e., there is no relationship between probability of attrition in the 1st semester and ASC, when controlling for gender and MS.
- $H_1: \beta \neq 0$, i.e., there is some relationship between probability of attrition in the 1st semester and ASC, when controlling for gender and MS.

When controlling for MS and gender with the hierarchical regression, ASC score resulted in a significant model improvement in Step 2, $\chi^2(1) = 4.084, p = .043$. In this model, ASC score was the only significant predictor, $\chi^2(1) = 4.019, B = -3.109, OR = 0.45, p = .043$ (See Table 4.6).

4.6.3.3 ASC – 2nd Semester Attrition

- $H_0: \beta = 0$, i.e., there is no relationship between probability of dropping out in the 2nd semester and ASC, when controlling for gender and MS.
- $H_1: \beta \neq 0$, i.e., there is some relationship between probability of attrition in the 2nd semester and ASC, when controlling gender and MS.

When controlling for MS and gender in the hierarchical model, ACS did not significantly improve the model in Step 2, $\chi^2(1) = 0.314, p = .575$.

Table 4.6

Hierarchical Logistic Regression of ASC Association with 1st Semester Attrition

Overall Model			Coefficients	<i>B</i>	S.E.	Wald	Exp(<i>B</i>)	Sig.
Step 1	Cox & Snell	.008	Integrative MS	1.253	1.789	.491	3.502	.484
	Nagelkerke <i>R</i> ²	.015	Instrumental MS	.462	2.084	.049	1.587	.825
	Sig.	.519	Gender	.497	.434	1.314	1.644	.252
			Constant	-3.665	1.087	11.380	.026	.001*
Step 2	Cox & Snell <i>R</i> ²	.210	Integrative MS	.248	1.885	.017	1.281	.895
	Nagelkerke <i>R</i> ²	.430	Instrumental MS	.505	2.157	.055	1.658	.815
	Sig.	.174	Gender	.465	.435	1.140	1.592	.286
	<i>Step Sig.</i>	.043	ASC score	-3.109	1.551	4.019	.045	.045*
			Constant	-1.035	1.671	.383	.355	.536

4.6.4 Motivational Styles (MS) as Predictors of Attrition

Research questions 7 through 10 asked whether integrative or instrumental MS would predict student attrition independent of any mediating effects of gender and/or ASC. Again, each MS was first tested alone for a baseline association with attrition, and then used hierarchical logistic regression to control for ASC score and gender.

4.6.4.1 Instrumental MS – 1st Semester Attrition.

- $H_0: \beta = 0$, i.e., there is no relationship between probability of attrition in the 1st semester and instrumental MS, when controlling for gender and ASC.
- $H_1: \beta \neq 0$, i.e., there is some relationship between probability of attrition in the 1st semester and instrumental MS, when controlling for gender and ASC.

Instrumental MS did not have any zero-order association with 1st semester attrition, $\chi^2(1, N = 299) = 0.718, p = .397$, nor when controlling for ASC

score and gender in step 2 of the hierarchical model, $\chi^2(1, N = 298) = 0.101, p = .751$.

4.6.4.2 Instrumental MS – 2nd Semester Attrition.

- $H_0: \beta = 0$, i.e., there is no relationship between probability of attrition in the 2nd semester and instrumental MS, when controlling gender and ASC.
- $H_1: \beta \neq 0$, i.e., there is some relationship between probability of attrition in the 2nd semester and instrumental MS, when controlling for gender and ASC.

Instrumental MS had an only marginally significant zero-order association with 2nd semester attrition, $\chi^2(1, N = 267) = 3.643, p = .056$. When controlling for gender and ASC score in the hierarchical model, Step 2 also showed only a marginally significant improvement, $\chi^2(1, N = 266) = 2.985, p = .084$. Instrumental MS score as an individual predictor was also marginally significant, $\chi^2(1, N = 266) = 3.138, B = 3.276, OR = 26.475, p = .076$. However, the model itself was not a significant predictor with all three variables included, $\chi^2(3, N = 266) = 6.141, p = .105$.

4.6.4.3 Integrative MS – 1st Semester Attrition.

- $H_0: \beta = 0$, i.e., there is no relationship between probability of attrition in the 1st semester and integrative MS, when controlling for gender and ASC.
- $H_1: \beta \neq 0$, i.e., there is some relationship between probability of attrition in the 1st semester and integrative MS, when controlling for gender and ASC.

As with instrumental MS score, integrative MS score had no zero-order association with 1st semester attrition, $\chi^2(1, N = 299) = .718, p = .379$, nor any Step 2 model improvement for predicting 1st semester attrition, $\chi^2(1, N = 298) = 0.102, p = .750$.

4.6.4.4 Integrative MS – 2nd Semester Attrition

- $H_0: \beta = 0$, i.e., there is no relationship between probability of attrition in the 2nd semester and integrative MS, when controlling for gender and ASC.
- $H_1: \beta \neq 0$, i.e., there is some relationship between probability of attrition in the 2nd semester and integrative MS, when controlling for gender and ASC.

For 2nd semester attrition, integrative style alone was predictive of attrition, $\chi^2(1, N = 267) = 7.868, p = .005$, and significantly improved the hierarchical model in Step 2 with ASC score and gender, $\chi^2(1, N = 266) = 5.21, p = .022$. As a variable in this model, it was the only significant predictor, $\chi^2(1) = 5.288, B = 3.739, OR = 42.076, p = .021$ (See Table 4.7).

Table 4.7.

Hierarchical Logistic Regression of 2nd Semester Attrition on Motivational Style

Overall Model			Coefficients					
			B	S.E.	Wald	Exp(B)	Sig.	
Step 1	Cox & Snell R^2	.012	Gender	-.549	.442	1.542	.578	.214
	Nagelkerke R^2	.027	ASC score	-2.191	1.714	1.636	.112	.201
	Sig.	.206	Constant	.090	1.399	.004	1.095	.948
Step 2 - Integrative	Cox & Snell R^2	.031	Gender	-.384	.456	.706	.681	.401
	Nagelkerke R^2	.070	ASC score	-.984	1.794	.301	.578	.583
	Sig.	.039	<i>Integrative MS</i>	3.739	1.626	5.288	42.076	.021*
	<i>Step Sig.</i>	.022	Constant	-2.674	1.911	1.957	.069	.162
Step 2 - Instrumental	Cox & Snell R^2	.023	Gender	-.578	.445	1.690	.561	.194
	Nagelkerke R^2	.051	ASC score	-1.792	1.702	1.109	.167	.292
	Sig.	.105	<i>Instrumental MS</i>	3.276	1.849	3.138	26.475	.076
	<i>Step Sig.</i>	.084	Constant	-1.311	1.612	.661	.416	.270

4.7 EXPLORATORY ANALYSES

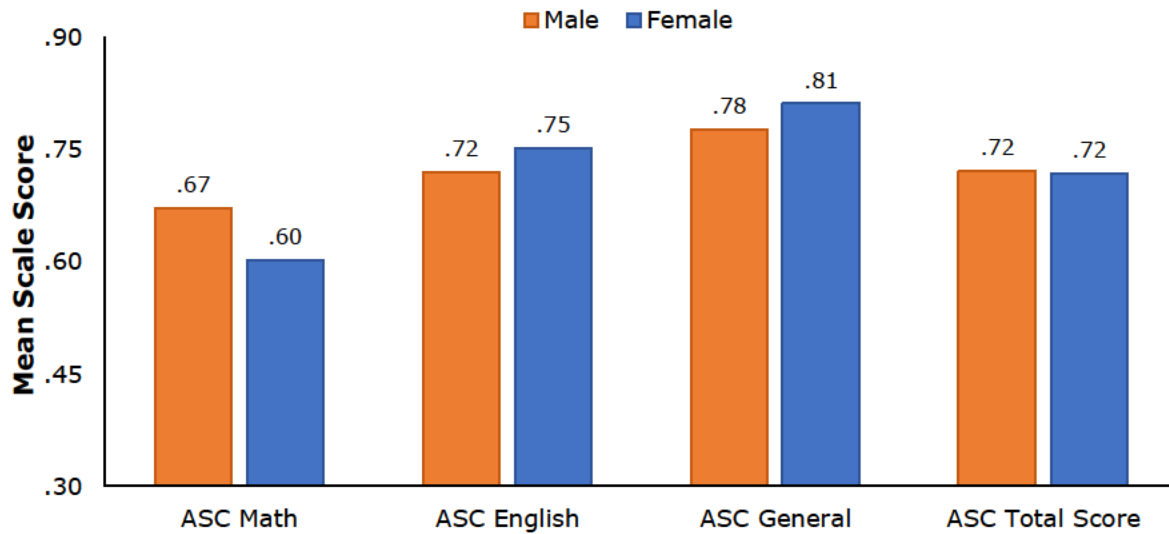
After analyzing the specific research questions specified at the outset of the study, additional exploratory analyses were done to investigate the possibility of other relationships relating to ASC, gender, and student attrition.

4.7.1 Gender and Academic Self Concept

Research questions 1 and 2 looked for any relationship between gender and instrumental or integrative MS, which were analyzed above. In order to see whether ASC differed by gender, males and females were compared using independent samples *t*-tests.

For ASC, the results of these analyses show that overall ASC score as well as the English subscale did not differ by gender, $t(313) = -1.601, p = .110$. But for the math subscale, males had significantly higher scores than females, $t(313) = 2.484, p = .014$, while females had higher scores on the 'general' items, $t(313) = -2.113, p = .035$ (Figure 4.4). When splitting the data into the different cohorts of students, this latter difference was accounted for in Cohort 2 alone, for whom females had significantly higher general scores, $t(149) = -2.965, p = .004$, while there was no difference between genders for the Cohort 1 students, $t(162) = -0.316, p = .753$.

Figure 4.4. Academic Self-Concept Scores by Gender



4.7.2 Zero-Order Associations with Attrition

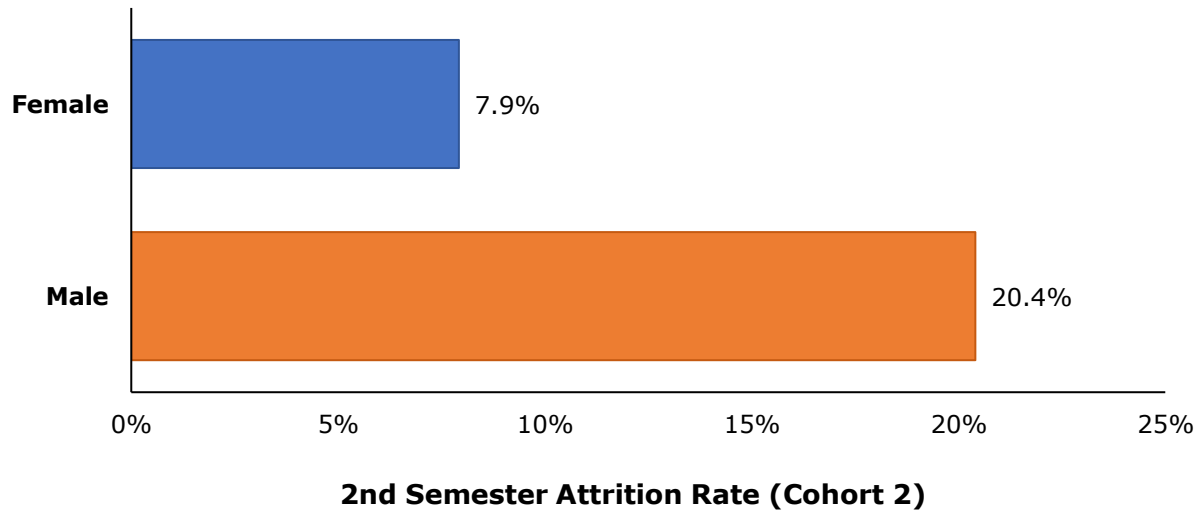
Other potential predictors of attrition were analysed by first looking at single variables in a vacuum. These included demographic variables as well as ASC and MS scores.

4.7.2.1 Demographic Variables. To test for differences in attrition rates between the dichotomous demographic variables included in the data (gender, generation, nationality, cohort, and starting program/Faculty), the Chi-Square test for independence was used on 2x2 contingency tables.

4.7.2.1.1 Gender. There was no difference in 1st semester attrition rate between genders, $\chi^2(1, N = 336) = 1.199, p = .273$. There was also no difference in 2nd semester attrition for Cohort 1 students, $\chi^2(1, N = 153) = 0.007, p = .932$. But for Cohort 2 there was: males had significantly higher 2nd semester attrition (20.4%) than females (7.9%), $\chi^2(1, N = 150) = 4.872, p = .027$ (Figure 4.5).

Figure 4.5

Second Semester Attrition Rate by Gender for Cohort 2 Students



4.7.2.1.2 *First Generation Students.* There was no difference in 1st semester attrition rate between students who were first generation and those who were not, $\chi^2 (1, N = 332) = 1.776, p = .183$. For 2nd semester attrition, there was also no difference for Cohort 2 students, $\chi^2 (1, N = 151) = 0.084, p = .772$. But for Cohort 1 only, first generation students had a 2nd semester attrition rate significantly higher (16.7%) than others (3.9%), $\chi^2 (1, N = 151) = 5.836, p = .016$ (Figure 4.6).

4.7.2.1.3 *Cohort.* There was no significant difference between recruitment groups in 1st semester attrition, $\chi^2 (1, N = 339) = 0.094, p = .759$. But for 2nd semester attrition, Cohort 1 had significantly higher attrition (12.5%), than Cohort 2 (5.9%), $\chi^2 (1, N = 305) = 4.005, p = .045$ (Figure 4.7).

Figure 4.6. *2nd Semester Attrition Rate by Generation and Cohort*

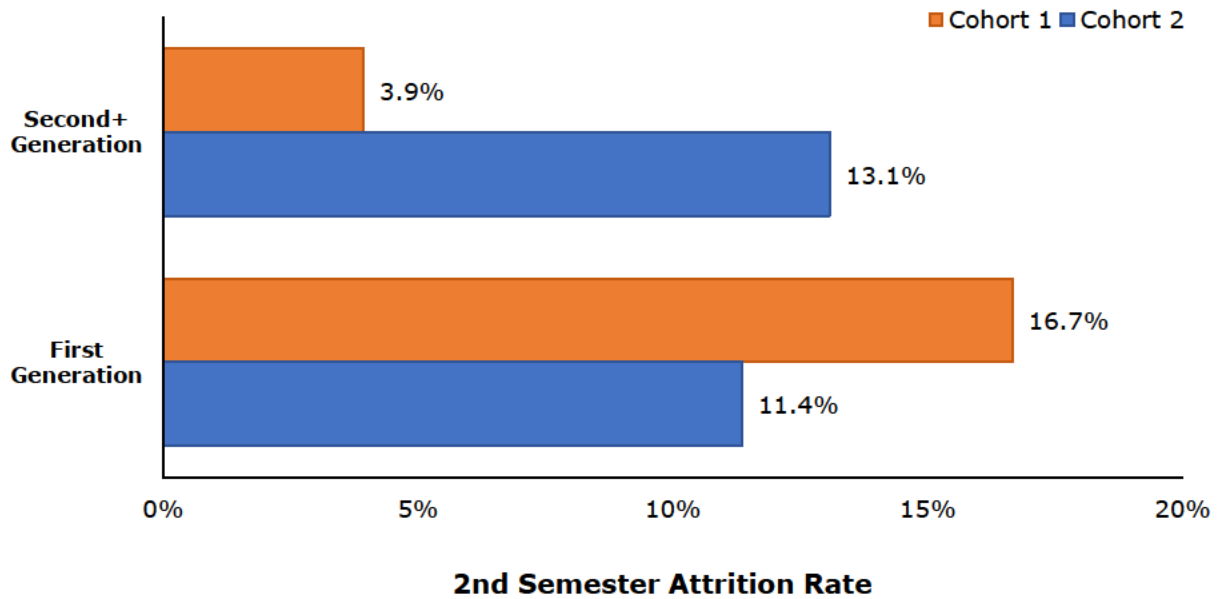
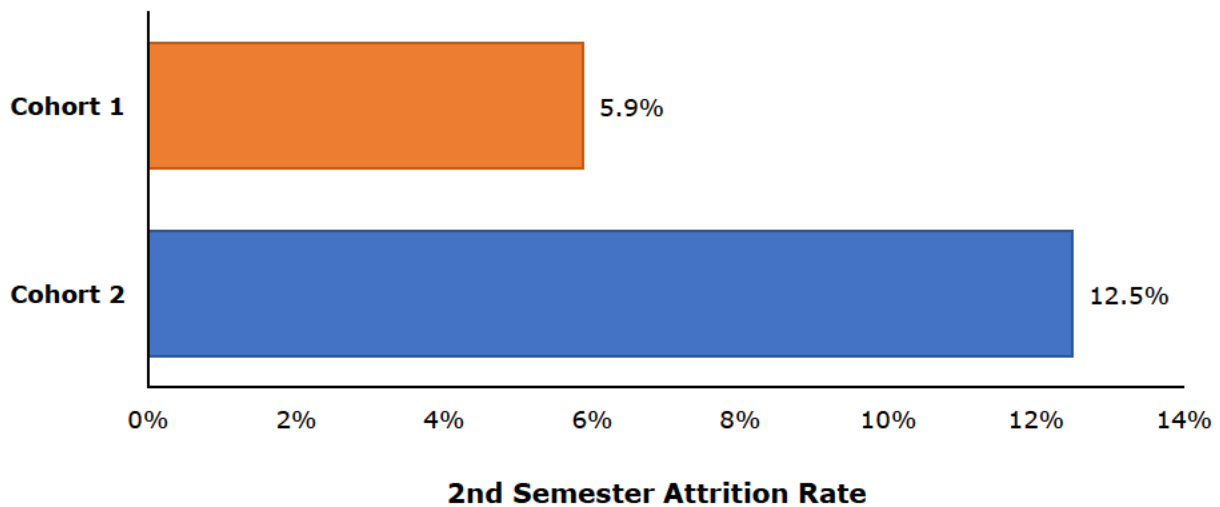


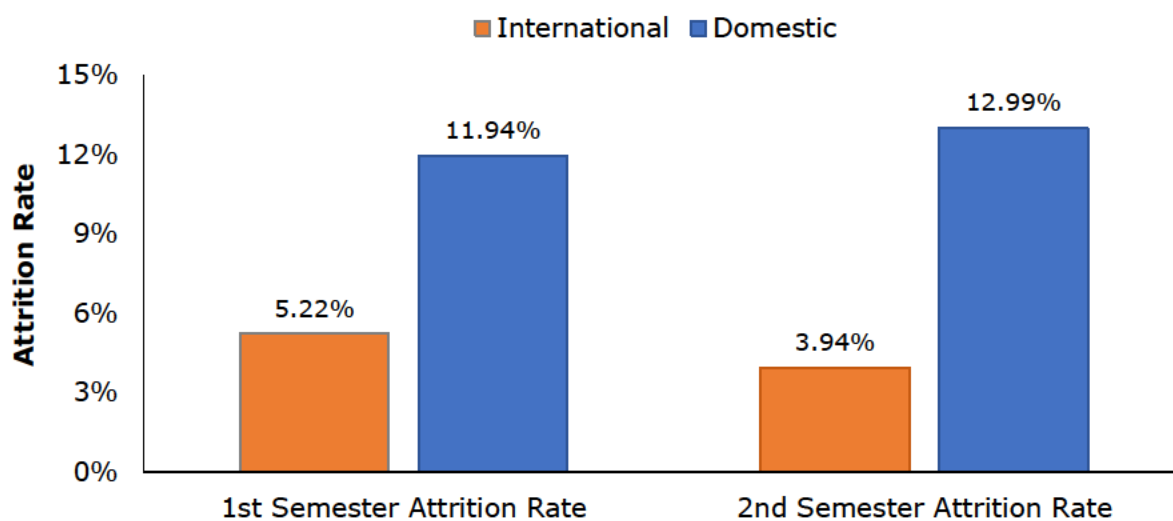
Figure 4.7. *Second Semester Attrition Rate by Cohort*



4.7.2.1.4 *Domestic vs. International Enrolment.* Across both groups, domestic students had higher attrition rates for both first and second semesters. For 1st semester attrition, 11.9% of domestic students dropped out, significantly more than the 5.2% of international students, $\chi^2(1, N =$

335) = 5.74, $p = .038$. For 2nd semester attrition, 13% of domestic students dropped out, while only 3.9% of international students did so, $\chi^2(1, N = 305) = 7.254, p = .007$ (Figure 4.8). The difference in attrition rate between domestic and international students in the 2nd semester (13% and 3.9%) was larger than that in the 1st semester (11.9% and 5.2%).

Figure 4.8. *Attrition Rates of International and Domestic Students*



While there are numerous studies exploring the cultural and adjustments aspects of international students' college experience, there is almost none on international students' persistence. In a study by Mamisheishvili (2012), Asian students accounted for nearly half the sample and roughly three quarters received some financial support from their parents. The study goes on to explore degree goals and academic integration as factors impacting first year persistence, thereby highlighting the importance of the academic aspects of the college experience for international students (Mamisheishvili, 2012).

4.7.2.1.5 *Age*. No significant relationships were found with age for either 1st semester attrition, $\chi^2(1, N = 338) = 0.289, p = .591$, or 2nd semester attrition, $\chi^2(1, N = 304) = 0.486, p = .496$.

4.7.2.2 Academic Self-Concept (ASC) and Motivational Style (MS) Scores. The zero-order associations of instrumental and integrative motivational style were tested with attrition for the baseline before adding controls for research questions 5 and 6. For this exploratory analysis, the other academic self-concept and motivational style scores and sub-scores were tested for their zero-order predictive power on attrition with univariate logistic regressions.

4.7.2.2.1 *ASC Math*. Higher ASC math score significantly predicted a lower 1st semester attrition rate, $\chi^2(1, N = 318) = 10.218, p = .001$, as well as a lower 2nd semester attrition rate, $\chi^2(1, N = 285) = 4.40, p = .036$ (Figure 4.9).

4.7.2.2.2 *ASC English*. ASC English score had no zero-order association with either 1st semester attrition, $\chi^2(1, N = 304) = 0.463, p = .496$, or 2nd semester attrition, $\chi^2(1, N = 285) = 0.858, p = .354$.

4.7.2.2.3 *ASC General*. ASC general score significantly predicted 1st semester attrition, $\chi^2(1, N = 318) = 4.652, p = .031$, and was marginally predictive for 2nd semester attrition, $\chi^2(1, N = 285) = 3.507, p = .062$ (Figure 4.10).

Figure 4.9

Five-Point Moving Averages of Attrition Rates by ASC Math Score

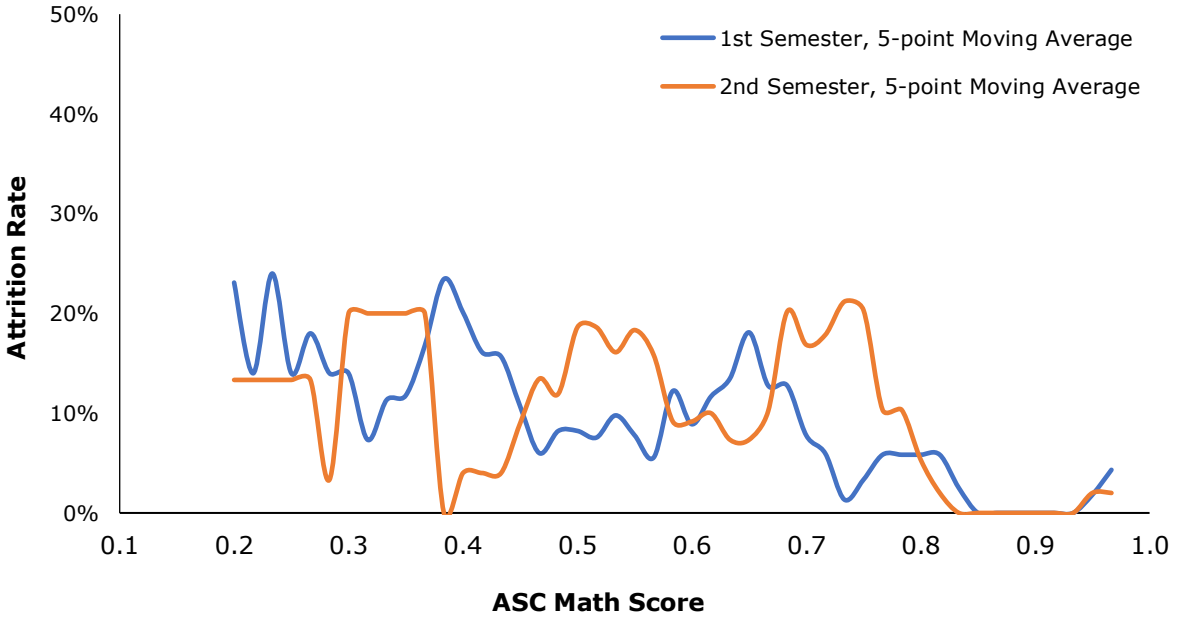
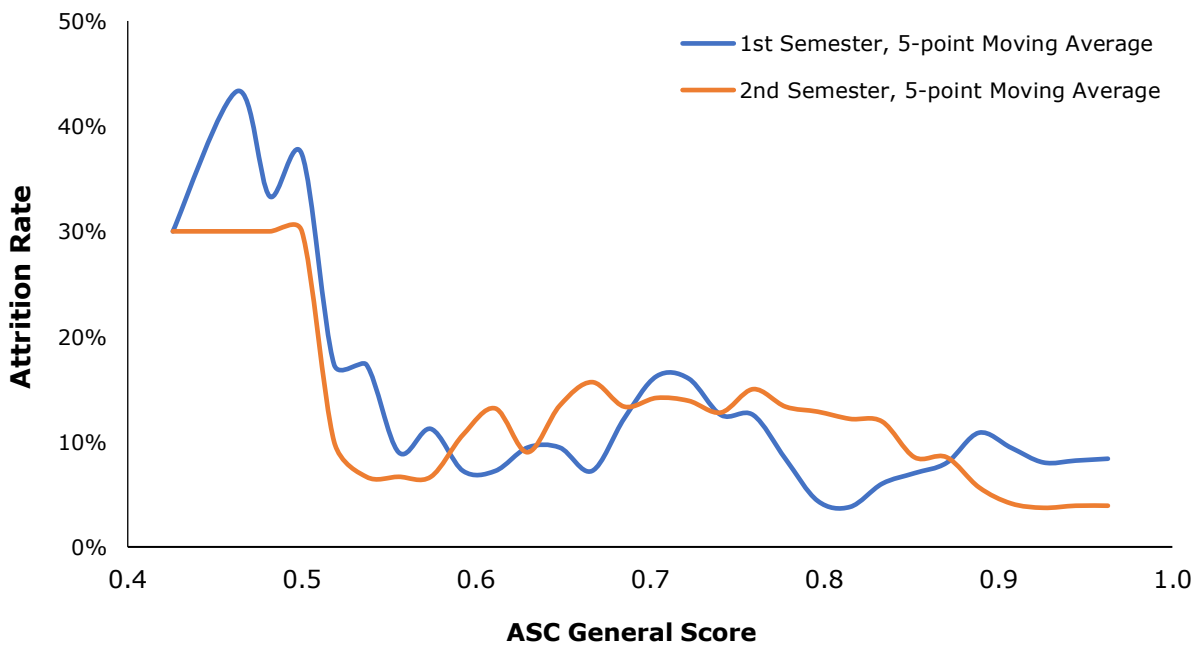


Figure 4.10

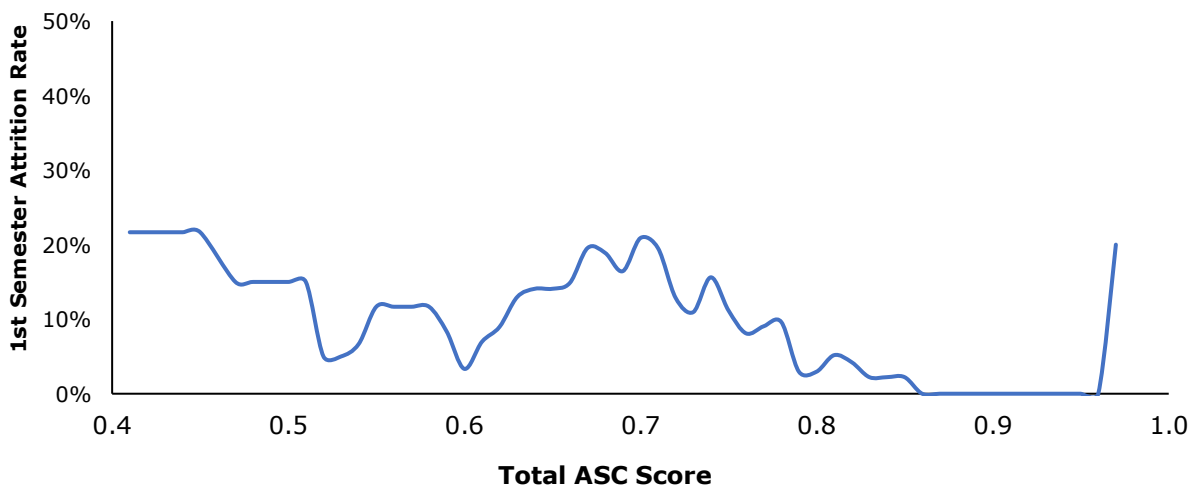
Five-Point Moving Averages of Attrition Rates by ASC General Score



4.7.2.2.4 *ASC Total Score*. For 1st semester attrition, higher ASC score predicted less attrition, $\chi^2(1, N = 318) = 6.489, p = .011$. There was no association with ASC score and 2nd semester attrition, $\chi^2(1, N = 318) = 2.366, p = .124$ (Figure 4.11).

Figure 4.11

Five-Point Moving Average of 1st Semester Attrition Rate by Total ASC Score



4.7.2.2.5 *Instrumental MS*. As reported in the primary analysis above, instrumental motivational style did not predict 1st semester attrition, $\chi^2(1, N = 299) = 0.718, p = .397$, but was marginally significant for predicting 2nd semester attrition, $\chi^2(1, N = 267) = 3.643, p = .056$ (Figure 4.12).

4.7.2.2.6 *Integrative MS*. As reported in the primary analysis, integrative MS did not predict 1st semester attrition, $\chi^2(1, N = 299) = 0.718, p = .379$, but did predict 2nd semester attrition, $\chi^2(1, N = 267) = 7.868, p = .005$ (Figure 4.13).

Figure 4.22

Five-Point Moving Averages of 2nd Semester Attrition Rate by Instrumental MS

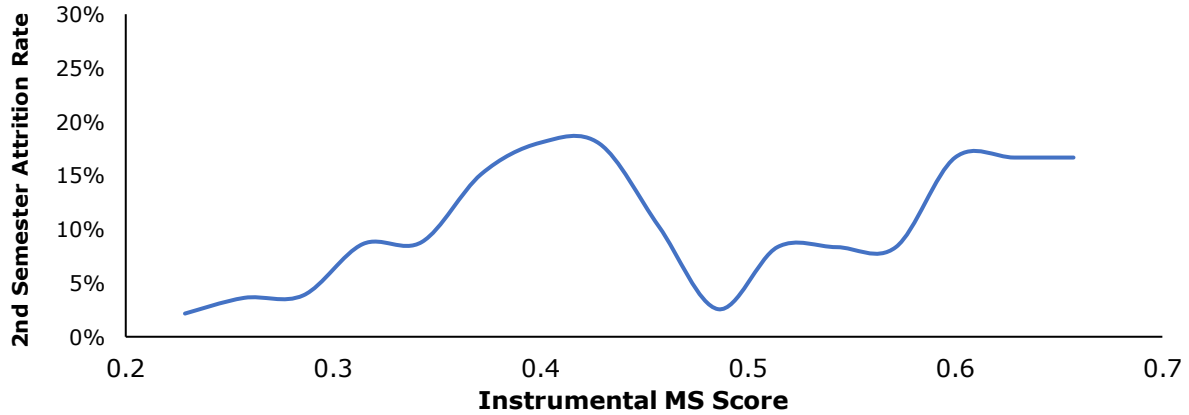
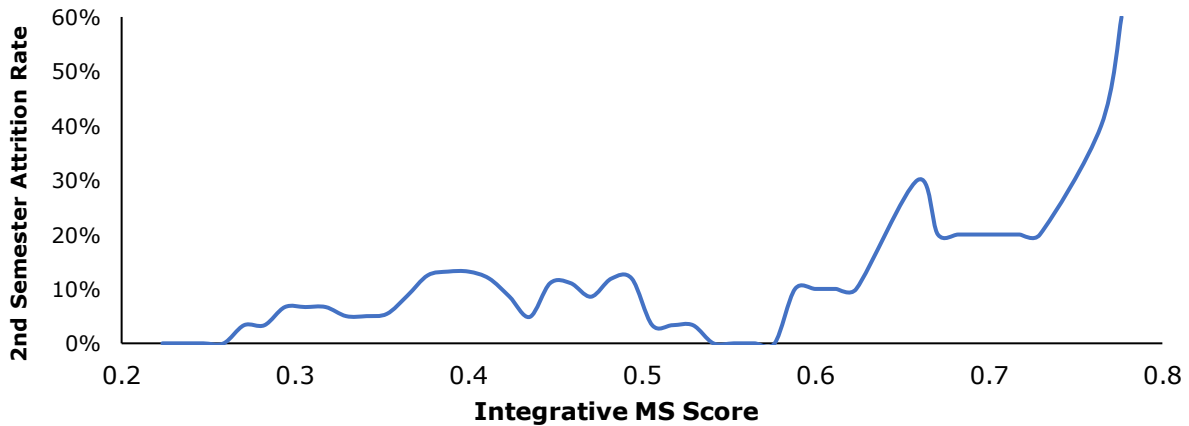


Figure 4.33

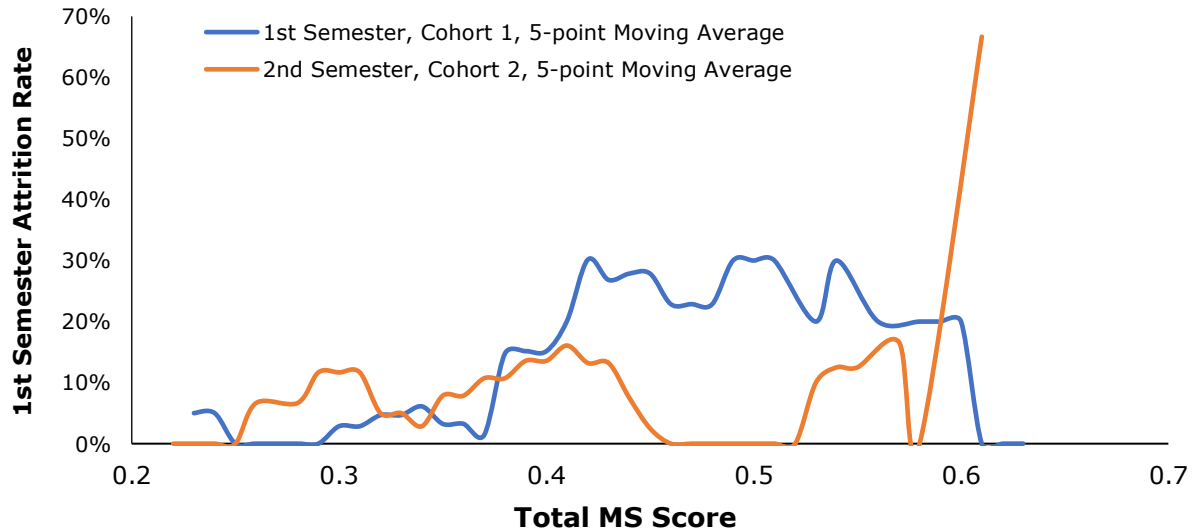
Five-Point Moving Averages of 2nd Semester Attrition Rate by Integrative MS



For 1st semester attrition, higher overall MS score predicted more attrition for Cohort 1, $\chi^2(1, N = 157) = 4.34, p = .037$, but not for Cohort 2, $\chi^2(1, N = 144) = 0.335, p = .563$. Conversely, for 2nd semester attrition it predicted attrition overall, $\chi^2(1, N = 267) = 7.92, p = .005$, and for Cohort 2, $\chi^2(1, N = 128) = 7.729, p = .005$, but not for Cohort 1, $\chi^2(1, N = 139) = 0.185, p = .667$ (Figure 4.14).

Figure 4.14

Five-Point Moving Average of 1st Semester Attrition Rates by Total MS Score



4.7.3 Gender Interactions Predicting Attrition

The central question of the study is how gender relates to ASC and MS as they relate to attrition. To further explore these relationships, data analysis went beyond zero-order associations to look at how gender interacts with these predictors for attrition. Multivariate logistic regressions were used with attrition as the outcome, and gender, one other variable, and the interaction between them as predictors.

4.7.3.1 Gender and Motivational Style (MS). For predicting 1st semester attrition in Cohort 1 students, it was found that gender had a marginally significant interaction with MS, $\chi^2(1, N = 157) = 3.033, p = .082$ (Figure 4.15), and significant interactions with integrative MS, $\chi^2(1, N = 157) = 4.421, p = .036$ (Figure 4.16), and overall MS score, $\chi^2(1, N = 154) = 4.929, p = .026$ (Figure 4.17). These interactions indicated that while

Figure 4.15

Three-Point Moving Averages of 1st Semester Attrition Rate by Instrumental MS Score, for Males and Females

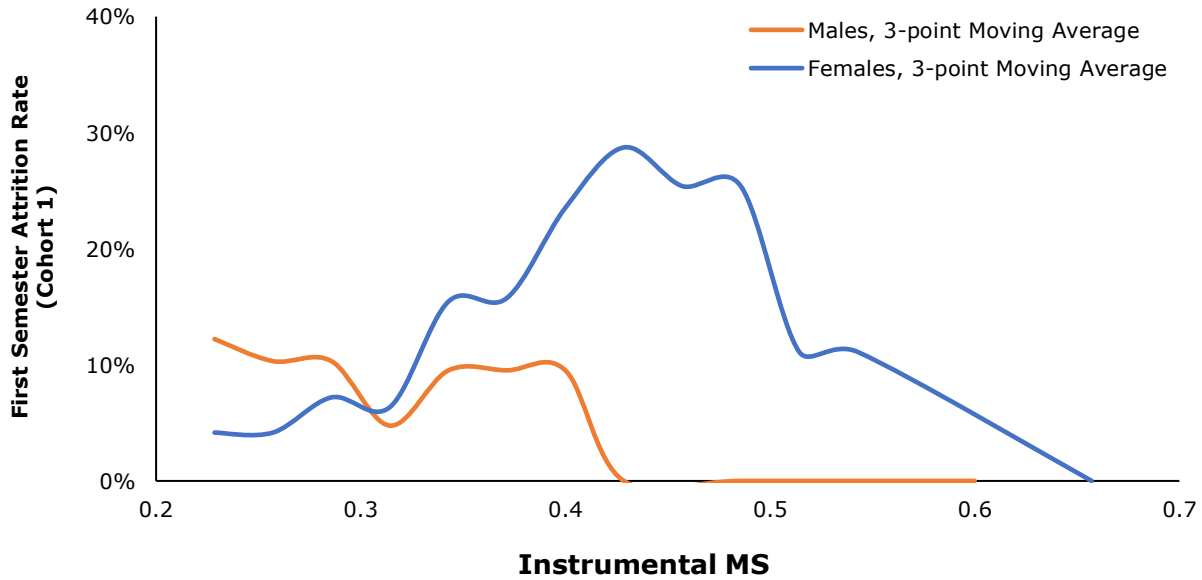


Figure 4.16

Five-Point Moving Averages of 1st Semester Attrition Rates by Integrative MS Score, for Males and Females

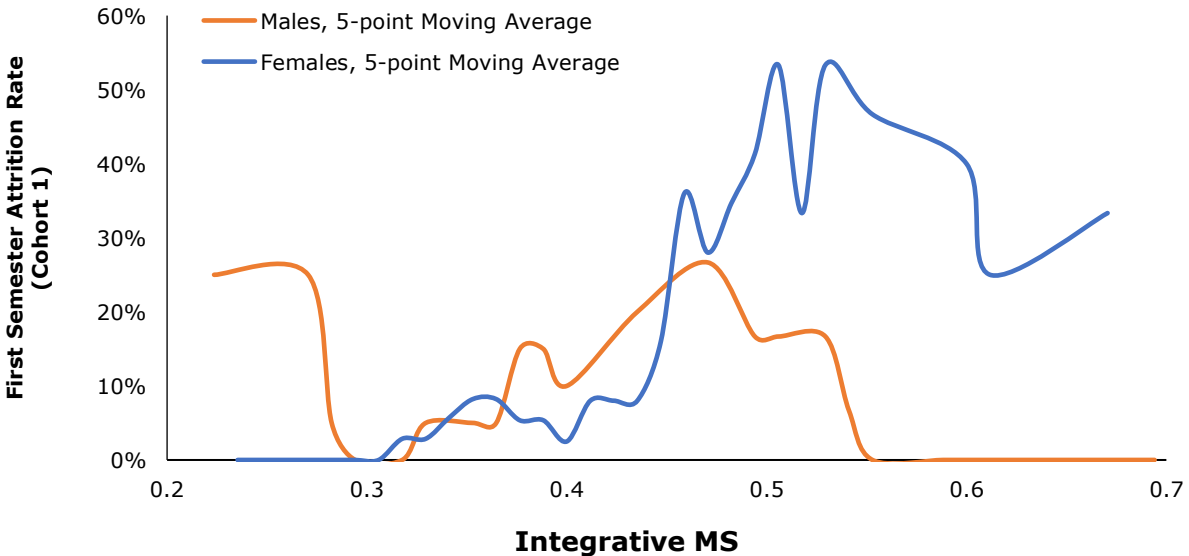
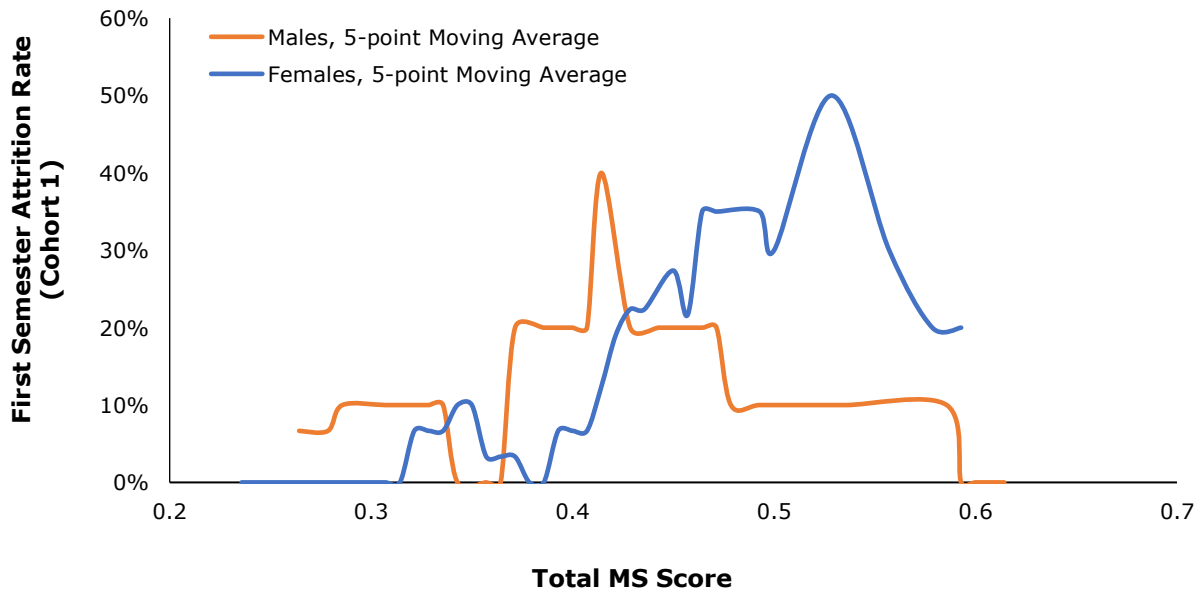


Figure 4.17

Five-Point Moving Averages of 1st Semester Attrition Rates by Total MS Score, for Males and Females



males with higher scores had a *lower* chance of attrition, females with higher scores had a *higher* chance.

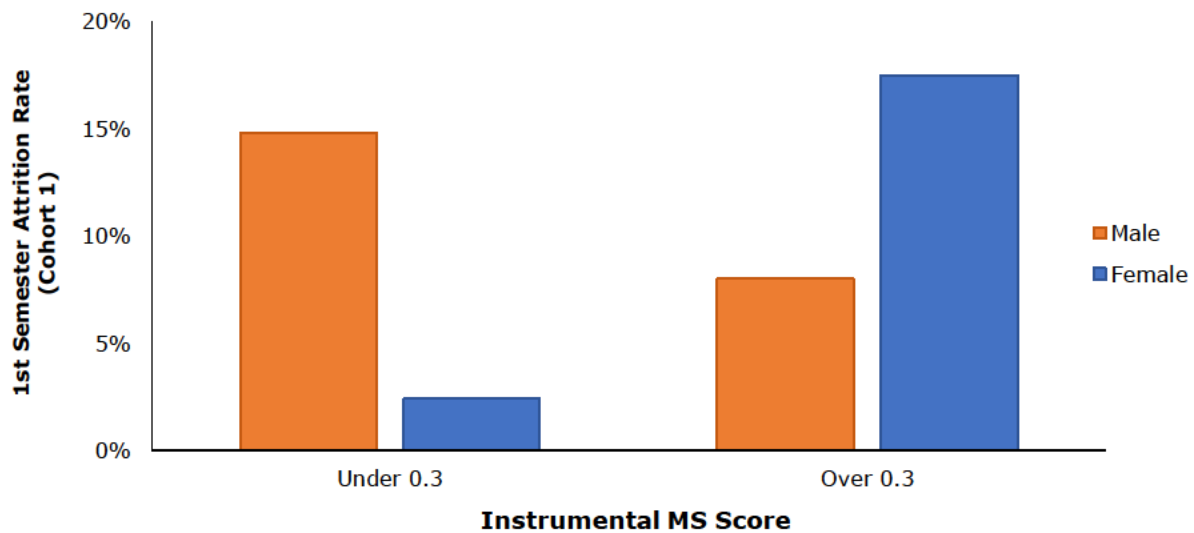
For 2nd semester attrition, as well as 1st semester attrition for Cohort 2 students, gender did not interact with either MS.

Based on these visualizations (Figures 4.15 through 4.17), the interaction was not found to be straightforward, and that the difference between males and females was more apparent in the lower end of scores. To confirm this, the instrumental MS score was chosen as the best example, and scores were dichotomized at the median value of 0.3. This was then tested again as a 2x2 contingency table with a Chi-Square test with the binary attrition outcome, again for Cohort 1 students only.

For students with an instrumental MS score under 0.3, males ($n = 27$) had a higher 1st semester attrition rate than females ($n = 42$), and this difference was marginally significant, $\chi^2(1, N = 69) = 3.780, p = .052$. For students over or equal to 0.3, females ($n = 63$) had a higher 1st semester attrition rate than males ($n = 25$), but this difference was not significant, $\chi^2(1, N = 88) = 1.272, p = .259$ (Figure 4.18).

Figure 4.48

The Difference in 1st Semester Attrition Rate by Gender and Dichotomized Instrumental MS Score, for Cohort 1 Students

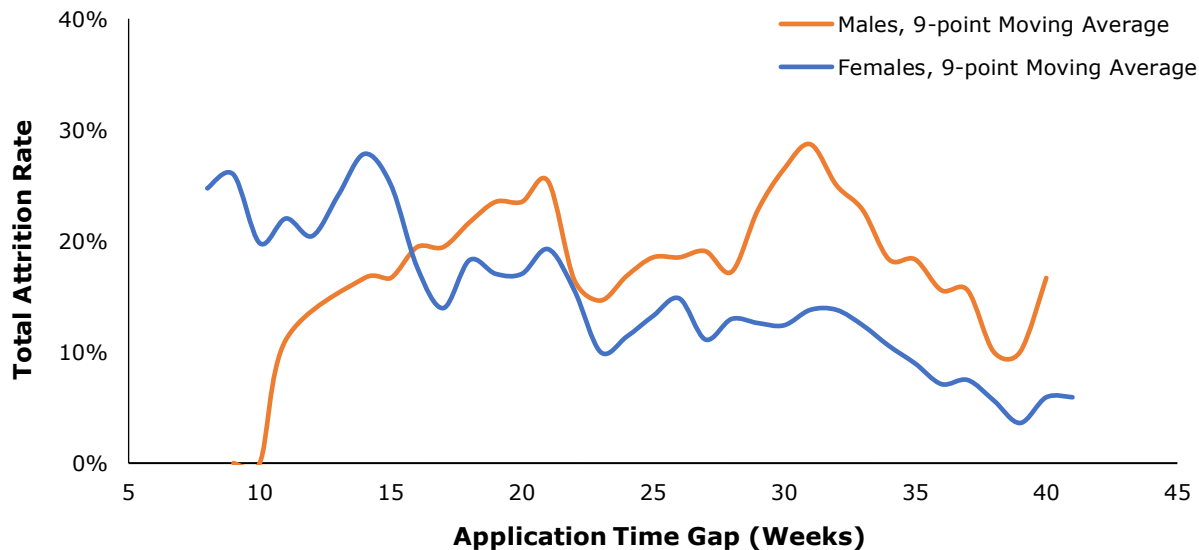


4.7.3.2 Gender and Application Gap. Application gap is the number of days between the students’ application date and the start of the semester. When including this with gender and including both first and second semester attrition in the dependent variable (i.e., total attrition through two semesters), an interaction was found, $\chi^2(1, N = 328) = 5.868, p = .015$.

The interaction indicated that males with a longer period between application and school starting had a lower chance of attrition, while females with a longer time gap had a higher chance of attrition. However, upon further inspection of the relationships shown in Figure 4.18, it seems that after a gap of about 20 weeks, both males and females tend to drop out less with more of a gap, and the interaction found appears to be accounted for among students with a gap of less than 20 weeks. Among that segment, females who applied closest to the start date dropped out more, while males close to the start date dropped out less.

Figure 4.59

Nine-Point Moving Averages of Total Attrition Rate Through Both Semesters, by Application Time Gap, for Males and Females



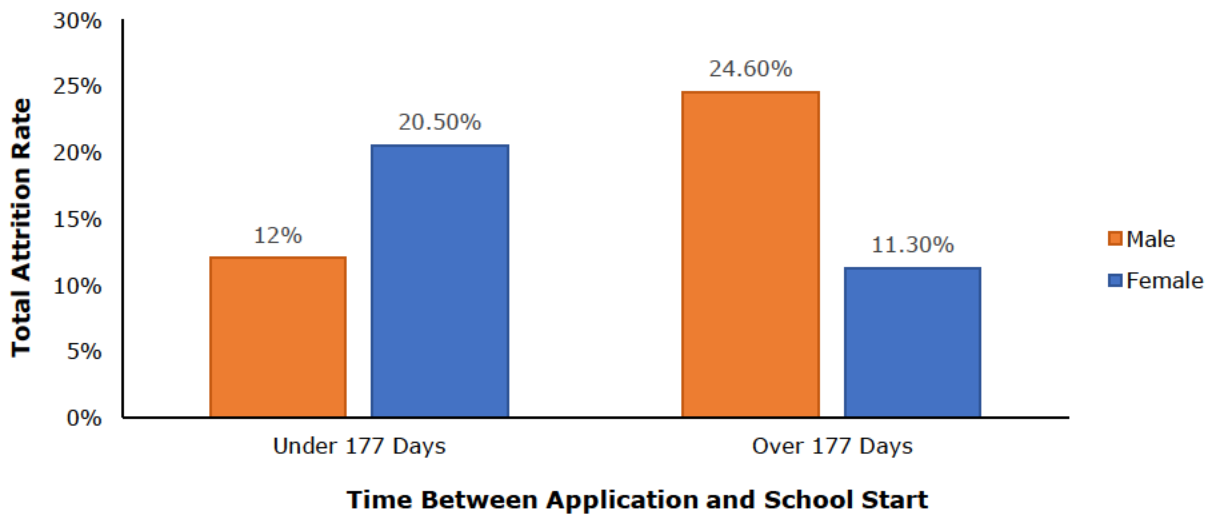
Based on the visualization in Figure 4.19, the interaction was not a straightforward one, and that the difference between males and females was

more apparent in the lower range of time gaps. To confirm this, the scores were dichotomized at the median value of 177 days (approximately 25 weeks) and then tested it with the binary attrition outcome as a 2x2 contingency table with a Chi-Square test for independence.

For students with an application gap of 177 days or more, males ($n = 57$) had a significantly higher total attrition rate than females ($n = 106$), $\chi^2(1, N = 163) = 4.847, p = .028$. For those with a gap of less than 177 days, females ($n = 112$) had a higher total attrition rate than males ($n = 50$), but this was not significant, $\chi^2(1, N = 162) = 1.714, p = .191$ (Figure 4.20).

Figure 4.20

Difference in Total Attrition Rate by Gender and Application Time Gap



4.7.4 Academic Self Concept and Motivational Style by

Nationality

Independent samples t -tests were used to explore the differences between domestic and international students in their academic self concept

and motivational style scores.

For academic self-concept, the analysis showed international students scored significantly higher on the math subscale, $t(293.048) = -5.53, p < .001$, and overall ASC, $t(313) = -3.548, p < .001$. There was no significant difference in the English and General subscales. See Figure 4.21.

For motivational style, domestic students scored significantly higher on instrumental MS score, $t(294) = 2.216, p = .027$, and integrative MS score, $t(294) = 3.362, p = .001$, as well as overall score, $t(294) = 2.187, p = .03$. International students scored significantly higher on the negative subscale, $t(212.948) = -3.326, p = .001$. See Figure 4.22.

Figure 4.61

ASC Scores of International and Domestic Students

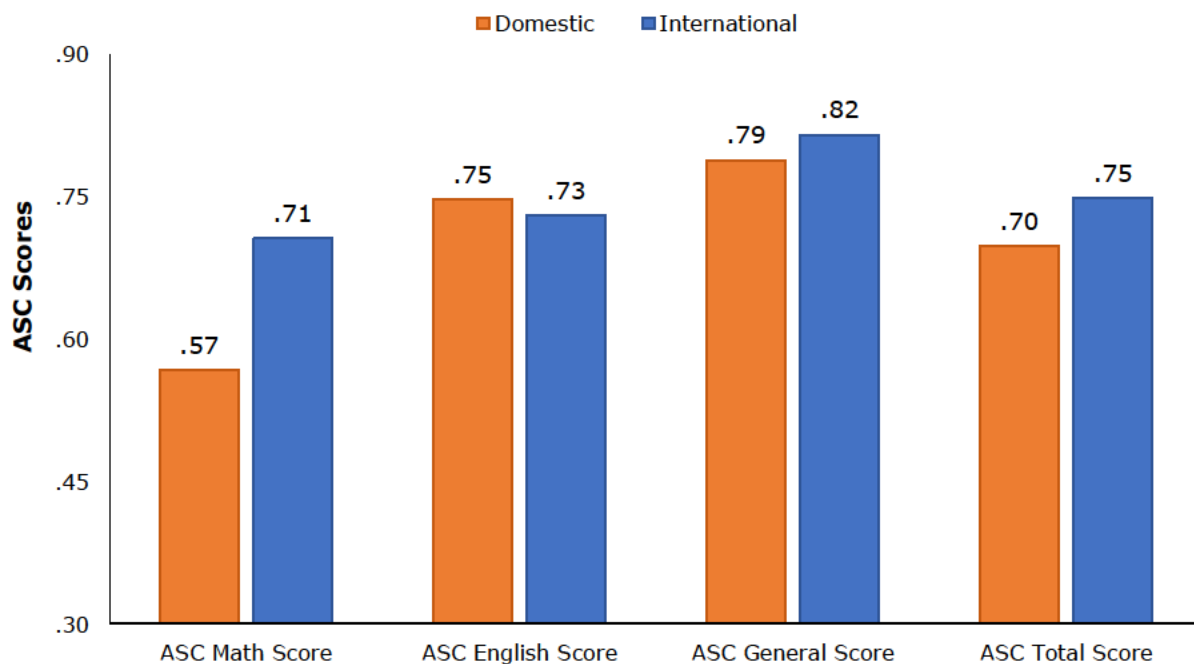
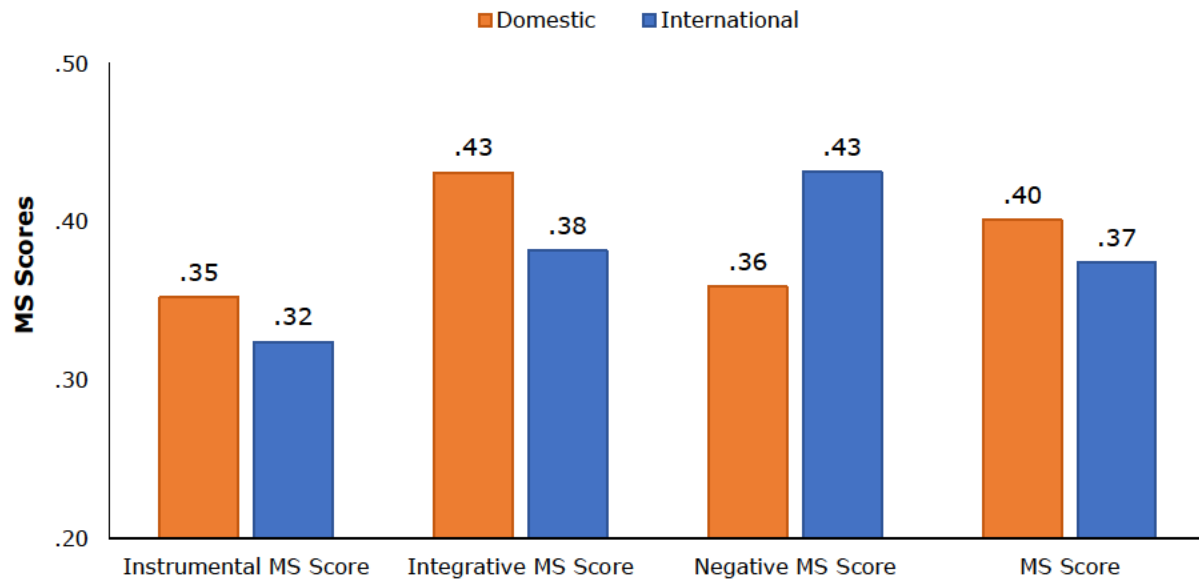


Figure 4.72

Motivational Style Scores of International and Domestic Students



4.8 SUMMARY

This chapter presented the findings from the survey of 336 college students. Overall, there was no relationship between motivational styles and gender. Academic self-concept score moderately positively correlated with integrative motivational style score when controlled for gender. This correlation held within each gender, but there was no significant difference in the strength of the correlations between males and females. Finally, academic self-concept score significantly predicted first semester attrition when controlling for gender and motivational styles.

Chapter Five presents the thesis' contributions to the literature, conclusions of the objectives stated in Chapter 3, challenges that shaped the outcome of the study, and suggestions for future research.

CHAPTER 5: DISCUSSION, IMPLICATIONS, RECOMMENDATIONS AND CONCLUSION

The previous chapter provided the results from the survey of 336 college students. Academic self-concept score significantly predicted first semester attrition when controlling for gender and motivational styles. Academic self-concept score moderately correlated with integrative motivational style score when controlling for gender. This correlation held within each gender, but there was no difference between males and females in the strength of the correlation.

5.1 INTRODUCTION TO CHAPTER FIVE

This chapter builds on the results reported in the previous chapter to provide a more in-depth discussion of the findings, evaluate the study hypotheses, and contextualize the results within the existing literature. It also summarizes the major findings, recommendations for practice and future research, and some limitations.

This research study contributes to the literature on student attrition in a community college setting, building on previous research, particularly that of Tinto (1982), Spady (1971), Bean and Metzner (1987) and Zangeneh (2015), focusing on the role of academic self-concept and motivational orientation in predicting student success and attrition/persistence in post-secondary education.

The benefits of a college education extend beyond financial outcomes,

bestowing advantages that include personal development, health, and civic engagement (Tinto, 2012). The current research addressed a question arising from the literature review on student retention/attrition and motivation and provided a groundwork upon which more rigorous studies can be conducted.

5.2 STUDY RESEARCH QUESTIONS

5.2.1 Gender and Motivational Style

Despite an abundance of research on student retention (e.g., Badali et al., 2022; Muljana & Luo, 2019; Seery et al., 2021; Smith & Van Aken, 2022), including recently increased attention on gender differences in student retention (e.g., Andrews, 2018; Maloy et al., 2022; Seery et al., 2021) and in motivation (e.g., Badali et al., 2022; Hellas et al., 2018; Graham & MacFarlane, 2021; Steegh et al., 2019), one area that has been largely neglected is the role of gender as a discrete factor in determining motivational orientations (Buchmann, 2009; Chou & Zhang, 2018; Conger & Long, 2010; Ewert, 2012; Fisher et al., 2020; Nichols & Stahl, 2019; Zangeneh, 2015). Significant gender differences in patterns of motivation have been reported (Cutumisu & Bulut, 2017; Gardner, 2020), as well as in academic achievement and performance (Hellas et al., 2018). Given these potential gender-based differences in motivation and achievement, it is important that student retention outcomes related to the gendered patterns of motivation are studied. The current thesis study was designed to explore some of these gaps.

The first two research questions asked in this thesis were about the relationship between motivational styles and gender. The first question explored this with regard to integrative motivation, wherein it was hypothesized that integrative motivational style scores would differ by gender. Similarly, the second question explored this regarding instrumental motivation, wherein it was hypothesized that instrumental motivational style scores would also differ by gender. The results did not support these hypotheses, having found no gender difference in either integrative or instrumental motivational style scores.

This finding is in line with several previous studies. Abraham & Barker (2015) did not find any meaningful differences in motivational style between male and female Australian physics students. In a recent meta-analysis of studies on gender and motivation in Turkey between 2004 and 2019, Turhan (2020) found the effect of gender on motivation to be minimal. Basaran and Hayta (2013) similarly found only a weak relationship between motivation and gender. Khong et al. (2017) found no significant gender differences in integrative and instrumental motivations among students learning Spanish in Malaysia. Finally, Chouikrat (2013) failed to find any gender differences in motivational style or orientation.

Consistent with these earlier studies, the result of the current study suggests that motivational style does not meaningfully distinguish male and female post-secondary students. However, this is inconsistent with the model

proposed by Zangeneh (2015) and Gardner et al. (2004), in which they reported that motivational style differed according to gender.

5.2.1.1 Individual Versus Group Construct. There are several possible reasons why the current study did not find gender differences in motivational style. One possible explanation could be related to how motivation is defined as a construct. In the current study, by looking at gender differences, it was assumed that motivation is a function of the group. On the other hand, it has been argued in the literature that motivation should be understood in terms of individual differences rather than group differences (Heggestad, 1997; Rogers, 1957; Yang & Quadir, 2018).

Rogers (1957) conceptualized motivation as an individual psychological construct by arguing that attitudes and behaviours of a “fully functioning person” are congruent with the person’s internally generated values. Kanfer and Heggestad (1997) defined it as a complex of stable, trans-situational individual differences in preferences related to approach and avoidance of goals. Hence, it is argued that motivation and motivational orientations should be regarded as an individual psychological construct rather than group psychological make-up. Previous research has presented evidence that individual characteristics such as motivation can play a major role in shaping the successful achievement of one’s goals (e.g., Raufelder et al., 2016; Terras & Ramsay, 2015; Yang & Quadir, 2018). These results point to a renewed interest in person-centered approaches to motivation, where

individual differences in motivation influence attainment of goals (Schunk & Miller, 2002).

5.2.1.2 Measurement Issues. Another explanation for why the current study failed to detect gender differences in motivation could be related to how motivation was measured. Participants' motivation was measured with a scale questionnaire adapted from Gardner and Lambert (1972) that included 17 items on instrumental motivation and seven items on integrative motivation concentrated on interests, attainment and utility values that are regarded as attitudinal factors. However, other studies have looked at motivational components such as goal orientations (e.g. mastery avoidance, mastery-approach and performance-avoidance; Diaconu-Gherasim, 2019; Putarek & Pavlin-Bernardic, 2020; Shi, 2021; Wirthwein, 2021), self-determination theory's needs for competence, relatedness and autonomy (Çirak & Erol, 2020; Coudevylle et al., 2020; Rayner & Papakonstantinou, 2020; Kosiewicz & Ngo, 2020), expectations for success, and beliefs and attitudes in the classroom (Birenbaum & Nasser, 2006; Duckworth et al., 2007; Ercoskun et al., 2019; Kalender et al., 2018; Marshman et al., 2017; Marshman et al., 2018; Nokes-Malach et al., 2018). Items from these measures focus on ability/success expectancy that are regarded as cognitive factors. Studies focused on goal orientation, need for competence, needs for relatedness, expectation for success, and need for autonomy have reported gender differences.

These two different measurement approaches seem to engage students in different processes as mentioned above. However, it seems that even in studies that focus on cognitive factors rather than attitudinal factors, the pattern of gender differences is not clear cut. For example, a comparative study by Watt et al. (2012) found gender differences in motivation in Australia, the U.S. and Canada, but how they differed depended on the country. Motivational belief/expectancy was more predictive of attrition for males in the U.S./Canadian sample but more predictive of attrition for females in the Australian sample, while utility/attainment value motivation was more predictive of attrition for Australian males but more predictive of attrition for U.S./Canadian females. The nature of motivation measurement and associated processes needs to be further explored to determine whether gender differences could be predicted.

Also related to how motivation is measured, the Academic Motivation Scale used looks at motivation as a general construct without distinguishing different motivational constructs. There are, however, studies that have used subject specific motivation to investigate gender differences (e.g., Arnold & Rowaan, 2014; Boekaerts & Simons, 1995; den Brok et al., 2005; Ramos Salazar, 2018; Sun, 2020). Boekaerts and Simons (2005) defined subject-specific motivation as “an organized structure of values, attitudes and conceptions a student has toward a specific subject or knowledge domain.” Researchers have noted four different but interrelated dimensions of subject-

specific motivation: (1) the student's experience, (2) the subject's relevance to student's future, (3) the students' confidence in learning, and (4) the student's interest in the subject (e.g., Brekelmans et al., 2002; Clément, et al., 1994; Gardner & MacIntyre, 1993; Gardner & Lambert, 1972; Kuhlemeier et al., 1990; Scheerens, 1994; Scheerens & Bosker, 1997). Longitudinal studies have shown that gender differences are better detected when subject specific motivation is used (Frenzel et al., 2010; Jacobs et al., 2002; Nagy et al., 2010; Watt, 2004).

5.2.1.3 Study Sample and Statistical Significance. The lack of gender difference found could also simply be due to its small sample size ($n = 339$), which may have failed to achieve the statistical power needed and resulted in a false negative. However, such a conclusion on the validity of gender effect/differences based on an unsuccessful replication of past studies (as decided by statistical significance) would not be justified (Maxwell et al., 2015; Sterne & Smith, 2001; van Aert & van Assen, 2017).

A related concern is the uneven number of male ($n = 110$) and female ($n = 226$) participants (Hartgerink et al., 2017). Although, while Urhahane et al. (2012) had a similar gender distribution in their participant sample, they nevertheless found significant gender differences in motivation, among other variables. This issue needs to be further explored to better understand how sample size and group distribution affects the results of studies into gender difference (Johnson et al., 2016; van Aert & van Assen, 2017), and how

severely it affects the results.

5.2.1.4 Socio-Cultural Factors and Gender Roles. Various studies have reported that gender does not influence academic motivation. The gender differences in motivational style found in some previous studies (e.g., Buser et al., 2012; Campbell & Feng, 2010; McGarty et al., 2002; Urhahne et al. 2012; Zangeneh, 2015) may have been a product of unique socio-cultural expectations and social roles for men and women (e.g., socio-cultural norms in which men are stereotyped as more assertive than women). Steinberg (2013) and Bedel (2013) have both argued that attitudes, capabilities, and behaviours of students are similar and do not vary by gender. Pala (2019) reported that none of the dimensions of the Academic Motivation Scale (self-transcendence, use of knowledge, and exploration) exhibited a significant difference by gender.

Instead, gender differences and motivation to learn and participate in academic activities may stem from dissimilar patterns of socio-cultural expectations (Carvalho, 2016). The current study did not investigate this hypothesis since participants' motivation was assessed with the Academic Motivation Scale, and as noted above, studies using this scale have not found any gender differences.

5.2.2 Academic Self-Concept and Motivational Style

For most students, the question of how their motivational orientation determines whether they will complete their college program probably does

not arise often. But for an educational researcher looking at population level data, it could be a powerful mediating predictor of student outcomes. Since the early 1970s, there has been a growing intersection of sociological, educational, and psychological theories on student retention (e.g., Astin, 1984; Bean & Metzger, 1985; Tinto, 1975). The issues concerning student attrition/retention and achievement have helped develop a multifaceted representation of varying factors that shape motivation in students (e.g., Gardner & Lambert, 1972; Ryan & Deci 2000). It is commonly understood that the construct of academic self-concept has not adequately considered motivational orientation (Areepattamannil et al., 2011). However, an exhaustive search of the existing databases revealed scant research on the relationship between academic self-concept and motivational orientation. To address this gap, this study posed two additional questions about this relationship.

The first question interrogated the relationship between academic self-concept and integrative motivation, wherein it was hypothesized that there would be a correlation between academic self-concept and integrative motivational style scores when controlling for gender. The results showed that integrative motivational style significantly correlated with academic self-concept when controlling for gender, suggesting that students who perceive themselves as more academically competent may be less likely to drop out of college due to more integrative motivation toward academics. This finding is

consistent with a significant volume of research that has reported a relationship between integrative motivation and academic self-concept (Amrai et al., 2011; Arens et al., 2019; Awal et al., 2011; Chepkirui & Huang, 2021; Faye & Sharpe, 2008; Izuchi & Onyekuru, 2017; Klapp, 2018; Lohbeck, 2018; Wong et al., 2017; Zhao et al., 2010).

The second question related to instrumental motivation, wherein it was hypothesized that there would be a correlation between academic self-concept and instrumental motivational style scores when controlling for gender. It is noteworthy that some of the earlier research had downplayed the role of instrumental motivation for learning in general (Gardner, 1983; Gardner et al., 1985; Gardner & Lambert, 1959, Gardner & Smythe, 1975), and in particular, with regard to academic self-concept (Areepattamannil, 2012). Nonetheless, the results of the current study found instrumental motivational style score to also correlate with academic self-concept score—but primarily for females. This last finding is consistent with some evidence in the literature indicating a correlation between instrumental motivation and academic success and arguing that extrinsic (i.e., instrumental) motivation was a strong mediator of academic success (Areepattamannil, 2012; Awal et al., 2011; Ferguson, 2017; Hammoudi, 2019; Mujtaba et al., 2014; Ryan & Deci, 2000; Topçu & Leana-Taşçılar, 2018; Yu, 2012).

The results of this study indicated that both integrative and instrumental motivational styles mediated some of the relationships between

academic self-concept and college attrition/retention. This is consistent with the findings of Areepattamannil (2011) and Hammoudi (2019) indicating that both intrinsic and extrinsic motivation were related to academic self-concept. It can be argued that integrative and instrumental motivational styles may not necessarily present opposite dimensions of motivation, and students might report both types of motivational styles in their academic work (Ryan & Connell, 1989). Lepper et al. (2005) argued that the dimensions of intrinsic and extrinsic motivation may generally intersect where both types of motivation can be adaptive for them.

In summary, it is very difficult to measure postsecondary student motivation as an isolated variable. Expectations, goals, and experiences of students could very well shape their motivation and effect their retention. The results reported in this study point to motivational orientation as a mediator between academic self-concept and student retention, and it should be viewed as an attempt to bridge the gap between academic self-concept, motivation, and student retention in the literature. Although limited in design and statistical power, the findings suggest that academic self-concept and motivation do not operate independently to determine student retention. While it appears that motivation functions as a mediator of academic success (and hence student retention), future studies should investigate this relationship further.

5.2.3 Academic Self-Concept, Motivational Style, and Attrition

Student attrition has been the subject of numerous higher education studies (e.g., Braxton et al., 2014; Pascarella & Terenzini, 1991; 2005). Attrition behaviour is related to a complex interaction between institutional factors and student characteristics, with several theories attempting to explain it since the early 1970s. Among them is Tinto's revised theory (1993), which proposed that student attrition is better understood in terms of psychological, environmental, and interactional attributes. Instrumental to Tinto's revised theory was Astin's Student Involvement Theory (1984), Bean and Eaton's (2000) Psychological Theory, and Bean and Metzner's (1985) Student Attrition Theory.

To address the issue of attrition, this study first examined the relationship between academic self-concept and attrition, and then the relationship between motivation and attrition.

5.2.4 Academic Self-Concept and Attrition

The existing literature on the relationship between academic self-concept and student attrition tends to assume that students' belief in their own competency leads them to devote more time to school. Students with higher academic self-concept are therefore more likely to succeed academically and persist in their studies (Akande 1997; Haktanir et al., 2021; Hansen & Henderson, 2019; Hotulainen & Shofield 2003; Karaman et al.,

2021; Lilla et al., 2021; Marsh 2004; Pyryt & Mendaglio 1994; McBride et al., 2021; Schütze et al., 2021; Ziegler et al., 1996).

College students often experience tremendous stress during their first year of study as they are faced with multiple new challenges, including adapting to a new environment, managing a different lifestyle, and juggling various newly found responsibilities (Feldt et al., 2011; Haktanir et al., 2021; Leary & DeRosier, 2012; Vaez & LaFlamme, 2008). These challenges could manifest as academic problems and even premature attrition. The current literature indicates that academic self-concept is strongly correlated with attrition/persistence during the first year (i.e., the first two academic semesters). Belief in one's academic ability is related to Bandura's (1997) concept of self-efficacy. Put simply, students will likely perform better and stay in school longer and/or graduate more often if they believe in their academic ability (Bartimote-Aufflick et al., 2015; Richardson et al., 2012; Schunk & Pajares, 2002). Therefore, it has been argued that academic self-concept would provide an opportunity to scaffold learning through various foundational courses that are often part of core programs during the first two academic semesters (Kuh, 2008; Padgett et al., 2013), resulting in improved student participation and engagement.

Against this backdrop, this study posed two questions about the relationship between academic self-concept and attrition. The first related to *first* semester attrition, wherein it was hypothesized that there would be a

negative correlation between academic self-concept score and first semester attrition rate when controlling for gender and motivational style. The second similarly concerned this relationship with regards to *second* semester attrition, wherein it was hypothesized that academic self-concept score and second semester attrition rate would correlate when controlling for gender and motivational style.

The results indicate that academic self-concept was predictive of first semester attrition, but not second semester attrition, when controlling for gender and motivational style. This finding is generally in line with a growing body of research that points to a positive correlation between academic self-concept and student retention (i.e., negative correlation with attrition), where better academic self-concept predicts higher retention (i.e., lower attrition) during the first year of study (Ackerman et al., 2013; Ahmavaara & Houston, 2007; Daniel, 1992; Fichten et al., 2014; Fisher, 2014; Ng, 2021; Nunez et al., 2005; Roland et al., 2018; Runner-Rioux et al., 2018; Ting, 2009; Walsh & Kurpius, 2016). Although the study's hypothesis regarding second semester attrition was not supported, it was for first semester attrition, lending some empirical support for the existence of a relationship between academic self-concept and attrition. It also suggests a need for further investigation with larger and more representative samples.

5.2.5 Motivational Style and Attrition

Motivation is considered one of the basic elements necessary for success (Littlejohn et al., 2016; Milligan & Littlejohn, 2017). Numerous studies have demonstrated the predictive power of motivation for academic success in post-secondary institutions. For example, a meta-analysis by Robbins and colleagues (2004) found that motivation strongly predicted academic performance and persistence among college students.

The relationship between motivational style (instrumental and integrative) and attrition (first and second semester) was explored with four questions in this study, one for each combination of the aforementioned variables. It was hypothesized that when controlling for gender and academic self-concept, there would be correlations between (a) integrative motivational style score and first semester attrition rate, (b) integrative motivation style and *second* semester attrition, (c) *instrumental* motivation and *first* semester attrition, and (d) instrumental motivation and *second* semester attrition.

The first two hypotheses that integrative motivational style would predict attrition had mixed results. Although integrative motivation scores were not predictive of first semester attrition among the participants, they were predictive of *second* semester attrition. These findings partly agree with some existing evidence that integrative motivation could predict student persistence (e.g., Asmar et al., 2011; Baars & Arnold, 2014; Brubacher & Silinda, 2019; Brubacher & Silinda, 2019; Crisp et al., 2015; Fong et al.,

2017; Hall et al., 2013; Janke, 2020; Jeno et al., 2018; Milne et al., 2016; Oliver et al., 2013; Renaud-Dubé et al., 2015; Rump et al., 2017; Rutledge, 2019; Weybright, 2017). Further investigation of the effect of integrative motivation on attrition with larger and more representative samples may therefore be called for.

The other two hypotheses related to instrumental motivation also had mixed results. As with integrative motivation, instrumental motivation scores were not predictive of first semester attrition. For second semester attrition, whereas integrative motivation was significantly predictive, instrumental motivation was only marginally so ($p = .076$ when controlling for gender and academic self-concept). This finding somewhat disagrees with a range of studies reporting evidence that extrinsic (i.e., instrumental) motivation is predictive of persistence (e.g., Armstrong et al., 2021; Boddy, 2020; Hang et al., 2017; Kirk, 2020; Larose et al., 2011; Lerdpornkulrat et al., 2018; Liao et al., 2014; Lim, 2020; Meyer & Thomsen, 2018; Miller et al., 2021; Morgan, 2021; Nonis et al., 2021; Ntim et al., 2020; Qin & Tao, 2021; Regis, 2018; Rump et al., 2017; Thibodeaux & Samson, 2021; Sobel, 2018; Stoten, 2015; Suhre et al., 2007; Tanvir & Chounta, 2021; Xiong et al., 2015). Similarly, Akgul et al. (2016) examined predictors of test completion and found that instrumental motivation (among other factors) was predictive of academic success. Fong et al. (2016) also found that extrinsic motivation (i.e., the goal of earning the credential) is a reliable predictor of college

persistence. With regard to studying Spanish in particular, Pratt (2010) demonstrated that “extrinsic and instrumental factors are the most influential as the students make decisions about whether or not to study [it] in college” (p. 683). Pratt’s research also identified career benefits and the possibility of good grades as the “immediate and utilitarian factors” (p. 682) influencing students’ decisions about persisting in their program. In a study on the relationship between motivation and program completion among Indigenous students, West and colleagues (2016) found a strong positive correlation, confirming similar findings in previous studies (Asmar et al., 2011; Hall et al., 2013; Milne et al., 2016, Oliver et al., 2013).

5.2.6 Summary of the Study

This study used a cross-sectional design to examine the relationships among academic self-concept, gender-differentiated motivational orientation and student retention. Specifically, it aimed to investigate whether integrative or instrumental motivational orientation, gender, and/or academic self-concept were associated with first and/or second semester attrition in community college students. It relied on the work of Spady (1971), Bean and Metzner (1987), Tinto (1982), and Zangeneh (2015) in highlighting the important role of academic self-concept and motivational orientation in predicting student success and persistence.

The findings provide evidence that academic self-concept and motivational orientation are predictive of student retention/attrition. Previous

studies (e.g., Runner-Rioux et al., 2018) have demonstrated that academic self-concept is predictive of academic success, while others have demonstrated the role of motivation (e.g., Brubacher & Silinda, 2019). This is one of the few studies of its kind to observe a relationship between motivational orientation and academic self-concept and their impact on student retention.

One additional notable finding in this research is that both integrative and instrumental motivational orientation were at least marginally predictive of 2nd semester student attrition. Contrary to previous research, however, no evidence was found for any gender differences in motivational orientation. This finding contributes to the existing literature, which is similarly inconclusive on this hypothesized gender difference.

5.3 SIGNIFICANCE OF THE STUDY

High attrition rates in American and Canadian colleges and universities have been a long-standing problem identified in studies since the 1970s (Grayson & Grayson, 2003; Pascarella, 1980; Parkin & Baldwin, 2009; Spady, 1970; Tinto, 1993). At the same time, there have been few studies of the effects of motivation and academic self-concept on student attrition, particularly in a community college setting. Additionally, only a few have focused on first-year attrition from a community-college perspective (Andreu, 2002; Reason, 2003). Understanding the nature of motivation and how it

relates to other factors such as academic self-concept may assist the understanding of attrition among community college students.

5.4 SUMMARY OF STUDY APPROACH

Theoretical knowledge on the relationship between academic self-concept and motivational orientation is still emerging. Given the exploratory nature of this subject and what shapes student retention, a cross-sectional research design was used to explore the relationship between the variables. Results from cross-sectional studies are considered descriptive and sufficient to establish associations between variables such as academic self-concept and motivational orientation with student success outcomes (Creswell, 2013; Zangeneh, 2015).

5.5 SUMMARY OF STUDY DEMOGRAPHIC

Few studies have examined the effect of motivation and academic self-concept on student attrition, especially in community college settings. In response to this gap in the literature, the population recruited were fulltime college students, admitted in semester one of their two-year diploma programs at Humber College, studying in either the Faculty of Business or Faculty of Applied Science & Technology. In the final study sample, two cohorts of students were recruited: A total of 171 students (59 male, 112 female) were recruited during the Winter 2018 semester, and 168 students (51 males, 114 females, 3 others) were recruited during the Fall 2018 semester.

5.6 CONSIDERATIONS AND LIMITATIONS

While this thesis study offers data on the relationship between academic self-concept and motivational orientation as pertaining to student retention, it had limitations related to the research design, the sampling approach and sample size. The study used a self-report survey method, wherein participants were asked to report directly on their own behaviours, attitudes, or beliefs. Self-report methods are not fundamentally inferior to behavioural or physiological measures (see Haefffel & Howard, 2010), but critics question their validity and reliability (see Fulmer & Frijters, 2009) because it can be susceptible to various confounds such as social desirability bias (Furnham, 1986). According to Phillips and Clancy (1972), the social desirability effect is “a response determinant that refers to the tendency of people to deny socially undesirable traits or qualities and to admit to socially desirable ones” (p. 923). Research participants may engage in self-promotion (Wood et al., 2007), overemphasize their positive traits and underreport their negative traits (Stangor, 2010). On the other hand, Huizinga and Elliott (1983) reported that the consensus of research on the reliability and validity of self-report measures had confirmed it to meet the conventional social-science standards for quality data collection.

The second limitation is related to the sampling approach and the sample size. A non-random, convenience sample was used, thereby limiting the generalizability of the results. However, convenience sampling is a

common and standard method of sampling within developmental and social sciences (Jager et al., 2017), so these limitations are generally considered acceptable and assumed as a given when interpreting the data.

5.7 CONCLUSION

The goal of this thesis study was to explore the role of motivation and academic self-concept in predicting attrition among college students. To that end, the variables of academic self-concept, instrumental motivational style, integrative motivational style and gender were examined in relation to attrition among a sample of college students. The findings provide evidence that academic self-concept is predictive of *first* semester attrition, while integrative motivational style, and instrumental to some extent, are predictive of *second* semester attrition. The results showed no difference in attrition rate between genders, contradicting many previous studies on gender differences.

These results offer moderate support for aspects of Spady's (1971) and Tinto's (1982) models that describe academic self-concept as a powerful factor accounting for student attrition. They are also partly consistent with Bean and Metzner's model where motivational style impact students' academic experience and result in premature attrition (Bean & Metzner, 1985).

5.8 RECOMMENDATIONS FOR FUTURE RESEARCH

This study is among the first to investigate the interrelationships among academic self-concept, motivational orientation, and student attrition/persistence among college students. To understand the mediators of attrition/persistence among college students, replications and expansions of the current research are necessary. Suggestions for future research include:

1. A replication of this study with other colleges in Toronto, as well as across Ontario and Canada.
2. A replication of this study with a comparative cross-cultural design. This would allow examination of the constructs of self-concept and motivation across different cultures.
3. A replication of this research with a longitudinal research design. This would allow for deeper analysis of complex causal models.
4. Research that draws a clear distinction between academic dismissal and voluntary withdrawals.
5. A replication of this study with a larger sample size might yield a statistically significant effect. Sample size and sample distribution were among the main limitations of the current study that may have obscured some associations.
6. A replication of this study with a more diverse sample including non-binary genders.

7. A replication of this experiment using other validated psychometric measurements on motivational orientation.
8. A replication of this experiment by adding COVID-19 pandemic related factors such as ability to adapt to the abrupt transition to synchronous online learning due to the lockdowns and its correlation with motivation.

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APPENDICES

Appendix A

Letter of Invitation and Information to Prospective Student Survey Participants

Gender-differentiated motivation and academic self-concept as predictors of student retention among community college students

Dear Prospective Participant,

I am a doctoral student conducting a research study under the supervision of Professor Jeffery Soar, of the University of Southern Queensland, in order to better understand the associations between motivation styles and academic self-concept with student retention/attrition in a community college population.

Findings from the research will be reported in a doctoral thesis and presented in educational journals and/or at conferences, will be used to strengthen programs that prepare students for college. Results from this study will be reported in aggregate, and no identifying features of any student will be used.

If you choose to participate in this study, you will be asked to complete an online survey at the start of the first term. The survey will take approximately 10 minutes of your time and asks questions about your motivational style, and your experience with Math and English. The questionnaire will not ask you to include any information that can personally identify you, such as your name, student number, or contact information. A unique link to the survey will be provided. Once you complete the questionnaire, your name will be entered in a random draw for \$5, \$10, \$20, and \$50 gift certificates. Your name will be stored separately from the survey results. Following the surveys, enrolment data from all participants (n=500) will be collected through Seneca College's Institutional Research Office in order to determine each student's enrollment status (Active-fulltime enrolment, Non-Active-no longer a student) at the start of second semester and at the start of the third semester of studies.

In order to fully assess the outcomes of the participants involved in the study, the Principal Investigator will match enrolment information with initial completed surveys by a numerical code. Student enrolment information will be linked to survey responses for the purpose of analysis. Please note that the status records provided to me by Seneca College will contain no student names, student numbers, or any other personally identifying information. I will therefore not be able to match any participants to their academic record.

Participation in this study is completely voluntary. If you choose to participate, please be assured that no value judgements will be placed on your responses. Moreover, while the name of the college may be identified in the final report, all information that you provide will be made anonymous so as to not identify you in any way. As a participant in this research, you may withdraw at any time without any penalty whatsoever. Data collected from participants who choose to withdraw will be destroyed and not be part of the results of the study.

All data from this study will be stored in a secure way at Seneca College. Electronic survey results, consent forms and students' enrolment status will be secured on a password-protected file in an encrypted hard-drive.

The results of the study can be obtained upon completion of the final report which will be located in the USQ thesis collection and which can be accessed electronically in the University of Southern Queensland Research Repository.

If you have any questions about this study please contact me, [REDACTED] or thesis supervisor (Jeffrey Soar, [REDACTED]) at any time. If you have questions about your rights as a participant in this study, please contact the Office of Research Ethics at the University of Southern Queensland (ethics@usq.edu.au) or the Research Ethics Board at Seneca College (REB@senecacollege.ca).

Thank you for your consideration to participate in the research. Sincerely,

Mona Nouroozifar
DBA Candidate, Faculty of Business, Education, Law & Arts, University of Southern Queensland

[REDACTED]
[REDACTED]

Professor Jeffrey Soar, Personal Chair in Human-Centred Technology
School of Management and Enterprise; Faculty of Business, Education, Law & Arts
University of Southern Queensland, Australia 4350

[REDACTED] [REDACTED] [REDACTED]

Appendix B
Email Messages to Prospective Student Survey Participants

First Date Sent:
Email Subject: A research project that may be of interest to you

Dear Student,

Seneca has been advised of a research project that may be of interest to you. The project is entitled *Gender-differentiated motivation and academic self-concept as predictors of student retention among community college students* and has been approved by Seneca's Research Ethics Board. If you would like to find out more about this project, including an estimate of the time commitment required and information on incentives offered for participants, please contact the Principal Investigator, Mona Nouroozifar, at [REDACTED]
[REDACTED]

[REDACTED]. Regards,

.....

Second Date Sent:
Email Subject: It's not too late to participate! - A research project that may be of interest to you

Dear Student,

Seneca has been advised of a research project that may be of interest to you. The project is entitled *Gender-differentiated motivation and academic self-concept as predictors of student retention among community college students* and has been approved by Seneca's Research Ethics Board. If you would like to find out more about this project, including an estimate of the time commitment required and information on incentives offered for participants, please contact the principal investigator, Mona Nouroozifar, at [REDACTED]
[REDACTED] Regards,

.....

Third Date Sent:
Email Subject: It's not too late to participate! - A research project that may be of interest to you

Dear Student,

Seneca has been advised of a research project that may be of interest to you. The project is entitled *Gender-differentiated motivation and academic self-concept as predictors of student retention among community college students* and has been approved by Seneca's Research Ethics Board. If you would like to find out more about this project, including an estimate of the time

commitment required and information on incentives offered for participants, please contact the principal investigator, Mona Nouroozifar, [REDACTED]
[REDACTED]. Regards,

Appendix C
Email Response to Prospective Survey Participants

Hi [NAME OF PROSPECTIVE STUDENT SURVEY PARTICIPANT],

Thank you for showing interest in my research project on Motivation, Academic self-concept and College retention. My name is Mona Nouroozifar and I am the study's Principal Investigator. I am interested in examining *Gender-differentiated motivation and academic self-concept as predictors of student retention among community college students*. The attached **Letter of Invitation and Information** will provide you with more information about the research and the short online survey that I would like you to complete.

If you chose to participate in this survey, please read the following before clicking on the survey link appearing below.

1. It will take you about 10 minutes to answer all the questions.
2. You will be sent a unique URL link to complete the survey. Be sure to use this unique link when prompted as it allows you to complete the survey and qualify for the prize draw of \$5, \$10, \$20, and \$50 gift cards.
3. If you do not answer all the questions on a page of the survey, a response box will appear telling you "*You didn't answer all the questions. Are you sure you want to continue?*". Clicking "*cancel*" will keep you on the same page and allow you to complete the unanswered question(s), while clicking "*OK*" will move you to the next page. You can also go back to earlier parts of the survey by clicking the arrow on the top left part of the page.

Here is the link to the survey. This is a unique link and is only meant for your use only.

Please feel free to get in touch if you have any questions about the study.

Kind Regards,
Mona Nouroozifar

Appendix D

Informed Consent Letter for Student Participants

I understand the nature and purpose of the research study which has been outlined in the information email. I have read this information and am aware of the conditions under which I will participate in this study.

My acceptance below also indicates that:

I am voluntarily deciding to participate in this study and am free to withdraw at any time without penalty or explanation. If I decide to withdraw, I understand that any information collected from me will not be used in the study's findings. I also have the right to refuse to respond to questions that I am uncomfortable with.

I understand that at no time will I be judged, evaluated, or at risk of harm.

I understand that the responses that I provide during the survey will be treated as confidential.

I understand that my student enrolment information will be linked to my survey responses but because the records provided to the investigator by Seneca College contain only a numerical code and no personal identifiers, the investigator and her supervisor will not be able to match my responses to my student record.

I understand that survey will not contain any personally identifying information. This will ensure that the investigator and her supervisor will not be able to identify me on the basis of my survey. My identity will also remain confidential in all published documents and presentations based on the research.

I am aware that I can obtain the results of the study upon completion of the final report which will be located in the University of Southern Queensland thesis collection and which can be accessed electronically in the University of Southern Queensland Repository.

I am aware that as a participant, I will qualify for a prize draw of \$5, \$10, \$20, & \$50 gift cards. With this knowledge, I **agree** to participate in a survey.

Agree

Disagree

How Do I Withdraw Permission to Use My Information after I have completed the survey?

You can revoke this form at any time by sending an email clearly stating that you wish to withdraw your authorization to use of your survey answers in the research. If you revoke your permission, you will no longer be a participant in this research study.

To revoke this form, please write to:

Principal Investigator Mona Nouroozifar

For REB Study # _____

Email Address: mona.nouroozifar@senecacollege.ca; mzifar@gmail.com

Opportunities to be Informed of Results

In all likelihood, the results will be fully available around January 2018. Preliminary results will be available earlier. If you wish to be told the results of this research, please contact:

Principal Investigator: Mona Nouroozifar mzifar@gmail.com

Contact Information

If you have questions regarding your rights as a research participant, contact:

Research Ethics Board Chair

NAME: Thomas McClerie

[EMAIL](mailto:REB@senecacollege.ca): REB@senecacollege.ca

Phone: 416-491-5050 x 77900

If you have any questions/concerns about the research, please contact Mona Nouroozifar at mona.nouroozifar@senecacollege.ca; mzifar@gmail.com.

Signature of Research Participant

I have read the information provided for the research study as described. My questions have been answered to my satisfaction, and I agree to participate in this study.

Name of Participant

Signature of Participant

Date

If you have any questions or concerns about this study, please contact Mona Nouroozifar [mona.nouroozifar@senecacollege.ca; mzifar@gmail.com], [416-491-5050 x 55010].

Please save a copy of this consent form for your records.

Are you a new student and enrolled in a 2 year diploma program in the School of Applied Arts and Health Sciences at Seneca College, King Campus?

If so, we invite you to participate in a 10-minute online survey

As a participant, you will qualify for a prize draw of \$5, \$10, \$20, & \$50 gift cards

**Please contact Mona Nouroozifar at
[mona.nouroozifar@senecacollege.ca;
mzifar@gmail.com]**

Appendix F Survey

Gender-differentiated motivation and academic self-concept as predictors of student retention among community college students

This survey will explore the association between motivational style, academic self-concept and early college departure.

The survey comprises 3 sections:

Section 1: Demographics (6 questions)

Section 2: Academic Self Concept (29 questions)

Section 3: Motivational style (28 questions)

The survey will take approximately 10 minutes to complete.

Thank you for your participation.

Section 1: Demographics

1. Are you?
 Male
 Female
 Other

2. How old are you?
 (Type Your response here)

3. What is your country of origin?
 Canada
 Other (Type your response)

4. How would you describe your high school grade in English?
 Mostly 90's(A+)
 Mostly 80's (A)
 Mostly 70's (B)
 Mostly 60's (C)
 Mostly 50's (D)
 Below 50's (F)

5. How would you describe your high school grade in Math?
 Mostly 90's(A+)
 Mostly 80's (A)
 Mostly 70's (B)
 Mostly 60's (C)
 Mostly 50's (D)
 Below 50's (F)

6. How would you describe your overall grades in high school?
 Mostly 90's(A+)
 Mostly 80's (A)
 Mostly 70's (B)

- ___ Mostly 60's (C)
- ___ Mostly 50's (D)
- ___ Below 50's (F)

Section 2: Academic Self Concept

Please choose the response that best fits your views. Select only one option.

	False	Mostly False	More False Than True	More True Than False	Mostly True	True
1. MATHEMATICS is one of my best subjects.						
2. I am hopeless in ENGLISH classes.						
3. People come to me for help in most SCHOOL SUBJECTS.						
4. I often need help in MATHEMATICS.						
5. I look forward to ENGLISH classes.						
6. I look forward to MATHEMATICS classes.						
7. I do badly on tests that need a lot of READING ability.						
8. If I work really hard I could be one of the best students in my school year.						
9. I have trouble understanding anything with MATHEMATICS in it.						
10. Work in ENGLISH classes is easy for me.						
11. I get bad marks in most SCHOOL SUBJECTS.						
12. I enjoy studying for MATHEMATICS.						
13. I am not very good at READING.						
14. I learn things quickly in most SCHOOL SUBJECTS.						
15. I do badly in tests of MATHEMATICS.						
16. ENGLISH is one of my best subjects.						
17. I am stupid at most SCHOOL SUBJECTS.						
18. I get good marks in MATHEMATICS.						
19. I hate READING.						
20. I do well in tests in most SCHOOL SUBJECTS.						
21. I never want to take another MATHEMATICS course.						
22. I get good marks in ENGLISH.						
23. I have trouble with most SCHOOL SUBJECTS.						
24. I have always done well in MATHEMATICS.						
25. I have trouble expressing myself when I try to write something.						

26. I am good at most SCHOOL SUBJECTS.						
27. I hate MATHEMATICS.						
28. I learn things quickly in ENGLISH classes.						
29. Most SCHOOL SUBJECTS are just too hard for me.						

Section 3: Motivational Style

Using '1' as STRONGLY AGREE and "'5' as the STRONGLY DISAGREE, please indicate to what extent each of the following items presently corresponds to one of the reasons why you chose to enroll in school at Seneca.

	1 – STRONGLY AGREE	2 – AGREE	3- UNDECIDED	4 – DISAGREE	5 – STRONGLY DISAGREE
1. Because I need at least a diploma to find a high paying job later on.					
2. Because I experience pleasure and satisfaction while learning new things.					
3. Because I think that education will help me better prepare for the career I have chosen.					
4. Because I really like going to school.					
5. Honestly, I don't know; I really feel that I am wasting my time in school.					
6. For the pleasure I experience while surpassing myself in my					

studies.					
7. To prove to myself that I am capable of completing my diploma.					
8. In order to obtain a more prestigious job later on.					
9. For the pleasure I experience when I discover new things never seen before.					
10. Because eventually it will enable me to enter the job market in a field that I like.					
11. Because for me, school is fun.					
12. I once had good reasons for going to school: however, now I wonder whether I should continue					
13. For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.					
14. Because of the fact that when I succeed in school I feel important.					
15. Because I want to have					

“the good life” later on.					
16. For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.					
17. Because this will help me make a better choice regarding my career orientation.					
18. For the pleasure that I experience when I am taken by discussions with interesting teachers.					
19. I can’t see why I go to school and frankly, I couldn’t care less.					
20. For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.					
21. To show myself that I am an intelligent person.					
22. In order to have a better salary later on.					
23. Because my studies allow me to continue to learn about					

many things that interest me.					
24. Because I believe that my education will improve my competence as a worker.					
25. For the “high” feelings that I experience while reading about various interesting subjects.					
26. I don’t know: I can’t understand what I am doing in school.					
27. Because school allows me to experience a personal satisfaction in my quest for excellence in my studies.					
28. Because I want to show myself that I can succeed in my studies.					

THANK YOU VERY MUCH FOR YOUR PARTICIPATION, IT IS GREATLY APPRECIATED.