Winter 2012

The Influence of Late Registration on Academic Outcomes and Retention at a Multi-Campus Community College

Kathy John Maalouf

Old Dominion University

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THE INFLUENCE OF LATE REGISTRATION ON ACADEMIC OUTCOMES AND RETENTION AT A MULTI-CAMPUS COMMUNITY COLLEGE

by

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A Dissertation Submitted to the Faculty of Old Dominion University in Partial Fulfillment of the Requirements for the Degree of

DOCTOR OF PHILOSOPHY
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OLD DOMINION UNIVERSITY
December 2012

Approved by:

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ABSTRACT

THE INFLUENCE OF LATE REGISTRATION ON ACADEMIC OUTCOMES AND RETENTION AT A MULTI-CAMPUS COMMUNITY COLLEGE

Kathy John Maalouf
Old Dominion University, 2012
Director: Dr. Danica G. Hays

In response to the increasing challenge for community colleges to uphold their mission of accessibility with an open door policy, while being held accountable for student success, higher education administrators and counselors need to have a better comprehension on the relationship among community college students, institutional enrollment policies, and academic success. The overall purpose of study was to broaden the understanding of the implications of late registration policy on community college students. Specifically, the purpose was to (1) investigate if there are statistical relationships between the demographics of community college students, registration behaviors, academic outcome, and retention (2) identify possible reasons why students register late; and (3) suggest retention strategies and initiatives to reduce the impact of late enrollment.

Out of the population of 139,149 eligible courses at a multi-campus community college, approximately 9.9% of the courses were enrolled for by late registrants. The sample used in the study consisted of 12,536 late registrants and 12,516 randomly selected regular registrants. The findings suggest that non-traditional students, male students, students of color, and non-curricular students without a stated academic intent were more likely to enroll late for classes.
The result of a MANOVA indicated that there was a significant main effect for registration type for both academic outcome/course grade and retention rate. The regular registrants had mean course grade of 2.22 ($SD = 1.568$) and a mean retention rate of .72, $SD = .451)$. The late registrants had a mean course grade of 1.81 ($SD = 1.607$) and a mean retention rate of .60 ($SD = .489$). Therefore, it may be postulated that students who register late tend to have a lower academic outcomes based on course grade and are less likely to return the subsequent semester resulting in lower retention rates.

The study also identified possible reasons why community college students may register late for classes. The most frequently reported reasons for late registration were related to late decision making on attending college, financial aid processing, lack of awareness regarding the start of classes, failed plans on attending another college, delayed processing in college procedures, habits of procrastination, and family obligations. Based on the findings revealed in the study, recommendations were provided for administrators, counselors, and educators.
In loving memory of my grandmother, Fadwa Maalouf

This dissertation is dedicated to my amazing parents, Alice and John Maalouf.
ACKNOWLEDGMENTS

I would like to extend thanks to several individuals in my professional and personal life who helped make this accomplishment possible. First and foremost, Dr. Danica G. Hays, my dissertation chair, who provided exceptional coaching and editing throughout the completion of this dissertation. I would like to thank committee members, Dr. Judy McMillan and Dr. Alan “Woody” Schwitzer, for their outstanding guidance and support. My sincere appreciation goes to Dr. Theodore P. Remley Jr. who provided me with invaluable learning experiences and inspirational adventures throughout my journey at Old Dominion University.

Special thanks to Dr. Michael Summers for his continuous guidance and contributions to this study. I would like to acknowledge the counselors in the Counseling Office and staff in Enrollment Services on the Virginia Beach campus of Tidewater Community College for their assistance in the collection of surveys. I would to thank my colleagues at the college for their continuous words of encouragement, support, and friendship throughout the years.

My heartfelt appreciation goes out to my wonderful family and friends in Virginia Beach for their patience, love, and encouragement. I would like to thank my sister, Woody Maalouf Walker, for inspiring me to reach for the stars and for teaching me about VLookup, saving me countless hours of data entry. Finally, I would like to thank my parents, Alice and John Maalouf, for their undying support and unconditional love. They instilled in me a love of learning and sacrificed so my sister and I could have a life filled with vast opportunities; and for that I am eternally grateful. All that I am, I owe to them.
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Today, community colleges are the largest component of the higher education system in the United States, enrolling more than 6 million students and growing rapidly in challenging economic times (American Association of Community Colleges, 2011). Community colleges expand education opportunities by offering affordable tuition, open admissions, flexible course schedules, and convenient locations to a variety of diverse students with varying educational needs (American Association of Community Colleges, 2011; American Council on Education, 2003; National Center for Education Statistics, 2003). Community college students differ from four-year institutions as an open admissions philosophy for community colleges requires minimal academic achievements, resulting in a wide range of academic and social preparation among a diverse student population (American Association of Community Colleges, 2011; American Council on Education, 2003; National Center for Education Statistics, 2003). In addition, the educational goals of students may vary according to career advancement, transfer plans, need for degree completion, and personal interest (American Association of Community Colleges, 2011; American Council on Education, 2003; National Center for Education Statistics, 2003). Previous literature has documented that the majority of community college students are older adults, are employed, enroll on a part-time basis, need developmental education, or have lower socioeconomic status and receive financial aid (Andreu, 2002; Angelo, 1990; Bean & Metzner, 1985; Belcher & Patterson, 1990; Ford, Stahl, Walker, & Ford, 2008; Hiller, 2005; Keck, 2007; Mendolia-Perez, 2004;
Nationwide, community colleges are challenged to uphold their mission of an open admissions policy, accessibility to high-quality, comprehensive, affordable education, and enhancement of cultural diversity to meet the changing needs of a pluralistic, democratic society- while being held accountable for the academic success of the students (American Association of Community Colleges, 2011). Accrediting authorities, governing boards, and state legislatures regularly scrutinize institutions on performance indicators of students' academic success as demonstrated by retention and graduation rates (Nettles, 1995; Summers, 2000). Retention rates are defined by semester to semester enrollment with successful course completion as an indicator of retention; graduation rates are defined by the completion of certificates or degrees.

Research shows that community colleges experience the highest attrition rates among educational institutions including four-year colleges and universities; however, the traditional narrow measure of retention and graduation rates for first-time, full-time, and curriculum students fails to articulate the broader community college mission (American Council on Education, 2003; National Center for Education Statistics, 2003; Pascarella & Terenzini, 1991). Even though graduation and retention rates are critical performance indicators for educational institutions and policymakers, these measures do not provide a comprehensive portrait of the diverse students' experiences including the personal, academic, and economic realities of community college students (American Council on Education, 2003).
The varying educational needs of community college students hinder retention and graduation rates since graduation may not necessarily be a goal for the majority of community college students. Members of the community may attend the local community college to earn a certificate to enter the workforce, to upgrade their job or personal skills, to develop their basic academic skills, explore career and educational options, or transfer to a four-year institution (American Association of Community Colleges, 2011; American Council on Education, 2003; National Center for Education Statistics, 2003). Data from the 1996/2001 Beginning Postsecondary Students Longitudinal Study, the National Education Longitudinal Study of 1988, and the 1999-2000 National Postsecondary Student Aid Survey indicate that 36% of students earn a certificate or degree within the first six years after initial enrollment at a community college. Almost 31% of students transferred to another institution within six years, and 39% of beginning students earned a degree or certificate either at the initial two-year institution or at the institution in which they transferred. Finally, more than 17% were still enrolled six years later, resulting in an overall persistence rate of 56% (National Center of Education Statistics, 2003). The reasons provided for not completing a degree or certificate were found to be complex, “including poor academic preparation and a significant time commitment required to complete a credential, as well as other factors such as family responsibilities that increase the risk that students will not achieve their postsecondary education objectives” (p. 47). In other words, because community colleges serve students with varying educational goals and academic preparation, the performance measures of retention and graduation rates are not always an accurate assessment of students’ academic success (Mendolia-Perez, 2010; Perkins, 2002;
Summers, 2000; Zottos, 2005). Regardless, the amount of funding an institution receives is usually determined by these performance indicators. Therefore, retention and graduation rates are pertinent to community college administrators (American Association of Community Colleges, 2011; American Council on Education, 2003; National Center for Education Statistics, 2003).

The Virginia Community College System (consisting of all Virginia public community colleges), under the leadership of the Chancellor, and in conjunction with the Virginia State Board and college presidents, developed a 6-year strategic plan referred to as Achieve 2015, whereby five major priorities were identified. The five priorities of Achieve 2015 include access, affordability, student success, workforce, and resources. Two of the five priorities (access and student success) focus on meeting the needs of the community by ensuring accessibility and enhancing student success to support more residents in the pursuit of their educational and career goals. According to the Virginia Community College System (2011) strategic plan, access is defined as an “increase in the number of individuals who are educated and trained by Virginia’s Community Colleges by 50,000 to a total of 423,000, with emphasis on increasing the number from underserved populations by at least 25,000 individuals” (Access section, para. 1). Student success is defined as an “increase in the number of students graduating, transferring or completing a workforce credential by 50 percent, including increasing the success of students from underserved populations by 75 percent” (Student Success section, para. 1).

In line with the Virginia Community College (2011) strategic plan, Tidewater Community College’s (TCC) stated mission is to “provide collegiate education and training to adults of all ages and backgrounds, helping them achieve their individual goals
and contribute as citizens and workers to the vitality of an increasingly global community," (Tidewater Community College, 2011, “Mission Statement,” para. 1).

**Rationale**

The community college's mission to provide accessible education with an open door policy is met with the challenge of ensuring student success (e.g., course completion, GPA, semester to semester enrollment, and graduation). The open door policy of community colleges usually means that prospective students may apply and be admitted to the college without providing evidence of previous high school academic records, College Board examination scores, or proof of diploma. In efforts to serve all prospective students and to encourage admission to the college and enrollment in courses, most community colleges establish enrollment policies and procedures that permit students to register late. Late registration refers to registration after the first day of class until the census date, which is the last date to drop classes with a refund (American Association of Community Colleges, 2011; American Council on Education, 2003; National Center for Education Statistics, 2003). For the purpose of this study, the terms enrollment and registration were used interchangeably.

Even though allowing late registration may increase student enrollment, it may also inadvertently hinder student success in the long run due to the effects of missed classes during the first couple weeks of school; thereby unintentionally decreasing retention rates and course completion (Belcher & Patterson, 1990; Ford et al., 2008; Hiller, 2005; Keck, 2007; Mendolia-Perez, 2004; Safer, 2009; Smith et al., 2002; Sova, 1986; Stein, 1984; Summers, 2000; Summers, 2003; and Weiss, 1999, 2000). Previous studies on late registration found that students who register late tend to be
demographically different than those who register on time. Findings suggest that students who register late tend to be older (non-traditional), males, non-curricular, enrolled on a part-time basis (Belcher & Patterson, 1990; Hiller, 2005; Perkins, Safer, 2009; Summer, 2000; Weiss, 2000; Zottos, 2005) and students of color (Belcher & Patterson, 1990; Summers, 2000; Zottos, 2005). The effect of late registration on academic success has concerned counselors, faculty members, and administrators (Summers, 2000; Weiss, 1999; Zottos, 2005). Therefore, community colleges must find a balance between open access and quality education. In efforts to develop strategies and initiatives to meet the goals of accrediting agencies to improve retention rates, two-year institutions need to better understand the relationship between community college students, institutional enrollment policies, and academic success.

**Purpose of the Study**

Even though open enrollment policies, which allow late registration, are intended to remove barriers to enrollment, they may inadvertently negatively affect students’ academic success. According to the research, anywhere from 2% to 12% of community college students register late after the first day of classes (Angelo, 1990; Belcher & Patterson, 1990). The impact of community colleges’ open admission policies and enrollment practices on student success have been examined by researchers (see Angelo, 1990; Belcher & Patterson, 1990; Keck, 2007; Mendolia-Perez, 2004; Perkins, 2002; Peterson, 1986; Smith et al., 2002; Sova, 1986; Stein, 1984; Summers, 2000; Weiss, 1999, 2000; Zottos, 2005). The results of these studies are mixed concerning its effect on academic success and retention of students. Some studies indicate that late registration can be detrimental to student success resulting in lower grade point averages (GPA),
higher withdrawal rates, and lower retention rates (see Belcher & Patterson, 1990; Ford et al., 2008; Hiller, 2005; Keck, 2007; Mendolia-Perez, 2004; Neighbors, 1996; Safer, 2009; Smith et al., 2002; Sova, 1986; Stein, 1984; Summers, 2000; Summers, 2003; Weiss, 1999, 2000). Others provide contradictory evidence, indicating no significant differences in the academic outcomes of regular and late registrants (see Angelo, 1990; Hillier, 2005; Perkins, 2002; Peterson, 1986; Zottos, 2005). Therefore, the question whether late registration has a negative impact on students' academic performance and retention remains undetermined. This study assessed the impact of late registration on the academic outcome (measured by course grade) and retention (measured by enrollment in the subsequent semester) of community college students. Moreover, there is limited research on the possible reasons why students enroll late and on intervention strategies to counteract the potentially negative effects of late registration. In response, the present study examined the possible reasons why students enrolled late in classes and provided retention strategies and initiatives to reduce the negative impact of late enrollment.

The overall purpose of the study was to broaden the understanding of the implications of late registration policy on community college students and to contribute to the current literature on retention strategies using a sample from the Virginia Community College System. Knowledge of the impact of registration behaviors on academic success could be utilized by college officials and personnel to increase retention and graduation rates in community colleges by providing services specifically for students who enroll late. Based on the recommendations for future research suggested in various research studies, this study explored the demographics of late registrants, the impact of registration behaviors on academic outcome and retention, in addition to the
possible reasons for late registration. In summary, the three purposes of the present study were to (1) investigate if there were statistical relationships between the demographics of community college students, registration behaviors, academic outcome, and retention over a two-year period, fall 2009 – spring 2011; (2) identify possible reasons why students register late; and (3) suggest retention strategies and initiatives to reduce the negative impact of late enrollment.

Research Questions and Hypotheses

After reviewing the literature on research studies which examined the relationship between late registration and academic success (Angelo, 1990; Belcher & Patterson, 1990; Ford, et al., 2008; Hiller, 2005; Keck, 2007; Mendolia-Perez, 2004; Neighbors, 1996; Perkins, 2002; Peterson, 1986; Safer, 2009; Smith et al., 2002; Sova, 1986; Stein, 1984; Summers, 2000; Weiss, 1999, 2000; Zottos, 2005), the four following research questions and subsequent five hypotheses were formulated:

1. What is the college-wide proportion of students who register late for classes at a multi-campus community college?
   
   H1: There will be a college-wide proportion of students who register late for classes.

2. Are there demographic differences (age, gender, ethnicity/race, and academic intent) between students who register on time and those who register late?
   
   H2: There will be significant relationships between student demographics and registration type. Specifically, older non-traditional students, males, students of color, and non-curricular students will be more likely to enroll late.
3. Are there differences in the academic outcome (i.e., course grade) and retention rate (i.e., enrollment in subsequent semester) between students who register on time and students who register late?

H3: There will be a significant difference between the course grade of students who register on time and those who register late (i.e., late registrants will have a lower course grade).

H4: There will be a significant difference between the retention rate of students who register on time and those who register late (i.e., late registrants are significantly less likely to be retained for the subsequent semester).

4. What are the common reasons community college students register late?

H5: There will be variability in the responses of why community college students register late.

**Definition of Variables**

**Academic Intent:** The academic intent of the students was derived from the student information system (SIS) as declared by students in the beginning of the selected semester of enrollment for fall and spring semesters of the academic years of 2009-2010 and 2010-2011. Students that indicated they planned to complete college-transfer degrees or career-technical programs, including certificates and associate degrees, were categorized as curricular. Undeclared students who stated they were interested in career exploration, upgrading job skills, transferring without a degree, or are undecided about their educational goals were categorized as non-curricular. For the purpose of the study,
academic intent was treated as a dichotomous variable and coded as: Non-Curricular=0; Curricular=1.

**Age:** The age of the students was calculated as the difference of the year of the date of birth from the specific year of the selected semester of enrollment for fall and spring semesters of the academic years of 2009-2010 and 2010-2011. The date of birth was derived from SIS as provided by students on the admission application. Traditional aged students are often defined as 24 years of age and younger; while non-traditional aged students are defined as over 24 years of age (Bean & Metzner, 1985; Sorey, 2006; Weiss, 2000). For the purpose of this study, age was treated as a dichotomous variable and coded as: Non-Traditional=0; Traditional=1.

**Course Grade:** Course grade of the students was derived from SIS during the selected semester of enrollment for fall and spring semesters of the academic years of 2009-2010 and 2010-2011. Course grade for students was determined by calculating the course grade based on the 4.0 grade point system where A=4.0; B=3.0; C=2.0; D=1.0; and F=0.0. Withdrawal (W) and incompletion (I) grades were also coded as 0 since the student did not receive a grade for the course upon withdrawal or incompletion. Students may have received an I grade if they were unable to complete the course due to mitigating circumstances, with supporting documentation and permission from the faculty member. Students may have received a W grade due to withdrawing from the course prior to the completion of 60% of the course. After the withdrawal deadline, students may have received an F grade for non-attendance or unsuccessful completion. For the purpose of the study, course grade was treated as a continuous variable ranging from the lowest being 0.0 to the highest being 4.0.
Ethnicity/Race: The ethnicity/race of the students was derived from SIS as provided by students on the admission application. Applicants were provided with the following ethnicity/race choices: White/Caucasian, African American, Asian American, Latino/Hispanic, Native American, and other minorities. In academic year 2009-2010, approximately 86% of students at TCC indicated they were either White/Caucasian or African American, leaving a small percentage of students indicating other ethnicities/races (Tidewater Community College, 2011, “Quick Facts”, para. 2). For the purpose of the study, ethnicity/race was treated as a dichotomous variable and was coded as: White/Caucasian Students=0; Students of Color=1.

Gender: The gender of the students was derived from SIS as provided by students on the admission application. For the purpose of this study, gender was treated as a dichotomous variable and was coded as: Female=0; Male=1.

Registration Type/Behavior: Registration type or behavior of the students was derived from SIS during the selected semester of enrollment for fall and spring semesters of the academic years of 2009-2010 and 2010-2011. Regular registration was defined as the registration or enrollment of a 16-week course, prior to the first day of class. Late registration was defined as the registration or enrollment of 16-week course, on or after the first day of class. For the purpose of the study, registration type/behavior was treated as a dichotomous variable and was coded: Regular=0; Late=1.

Retention: Retention was derived from SIS for the subsequent semester following the selected semester of enrollment for fall and spring semesters of the academic years of 2009-2010 and 2010-2011. Retention was defined as enrollment in the subsequent full semester (fall to spring and spring to fall). The lists of all enrolled students for fall 2009,
spring 2010, fall 2010, spring 2011, and fall 2011 were provided. Retention rates were calculated for each student by cross referencing enrollment in the subsequent semester using the VLookup function in Excel. For the purpose of the study, retention was treated as a dichotomous variable and was coded: Not Retained=0; Retained=1.

Table 1

*Codes for Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Intent</td>
<td>0 = Non-Curricular</td>
</tr>
<tr>
<td></td>
<td>1 = Curricular</td>
</tr>
<tr>
<td>Age</td>
<td>0 = Non-Traditional</td>
</tr>
<tr>
<td></td>
<td>1 = Traditional</td>
</tr>
<tr>
<td>Course Grade</td>
<td>0 = F, I (Incomplete) or W (Withdrawal)</td>
</tr>
<tr>
<td></td>
<td>1 = D</td>
</tr>
<tr>
<td></td>
<td>2 = C</td>
</tr>
<tr>
<td></td>
<td>3 = B</td>
</tr>
<tr>
<td></td>
<td>4 = A</td>
</tr>
<tr>
<td>Ethnicity/Race</td>
<td>0 = White/Caucasian Students</td>
</tr>
<tr>
<td></td>
<td>1 = Students of Color</td>
</tr>
<tr>
<td>Gender</td>
<td>0 = Female</td>
</tr>
<tr>
<td></td>
<td>1 = Male</td>
</tr>
<tr>
<td>Registration Type/Behavior</td>
<td>0 = Regular</td>
</tr>
<tr>
<td></td>
<td>1 = Late</td>
</tr>
<tr>
<td>Retention</td>
<td>0 = Not Retained</td>
</tr>
<tr>
<td></td>
<td>1 = Retained</td>
</tr>
<tr>
<td>Semester</td>
<td>1 = Fall 2009</td>
</tr>
<tr>
<td></td>
<td>2 = Spring 2010</td>
</tr>
<tr>
<td></td>
<td>3 = Fall 2010</td>
</tr>
<tr>
<td></td>
<td>4 = Spring 2011</td>
</tr>
<tr>
<td>Campus</td>
<td>1 = Chesapeake</td>
</tr>
<tr>
<td></td>
<td>2 = Norfolk</td>
</tr>
<tr>
<td></td>
<td>3 = Portsmouth</td>
</tr>
<tr>
<td></td>
<td>4 = Virginia Beach</td>
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Delimitations of the Study

The study was conducted in a large multi-campus community college with four distinct campuses and diverse student population. Tidewater Community College was representative of other public non-resident two-year institutions. Since the sample size was large and randomized, the findings of the study are more likely to be generalized to other community colleges supporting external validity.

The dissertation study examined the demographics of late registrants, the impact of registration behaviors on academic outcome and retention using archived secondary data. In addition, a questionnaire was submitted to late registrants to gather information about reasons for late registration. The study did not explore the individual attributes of students related to the late enrollment such as personality disposition, orientation, interests, attitudes, academic potential, expectations, intention, family background, motivation, time management, conscientiousness, procrastination, academic preparation, high school experience and GPA, attendance, and social integration. However, it did examine the demographics of students who enroll late, including age, gender, ethnicity/race, credit load, and primary academic intent. The study compared the demographics, academic outcome, and retention rates of student who enrolled late to those who enrolled on time. For the purpose of the study, retention rates were defined by enrollment in the following subsequent semester, not as persistence rates which measure long term persistence or graduation.
CHAPTER II
LITERATURE REVIEW

The literature and research reviewed in this chapter is presented in four sections. The chapter begins with an introduction restating the emphasis and purpose of the study. The second section reviews the literature on several theoretical models of student retention and academic success. The third section reviews prior research which explores the impact of late registration on academic success, followed by a brief summary. Finally, the contributions of the study are presented.

Introduction

Community colleges are the largest component of the higher education system in the United States, enrolling more than six million students, and growing rapidly in today’s challenging economic times. Nationwide, community colleges remain challenged with upholding their mission of open accessibility to high quality, affordable education and enhancing cultural diversity to meet the changing needs of a pluralistic, democratic society- while being held accountable for the academic success of students. With new efforts to develop strategies and initiatives to improve retention rates, two-year institutions need to better understand the relationship between underprepared students, institutional process, and academic success.

Theoretical Models of Student Retention

An extensive review of the literature regarding student retention and academic success for higher education institutions revealed several major theoretical models. These include Spady (1970), Tinto (1975), Bean and Metzner (1985), and Astin (1993), with Tinto’s model cited as the foundational framework for the other theories on retention.
Spady's (1970) Sociological Model

Spady (1970) was the first to develop a theoretical model explaining the process of student dropout from higher education. He postulated that students less socially and intellectually integrated into their higher education system will be more likely to withdraw. His theoretical model used an interdisciplinary approach consisting of an interaction between the student and the environment of the higher education institution. Spady suggested that the level of congruency between the individual students' attributes (personality disposition, orientation, interests, attitudes, skills, goals, and academic potential), in addition to their family and cultural background, and the various subsystems of the college environment (influences, expectations, and demands imposed by the courses, faculty members, administrators, and peers) impacts the dropout process.

The interaction between the individual student and the particular college environment may either facilitate or impede the student's assimilation into both the academic and social systems of the college. Within the academic system, Spady (1970) regarded grades as extrinsic rewards and tangible resources, while intellectual development represents intrinsic rewards. Within the social system, normative congruence, or the compatibility of the student's attitudes, goals, personality dispositions, and interests with that of the environment, is an important factor. Friendship support, or the establishment of close relationships with others in the social system, is the second pertinent condition for successful social integration. Spady (1970) suggested that both the academic and social systems in the education institution are the main components in the
framework of student retention. He concluded that when students perceive the rewards available within either system as insufficient, they may decide to withdraw or dropout from college prematurely.

**Tinto’s (1975) Integration Model**

Building on the work of Spady (1970), Tinto (1975) emphasized the impact of social and academic integration on attrition rates of college students. He suggested in his longitudinal model that both the students’ background characteristics and their level of motivation and educational expectations are directly or indirectly related to persistence. The students’ initial commitments and expectations may be shaped by the students’ individual attributes and characteristics, family background, and past educational experiences. The students’ decision to dropout is based on commitments to both their academic goals and to the higher education institution attended. In brief, Tinto (1975) argued that the process and forms of dropout from college can be viewed as the cumulative interaction over time between the individual students and the academic and social systems of the college during which a person’s experiences and level of normative and structural integration in those systems continually modifies their goals and institutional commitments. Basically, Tinto (1975) posited that to be persistent in achieving their educational goals, students need to connect and integrate both socially and academically with the higher education institution.

**Bean and Metzner’s (1985) Non-Traditional Student Model**

Bean and Metzner (1985) developed the next major model relating to student attrition, in response to the limitations of previous theoretical contributors (e.g., Spady, 1970; Tinto, 1975), which relied on the socialization of traditional students attending
residential institutions. Bean and Metzner's (1985) model specifically applied to non-traditional students attending commuter institutions, such as community colleges. Bean and Metzner defined non-traditional students as being over the age of 24, commuters not living on campus, and/or attending on a part-time basis. Non-traditional students do not have the same opportunities or need for social integration as their traditional counterparts, because they do not live on campus and tend to attend part-time. Therefore, they tend to be more influenced by the external environment and by the academic system and offerings of the higher education institution than by the social system (Bean & Metzner, 1985).

Bean and Metzner's (1985) conceptual model indicated that the dropout process for non-traditional students was primarily based on four sets of variables. The first major factor related to academic performance and was measured by GPA. High school GPA was found to have a direct impact on collegiate academic performance, and students with poor academic performance were more likely to drop out at higher rates than students who performed well. The second variable predictive of drop out was intent to leave, which was primarily influenced by both academic variables and psychological factors. Academic variables included study skills and habits, academic advising, absenteeism, major certainty, and course availability. Psychological factors consisted of perceived value of education, satisfaction with institution, goal commitment, and stress. Third, background and defining variables such as age, registration behavior, residence, educational goals, high school academic performance, ethnicity, gender, and parents' education were expected to affect attrition in indirect ways and through mediating variables. Lastly, external environmental variables consisting of finances, hours of
employment, outside encouragement, family responsibilities, and opportunity to transfer, were expected to have a direct effect on dropout decisions.

Bean and Metzner (1985) acknowledged two compensatory effects of their model that influenced the dropout process. The first interaction was between academic outcomes and environmental variables. They predicted that students were more likely to persist when their academic and environmental experiences were both positive. Theorizing that environmental factors have a greater influence on attrition than academic variables, Bean and Metzner (1985) proposed that students with negative environmental support have a greater likelihood to dropout even if they are succeeding academically. On the other hand, students with high environmental variables were more likely to persist even though they may be struggling academically. The second compensatory interaction found in the model related to academic outcomes and psychological outcomes. Bean and Metzner (1985) purported that high levels of psychological outcomes may have compensated for lower GPA. Consequently, high academic outcomes may have not made up for lower psychological outcomes including utility, goal commitment, or satisfaction which resulted in a higher likelihood of attrition.

Astin’s (1993) Input-Environment-Outcomes Model

Astin’s (1993) Input-Environment-Outcomes (I-E-O) retention model of assessment allows researchers to identify the influence of different environmental variables on outcome variables, while taking into account and adjusting for differences in student input. According to Astin (1993), input is comprised of the personal characteristics and academic qualities that students bring from their backgrounds as they enter the educational institution. Environment involves the actual experiences students
encounter as part of the academic program; including variables such as time of
registration and credit load. Involvement in the academic environment and interactions
with peers and faculty are theorized to have a positive impact on students' academic and
personal development, in addition to their decision and willingness to persist in college.
Output refers to the knowledge, skills, and abilities that students acquired as part of the
educational experience which may be measured by semester GPAs, successful
completion rates, and withdrawal rates.

Astin's (1993) I-E-O assessment model allows consideration of the interactions
and takes into account differences in the student input in relation to the outcomes. He
postulates that the student's personal characteristics and academic qualities (input) affects
interactions with actual college experiences (environment), resulting in either academic
success or failure (outcomes). The model can be utilized to evaluate and measure how
students are affected by their college experiences and may be useful in assessing the
effects of educational policies and practices on student retention.

Defining Characteristics of Theoretical Models of Retention

The theoretical models that have been reviewed were developed to examine and
explain student academic outcomes and retention in higher education institutions. Earlier
models (Spady, 1970; Tinto, 1975) emphasized the importance of social and academic
integration on traditional students attending four-year residential institutions. More recent
theoretical models (e.g., Bean & Metzner, 1985) have focused on the non-traditional
students such as those attending community colleges which may not have the opportunity
to become socially integrated. Factors contributing to the academic outcome and
retention of non-traditional students consist of academic variables, psychological
outcomes, background, and external environment variables. Astin's (1993) I-E-O retention model of assessment can be used to evaluate how students' academic outcomes are impacted by different environmental variables and college experiences while taking into account the students' characteristics and academic qualities. The model is useful in assessing the effects of educational policies and procedures such as late enrollment on student success and retention.

**Studies on the Impact of Late Registration**

Several studies have demonstrated a negative impact regarding late registration on academic success at two-year institutions (Mendolia-Perez, 2004; Smith et al., 2002; Sova, 1986; Stein, 1984; Weiss, 2000) and at universities (Ford et al., 2008; Safer, 2009). Stein (1984) assessed the quarter term GPA and attrition rates of new students who registered for classes on time, from three days prior to the start of the quarter term, and those who registered late, eight days after the term started, at Minneapolis Community College. The study was conducted to explore if the extra time and effort taken by staff and counselors to serve students who register late was justified in terms of student success and retention rates. Data were collected on these new students relating to the number of credits taken, GPA, and persistence to the next term as compared to the whole student population. The findings of the study showed that of the 175 new late registrants, 25.1% either withdrew from class or received an F grade resulting in zero earned grade points, as compared to 21.4% of the total student body who earned zero grade points. The results of the study also indicated that only 23.4% of the late registrants enrolled in classes for the following subsequent quarter term, compared to the average retention rate of 60.2% to 65.5% as recorded for the whole student body in previous studies conducted.
approximately 5 to 10 years earlier. Findings revealed that students who register late may be more likely to drop out or earn no grade points and may be less likely to enroll in the following term.

Weiss (2000) examined data regarding demographics and academic outcomes of 785 first time freshmen at a two-year regional campus of a large state metropolitan university using Tinto's (1975) model of attrition as the conceptual framework of the study. Student demographics included age, gender, ethnicity/race, credit load, and stated academic intent. Academic outcomes included retention rate for the following semester, end of semester GPA improvement, percentage of course completion, and registration behavior. The findings showed that students who registered after the first day of classes were more likely to be male, older, have a GED instead of a high school diploma, placed in lower developmental courses, enrolled on a part-time basis, and planned to stop their education after completing an Associate's degree. Furthermore, late registrants may have attributes considered to be high risk such as having lower high school GPAs and being first generation college students. The data also indicated that late registrants had lower cumulative GPAs and were less likely to be retained for the upcoming semester with 36.9% of the group failing to enroll in the subsequent semester as compared to the 19.7% of regular registrants. Since late registrants tend to enroll in classes without much forethought or preparation, the findings implied that institutions with late registration policies may be doing a disservice to late registrants who may not be adequately prepared or motivated.

Researchers (Mendolia-Perez, 2004; Smith et al., 2002) have explored the effects of late registration using the conceptual framework of Astin’s (1993) I-E-O model.
Smith et al. (2002) investigated the effects of early, regular, and late registration time on student success and persistence in 251 new and returning community college students in the fall semester of 1998. Early registration took place over five days in April and May, regular registration occurred over three days in August, and late registration was scheduled over eight days in late August, early September. An estimated 37% of students enrolled early, 51% enrolled during regular registration time, and 12% registered late. The researchers used ANCOVA and chi-square tests to analyze secondary data of new and returning students over one semester measuring semester GPA, successful completion rate (measured by number of hours with grades of A, B, or C), withdrawal rate (measured by number of hours with W or withdrawal grade), and persistence (defined as re-enrollment in the following semester of spring 1999).

Significant differences were found between early/regular registrants and late registrants, suggesting a negative association between late registration and students' academic success and persistence. Specifically, late registrants were shown to be less likely to persist and be retained in the subsequent semester than both new and returning regular registrants as well as returning early registrants. For new students, 80% of regular and 35% of late registrants continued enrollment during the next semester. Of the returning students, 80% of early, 64% of regular and 42% of late registrants were retained for the following semester. Furthermore, withdrawal rates and semester GPA were also found to be significantly different for both new and returning students, with late registrants having a higher likelihood of withdrawal and lower GPAs. For new students, regular registrants withdrew from 10% of their course hours, while late registrants withdrew from 21% of their course hours. Returning students who registered early
withdrew from only 5% of their course hours with an average semester GPA of 3.48 while late registrants withdrew from 13% of their course hours with an average semester GPA of 2.69. Overall, findings indicated no significant differences between the early and regular group; while significant differences were found between the late group and the other two groups. Therefore, the study implies that late registration may have a detrimental impact on academic success and retention.

Based on these findings, Smith et al. (2002) provided five recommendations for community colleges to reduce the negative effects of late registration and provide incentives for students to register on time. First, college-wide efforts should be made to strongly encourage students to enroll during the regular and early registration periods. Second, easy accessibility for registration should be provided via Internet and touch-tone telephone. Third, students on academic probation should be discouraged from registering late and specific tutoring services should be available to assist them in the completion of their course work. Fourth, flexible payment of tuition should be allowed in efforts of reducing late registration due to difficulty in paying tuition. Fifth, group counseling sessions should be required for late registrants.

Using the conceptual framework of Astin's (1993) I-E-O model, Mendolia-Perez (2004) explored the impact and patterns of registration time on academic success and retention of 975 new, first-time community college students at Palo Alto College over a 2-year period. A causal-comparative research design was applied to analyze the data using descriptive statistics, ANCOVA and chi square tests. Time of registration was found to have a significant effect on students' academic success including semester GPAs, successful completion rates, and withdrawal rates; with early registrants having
the highest level of academic success. However, no significant differences were found between regular and late registrants. The retention rates for early registrants were significantly higher between the first and second year of college.

Some researchers have examined the influence of late registration on academic achievement in a specific course or set of courses (see Ford et al., 2008; Safer, 2009; Sova, 1986). Sova (1986) investigated whether late registrants are at a greater risk of withdrawing or failing as compared to regular registrants in non-credit developmental writing courses (ENG 090) and Freshmen English Composition courses (ENG 110) at Broome Community College. Results indicated that out of the 234 students who registered late, 50.43% passed the courses, 26.92% failed, 19.23% withdrew, and 3.42% received an incomplete grade in the courses. On the other hand, out of the 1439 students who registered on time for ENG 090 or ENG 110, 81.10% passed the courses, 1.88% failed, 15.98% withdrew, and 1.04% received an incomplete grade in the courses. The findings indicated that late registrants were more likely to receive a failing grade than withdraw from the class in comparison to the regular registrants. Sova (1986) explained that since there are many variables that affect academic success and retention, the findings should not be interpreted to mean that late registration causes academic failure. Some of the provided explanations for the difference in academic outcomes are that regular registrants may be better planners who look ahead and late registrants may be less likely to receive assistance in the enrollment process. Sova (1986) recommended orientation sessions, special assistance, required advising sessions, and designated counselors for late registrants.
Ford et al. (2008) examined the relationship of registration date to students' course performance in five undergraduate psychology classes at Stephen F. Austin State University. The study was based on the lines of research which demonstrated that conscientiousness and non-procrastination were predictors of academic achievement including course success and GPA. The authors hypothesized that conscientiousness and non-procrastination were behavioral indicators of registering early; hence, students who register early are more likely to perform better than those students who register late. Correlational results indicated a significant inverse relationship between late registration and course performance in addition to semester GPA and students' overall GPA. Furthermore, a linear multiple regression analysis using psychology class, time of registration, and student classification showed that time of registration was the only significant predictor of students' course grades.

The authors provide possible explanations for the relationship between registration behaviors and academic success. They suggest that higher-performing students are more likely to register early for classes; thereby having higher GPA. Moreover, students exhibiting the personality characteristics of conscientiousness, initiative, and avoidance of procrastination have a higher likelihood of early registration, class attendance, and academic achievement. Other explanations for the lower academic success of late registrants relate to the classroom and the faculty/student relationship. Late registrants are less likely to have their choice of instructors or courses; in addition, classes taught by faculty perceived as more effective usually fill up first during registration. Students who register late are less likely to form relationships with the
instructors or the advisors and tend to not take the advising and registration process seriously (Ford et al., 2008).

Safer (2009) studied the influence of late registration on students' course grades and withdrawal rates in different academic levels of mathematics courses over four semesters at California State University. The secondary data analysis showed that out of the 7,200 students in the sample, 812 registered late. Findings indicated that males and students at higher academic levels were more likely to register late, in addition, to students enrolling in smaller lecture sections. A linear regression analysis revealed that late registrants had a significantly lower GPA of -0.18 grade points in comparison to the class average. The withdrawal rate of late registrants was not statistically different than that of students who registered on time, with the exception of those enrolled in large lecture sessions.

Only one study examined the impact of late registration at both four-year institutions and community colleges (Neighbors, 1996). Neighbors (1996) conducted a comprehensive study to investigate the effects of time of registration on student success at three educational institutions, including North Texas Central College, Texas A & M University-Commerce, and Texas Christian University. Student success was measured by semester GPAs and withdrawal rates. The sample of 441 randomly selected students was grouped by time of registration (early, regular, and late) and type of institution (community college, public four-year institution, and private university). The practice of early registration provides currently enrolled students the opportunity to pre-enroll in subsequent semesters prior to regular registration. Late registration consists of enrollment in courses after the first day of class. A causal-comparative research design using
individual t-tests, stepwise regression, and ANOVA indicated that time of registration does have an impact on student success. Specifically, late registrants were less likely to be academically successful than early or regular registrants. Significant differences were found regarding the GPAs of early, regular, and late registrants; however, no significant differences were found for withdrawal rates. The students at the private institution had the highest completion rate of 82%, followed by the public university at 78%, and the community college students had the lowest completion rate of 72%.

Some researchers did not find significant differences regarding the academic success of late and regular registrants at community colleges (see Angelo, 1990; Hillier, 2005; Perkins, 2002; Peterson, 1986; Zottos, 2005). Peterson (1986) examined the completion rates and GPA of late applicants and late registrants at Honolulu Community College. Of the 144 original late applicants involved in the study, 99 enrolled in courses indicating that they may have also applied to other schools within the system. The 99 students who registered late completed 152 courses of out of the 214 attempted, implying that they tended to drop from one or two classes instead of completely dropping out of college. In addition, late registrants who took 3 to 9 credits had the highest rate of course completion. Analysis of the transcripts of late registrants who took over 12 credits showed that they were more likely receive an unsuccessful grade or drop out from at least one course. Furthermore, success rates rose when students enrolled in vocational courses instead of liberal art courses. All eight of the late registrants that dropped out of college completely were students enrolled in liberal art courses. Overall, the findings indicated that the acceptance of late applicants and late registrants appeared to be worthwhile for both the student and the two-year institution.
Angelo (1990) examined the relationship between late registration and student persistence and academic achievement of community college students at San Bernardino Valley College. Out of the estimated 38,900 initial registrations, 3,866 (10.06%) were late registrations. The randomly selected research sample consisted of 390 regular registrants and 387 late registrants. Late registrants were defined as students who enrolled after the first week of classes. The results of the study failed to support his hypothesis that late registrants would have lower completion rates and academic outcomes. For the students who registered on time, 51% were unsuccessful in completing their courses while 46% of students who registered late were unsuccessful. Moreover, the average GPA of regular registrants was 2.98 and that of late registrants was 2.97. No significant differences were found in either the completion rates or the academic performance of regular and late registrants.

Angelo (1990) provided a couple of explanations for the non-significant findings that did not support the research hypothesis. First, he suggested that due to the open door policy and diversity of the community college student population, simple linear relationships may not take into account the complex and diverse environment impacting academic success and student persistence. Second, he explained that the higher non-completion rate of timely registrants may be due to “academic window shopping” (p. 326) in which students may have less specific goals and may be applying a lower level of conviction and certainty to their course schedule.

Perkins (2002) investigated the relationship between time of registration on retention (enrollment in the following semester) and academic performance (semester GPA and course success rate) on new students attending a community college in Illinois.
Student characteristics including age, gender, ethnicity, enrollment status, and course placement recommendations were examined. Findings showed that late registrants tended to be men and students enrolled on a part-time basis. No significant differences were found in terms of ethnicity, age, or course placement recommendations. Furthermore, no significant relationships were found between late registration and semester GPA, course success rates, or retention rates. However, the three variables were found to be positively correlated with one another.

Hiller (2005) assessed the impact of late registration on college preparedness, academic performance, and retention of community college students in comparison to early registration. Demographics of late registrants included part-time credit load, male, older, and enrollment in more math and English developmental course work. Of the 8681 registration cases, 4% registered late for classes. The study did not indicate any significant differences between early and late registrants when it came to the level of college preparedness, as measured by English and math placement scores, and retention rates for the subsequent semester. Late registrants were found to have a mean GPA of 0.05 points less than the average of students who registered early. Academic performance was also found to be related to college preparedness, registration behavior, age, and gender; as well as indirectly to retention.

Zottos (2005) analyzed the relationships between background characteristics, registration behaviors, and academic outcomes of students in the nine campuses of the Los Angeles Community College District. The sample of 4,967 students was derived from the student population using results from a 47-item survey instrument and transcript information. The eight student characteristics examined were age, gender, ethnicity,
academic intent, sense of belonging, English as the native language, first generation, and
high school GPAs. Late registration was specifically defined as registration after the first
day of class for each course instead of the first day of the semester. Academic outcomes
were measured by GPAs and course completion.

Out of the eight student characteristics studied, Zottos (2005) found that on
average, males with lower high school GPAs were more likely to register late.
White/Caucasian students were less likely to register late, in addition to students with
average college grades of B and higher. Furthermore, older students, women, higher high
school GPAs, and strong sense of belonging were found to be more likely to have higher
rates of course completion. In relation to subsequent academic outcomes of students, no
significant difference was found between students who register late or on time.

A couple of studies have investigated reasons why students enroll late in classes
(see Belcher & Patterson, 1990; Keck, 2007; Weiss, 1999). Belcher and Patterson (1990)
studied students who registered late at Miami Dade Community College to determine the
number and background characteristics of the late registrants. In addition, the reasons for
registering late and the influence of the policy on late registration were examined. Out of
the 50,641 enrolled students, 12.4% were considered late registrants. The study found
that late registrants were not pursuing a degree, were more likely to be former students,
tended to attend on a part-time basis, and were Black non-Latino/Hispanic, male, and
older than the traditional high school graduates. According to the results of the survey
questionnaire which was administered to students standing in line to register or take a
basic skills test, 58% of the late registrants knew that classes had already started. The
frequently reported reasons for late registration included delayed decision making in
attending the community college (26%), procrastination (16%), recent arrival in town (17%), and financial reasons (10%). If faced with a late registration fee of $25, almost 75% of late registrants who were surveyed self-reported that they would be more likely to register early. If the registration deadline was prior to the first day of class, 80% stated that they would register prior to the deadline.

Weiss (1999) conducted semi-structured interviews with 17 advisors from a few different community colleges who regularly advise late registrants to examine the forces that may influence students who register late. Based on the findings of the interviews, advisors perceived that late registrants were generally less confident about being admitted and in their academic abilities to succeed in college, had a customer mentality relating their academic endeavors to other purchases made, were described as “nonchalant” or “lackadaisical” about the college transition, had lower communication skills and poor organizational skills, were less prepared and lacked motivation.

Keck (2007) investigated the relationship between late registration policies and student persistence at Kellog Community College. In addition to quantitatively exploring the relationship between late registration policies and student persistence using secondary data sources for 712 timely registrants and 712 late registrants, Keck used a mixed-research design with qualitative interviews to better understand how students experienced and perceived the phenomenon of late registration. The themes that surfaced from the interviews conducted with 10 students related to the reasons for late registration, the impact of late registration policies on the educational experiences, the relationship between late registration and completion of coursework, the relationship between subject
knowledge and academic performance, and factors contributing to decision on late registration.

Keck (2007) found that even though students who registered on time were more likely to achieve successful course completion, the majority of students who enrolled late in courses were also successful and were satisfied with their performance. The consequences of late registration identified by participating students were missing critical information presented on the first day of class, feeling rushed and unprepared for class, and the constant need to catch up to other students in the class. Students perceived several factors to be important contributors of their successful completion of the course including their individual background characteristics, personal strengths, academic abilities, and determination to complete the course, and interactions with the instructor. Students expressed their reluctance to enroll late into courses delivered online and in course subject areas such as math and science. Some of the reasons students stated as why they enrolled late were consequent of life circumstances, procrastination, financial aid process, transfer decisions, and lack of interest in pursuing an education. Students expressed the desire and need for academic advisors to take the time to become familiar with students' background and personal situation prior to determining if late registration is an appropriate option.

Research Design Characteristics

Before presenting a general summary of findings related to late registration and retention, the research design characteristics across existing studies will be presented. Andreu (2002) identified numerous variables to examine persistence in community colleges using research literature in relation to Tinto's (1975) and Bean and Metzner's
(1985) retention models. Some of these variables include age, gender, ethnicity, high school or general education diploma (GED), enrollment status, financial aid, the number of major changes, the number of advisor changes, the cumulative GPA, number of terms attended, number of remedial classes, and disability status. Andreu (2002) recommended the use of these variables to study retention since they are commonly retrievable from the college database and are associated with college performance, persistence, and degree completion. The majority of the studies reviewed explored these recommended student characteristics (i.e., Belcher & Patterson, 1990; Hiller, 2005; Neighbors, 1996; Smith et al., 2002; Weiss, 2000; Zottos, 2005).

The majority of the studies on late registrants were quantitative non-experimental designs, using computerized existing secondary data and multiple regression analysis to examine the relationship between student characteristics and academic outcome by comparing students who register late with students who register prior to the first day of class. The studies using secondary data analysis to examine the time of registration, student characteristics, and academic outcomes extracted required data from the institutions’ computerized student record system (see Belcher & Patterson, 1990; Ford et al., 2008; Hiller, 2005; Neighbors, 1996; Safer, 2009; Smith et al., 2002; Weiss, 2000; Zottos, 2005). Independent variables were the time of registration, while the dependent variables included course grade, course completion, and semester GPA (Angelo, 1990; Hiller, 2005; Keck, 2007; Mendolia-Perez, 2004; Neighbors, 1996; Perkins, 2002; Peterson, 1986; Safer, 2009; Smith et al., 2002; Sova, 1986; Stein, 1984; Weiss, 2000; Zottos, 2005). Weiss (1999) used qualitative semi-structured interviews to investigate advisors' perspectives on characteristics and attributes of late registrants, Keck (2007)
used interviews to better understand how students experienced and perceived the phenomenon of late registration; while Belcher and Patterson (1990) surveyed late registrants using a questionnaire to better understand the reasons for late registration.

The majority of the studies examining the patterns of late registration were conducted in a single two-year community college (Angelo, 1990; Hiller, 2005; Keck, 2007; Mendolia-Perez, 2004; Perkins, 2002; Peterson, 1986; Smith et al., 2002; Sova, 1986; Stein, 1984); except for the study conducted by Zottos (2005) which used data from more than one community college. A few of the studies were conducted at four-year institutions (Ford et al., 2008; Safer, 2009; Weiss, 2000) and Neighbors (1996) administered her study at a community college, private university, and four-year public institution. The studies varied in the types of students which were examined; some used new, incoming freshmen (Mendolia-Perez, 2004; Stein, 1984; Weiss, 2000) while others used both new and returning students to investigate the differences between early, regular and late registration (Hiller, 2005; Smith et al., 2002).

**Summary of Major Findings**

Data analysis of student records for late registrants identified common characteristics such as gender, age, number of credits, motivational level, goals, and commitment; in addition, to subsequent lower academic outcomes and course completion (Ford et al., 2008; Safer, 2009; Smith et al., 2002; Weiss, 2000). Furthermore, academic performance has been suggested to be related to certain personality variables such as conscientiousness and non-procrastination (Ford et al., 2008). Limited quantitative and qualitative studies have been conducted to determine if lower academic success is attributed to other variables such as ethnicity, number of credits enrolled, major of study,
level of motivation rather than late registration (Ford et al., 2008; Safer, 2009; Smith et al., 2002; Weiss, 2000).

Several studies have found that time of registration has a significant impact on students’ academic success, with late registrants having lower GPA (Ford, et al., 2008; Mendolia-Perez, 2004; Neighbors, 1996; Safer, 2009; Smith et al., 2002; Sova, 1986; Stein, 1984; Weiss, 2000), lower completion rates (Mendolia-Perez, 2004; Smith et al., 2002; Sova, 1986; Stein, 1984; Weiss, 2000) and lower retention rates (Mendolia-Perez, 2004; Smith et al., 2002; Stein, 1984; Weiss, 2000). Other studies have found that late registration has no significant effect on GPA (Angelo, 1990; Perkins, 2002; Zottos, 2005), course completion rates (Angelo, 1990; Perkins, 2002; Zottos, 2005), and retention rates (Perkins, 2002). Further, some findings remain mixed for the impact of time of registration on academic success (Hillier, 2005; Peterson, 1986)

**Contributions of Present Study**

The study was conducted in a large, diverse, non-residential, multi-campus community college with four distinct campuses. Secondary archival data were collected from the computerized SIS on students’ demographics including age, gender, ethnicity/race, credit load, and stated academic intent; students’ date of enrollment to identify late registrants; and subsequent academic outcomes such as course completion, semester GPA, and enrollment in the following semester. Furthermore, a questionnaire was administered to late registrants in the fall semester of 2011 to identify reasons for late registration.

The overall purpose of the study was to increase the understanding of students who enroll late, which may be generalized to other similar non-residential, public two-
year institutions. The findings may assist higher education administrators in addressing
the needs of late registrants developing programs to improve the student success of late
registrants, and support the modification of institutional policies and practices relating to
late enrollment.
CHAPTER III

METHODOLOGY

This chapter provides a description of the methodology and research design. Specifically, it presents an overview of the selected institution and participants, the data sources and research variables including the questionnaire. The formulated research questions and hypotheses are reviewed, in addition to the potential methods for the collection, management, and analysis of data. Furthermore, limitations with anticipated threats to internal and external validity are identified.

Method

The method was a non-experimental causal-comparative quantitative research design, which allowed the researcher to investigate the extent to which the independent variable (registration behavior) may have impacted the dependent variables (academic outcomes and retention rates). Causal-comparative research design was used to compare two groups based on categorical existing data (Leedy & Ormrod, 2005). The independent or construct variable was registration behavior (i.e., regular or late registration). Regular registration consisted of students who enrolled in courses before the first day of class for the 16-week regular semester. Late registration consisted of selected students who enrolled in courses on or after the first day of class for the 16-week regular semester. The dependent or criterion variables, measured to determine differences between the groups were academic outcome and retention. Academic outcome were measured by course GPA and retention rates were measured by enrollment in subsequent semester. Descriptive statistics were also used to compare the two independent samples (regular
registrants and late registrants) on student demographics and included age, gender, ethnicity/race, credit load, and their stated academic intent.

**Overview of Selected Institution**

Tidewater Community College (TCC), founded in 1968 as part of the Virginia Community College System, served the South Hampton Roads region with a population of approximately 1.6 million residents, at the time the study was completed. The large, public, multi-campus, two-year institution provided educational access to the residents of Southeast Virginia on four main campuses located in the cities of Chesapeake, Norfolk, Portsmouth, and Virginia Beach. TCC enrolled over 45,000 students in 2009-10 making it the largest provider of higher education in Hampton Roads, second largest undergraduate student body in the Commonwealth of Virginia, and 16th largest community college in the nation, at the time of the study (Tidewater Community College, 2011, “Quick Facts”, para. 1.) Furthermore, TCC had the largest African American enrollment in undergraduate education in Virginia and was the 7th largest associate degree producer in the United States for African American students in 2009-10.

At the time of the study, the researcher worked at the Virginia Beach campus, the largest of all four campuses, as the Coordinator of Support Services, overseeing the counseling office. As an administrator, the researcher had security access to data in the computerized SIS, including information provided on the admission application, placement test results, records and enrollment, financial aid, academic advising, course rosters, and grades. As part of the administrative duties, the researcher regularly collected and examined data on students enrolled at TCC to evaluate existing programs and procedures; and to assist in the development of new programs. The researcher received
written support from the Provost of the Virginia Beach campus, Dr. Michael Summers, to conduct the study in efforts to increase the understanding of late registrants at TCC (see Appendix A).

According to the Office of Institutional Effectiveness, during the 2009-10 academic years, 45,331 students were served by TCC (2011, “Quick Facts”, para. 2.). In fall 2009, 39.7% of students were registered on a full-time status of at least 12 credits, while 60.3% were registered on a part-time status of less than 12 credits. Forty-seven percent of students were enrolled in a college transfer program, 40% were enrolled in an occupational-technical program, and 13% were non-curricular. The average age of enrolled students was 27 years old, and 53% of the students were between the ages of 18-21 years old. Fifty-three percent of the student population indicated they were White/Caucasian, 33% African American, and 14% other minorities (Tidewater Community College, 2011, “Quick Facts”, para. 2). TCC is representative of other American community colleges with similar student demographics as described by the American Association of Community College (2011, Fact Sheet) and by the National Center for Education Statistics (2003).

Participants

There were two samples used in the study: archival and survey data. The participants used in the secondary data analysis for research questions one, two and three were selected from the college-wide population of new and returning students who registered in academic courses at TCC during the fall and spring semesters of academic years 2009-10 and 2010-11. The population consisted of community college students of various ages (non-traditional and traditional), academic intent (non-curricular and
curricular), as well as diversity in gender and ethnicity/race. Students enrolled in the English as a Second Language program, developmental courses, dual enrollment courses, apprenticeship programs, and condensed eight or 12-week classes, and/or dynamic sessions were eliminated from the study to limit confounding variables. In addition, online courses were not included in the study since they tended to have lower attrition rates than the traditional courses. All other students were considered eligible as participants in the study. Each course, in which the students were enrolled, was measured independently from one another. For example, if a student received an A grade in one course and a C grade in another, the grades were not averaged but treated as independent measures.

The sample was formed of two groups of courses for each semester based on registration type, as identified using the institution’s computerized SIS. The first group consisted of all eligible courses in which the student enrolled during late registration, on or after the first day of class. To this end, all participants who could be described as late registrants and met other selected criteria were included in the first group. The second group consisted of randomly selected courses in which the student enrolled during regular registration, prior to the first day of class. The second group was randomly computer-generated by SPSS for each campus and each semester from the eligible college-wide student population of regular registrants. The two groups were approximately equal in size to effectively compare and measure the significant differences. The sample size for the second group was based on the overall sample size and proportionate sample size by campus; participants were randomly selected to maximize random error.
The second sample used for research question four consisted of students who registered late for the fall semester of 2011. The sample was drawn from those who registered in person at the enrollment services window on the Virginia Beach campus. They were administered the questionnaire when they submitted their enrollment worksheet. All students who initially registered after the first day of classes were required to submit an enrollment worksheet to the enrollment services office. They were not able to enroll using SIS. Therefore, the sample of students captured students who were registering late for any course offered college-wide in the fall semester. This sample differed from the first sample since it included students who may have enrolled in English as a Second Language program, developmental courses, online courses, and condensed eight or 12-week classes, and/or dynamic sessions.

Data Sources

There were two data sources for the study, one corresponding with each sample type. The source for the archived data sample was the computerized SIS database, and the source for the survey sample consisted of the responses to the questionnaire administered to students who registered late at the enrollment services window on the Virginia Beach campus. The computerized SIS database was developed by PeopleSoft, Inc., which is a company that primarily provided enterprise application software using Oracle.

Student Information System (SIS) Database

The SIS database used by TCC included data relating to information provided on the admission application, placement test results, records and enrollment, financial aid, academic advising, course rosters, and grades. For the purpose of the study, data extracted from the database would have either been generated by students on their
admission application (age, gender, ethnicity/race, and stated academic intent), by faculty members (course grade) or by the enrollment/registration process (registration behavior and retention rates).

The independent variable of students’ registration behavior was derived from SIS during the selected semester of enrollment for fall and spring semesters of the academic years of 2009-2010 and 2010-2011. Regular registration was defined as the registration or enrollment of a 16-week course, prior to the first day of class and coded as “0”. Late registration was defined as the registration or enrollment of 16-week course, on or after the first day of class and coded as “1”.

The criterion variable of academic outcome was assessed for each semester and consisted of course grade which included both successful and unsuccessful course completion. Unsuccessful course completion consisted of courses in which students earned F grades or I (incompletion) or W (withdrawal) grades for college-credit courses. At TCC, students were allowed to drop courses through the third week of classes resulting in no course record on their transcript. From the fourth till the tenth week, students received a W for the course if they withdrew from the course. After the tenth week, students received an F grade if they stopped attending the course. Course grade, inputted by faculty members, was recorded per semester as a continuous variable per course, with A=4.0, B=3.0, C=2.0, D=1.0 and F, I, or W=0.0.

The criterion variable of retention rate was defined by enrollment in the subsequent semester. Retention rate was measured by enrollment in the subsequent full semester (fall to spring and spring to fall) and was coded as “0” for not retained and “1” for retained.
The criterion variables of student demographics consisting of age, gender, ethnicity/race, and stated academic intent, were obtained from the admission application uploaded in the database. All students were required to submit a completed admission application prior to registration in courses; the application items assessed date of birth, gender, ethnicity/race, and academic intent. The age of the students was calculated as the difference of the year of the date of birth from the specific year of the selected semester of enrollment at TCC for fall and spring semesters of the academic years of 2009-2010 and 2010-2011. The date of birth was derived from SIS as provided by students on the admission application. Non-traditional aged students were defined as over 24 years of age and coded as “0”; while traditional aged students were defined as 24 years of age and younger and coded as “1”. Gender was simply categorized as either male or female as declared on the application and was coded as “0” for female and “1” for male.

Students were provided with the following ethnicity/race choices on the admission application: White/Caucasian, African American, Asian American, Latino/Hispanic, Native American, and other minorities. In academic year 2009-2010, approximately 86% of students at the TCC indicated they were either White/Caucasian or African American, leaving a small percentage of students indicating other ethnicities/races. Therefore, for the study, ethnicity/race was classified as either White/Caucasian students, coded as “0” or students of color, coded as “1”.

The stated academic intent of the students as declared on the admission application, in the beginning of the selected semester of enrollment for fall and spring semesters of the academic years of 2009-2010 and 2010-2011, was categorized as non-curricular or curricular. Students interested in career exploration, upgrading job skills, or
transferring without a degree were identified as non-curricular and coded as “0”. Students planning to complete college-transfer degrees or career-technical programs, including certificates and associate degrees, were identified as curricular and coded as “1”.

**Late Registration Questionnaire**

The secondary data analysis provided information to answer the research questions examining the relationships between community college students’ demographics, registration behaviors, subsequent academic outcomes, and retention rates. However, the existing secondary data could not provide information on why students register late for classes. To further understand the reasons why students register late for classes, the researcher surveyed late registrants in the fall semester of 2011 using a questionnaire developed for the study.

In efforts to identify the reasons for late registration, a brief questionnaire was administered to students who were in the process of registering late for classes during the first week of the semester in the fall semester of 2011. The questionnaire was adapted from Belcher and Patterson (1990; see Appendix B) and was revised according to the feedback of subject matter experts. The experts included the Provost of the TCC Virginia Beach campus, the Coordinator of Enrollment Services of the TCC Virginia Beach campus, Dean of Student Services for the TCC Chesapeake campus, two faculty members and four college counselors at the TCC Virginia Beach campus, a faculty member from the doctoral Counseling program at Old Dominion University, and the director of the dissertation committee. The experts were selected due to their knowledge of late enrollment trends in higher education, knowledge of community college students, competency in editing, and membership on the dissertation committee. The experts
provided feedback on the format, wording, and grouping for the final questionnaire administered to late registrants (see Appendix C). Permission to adapt the questionnaire was granted by Dr. Kaiser, the current Director of Institutional Research at Miami Dade College (see Appendix D). No psychometrics relating to the validity or reliability of the questionnaire was available to date. The short questionnaire consisted of several checklist items inquiring about the individual reasons for late registration such as “I’ve been waiting for my financial aid, the lines are shorter now, I just put things off until the very end, and I was planning to go away to school but couldn’t.”

The revised short questionnaire was administered to students completing the late registration process at the Enrollment Service Office on the Virginia Beach campus during the first week of the fall 2011 semester. College policy prohibited students from registering after the first day of classes using SIS. Therefore, late registrants were required to submit a completed enrollment worksheet to the Enrollment Services window to register late for classes. In efforts to capture as many participants as possible, all late registrants were asked to complete the questionnaire at the window during their enrollment process.

**Procedure**

Prior to the initial start of the research study, formal approval to collect data for the study was obtained from the Human Subjects Research Committee of Old Dominion University with a letter of support from the Provost of the Virginia Beach campus of Tidewater Community College (see Appendix A for letter of support from Provost). In addition, data were collected, handled, and stored in accordance to the Family Education Rights and Privacy Act of 1974. To ensure confidentiality, student names and
identification numbers were replaced with code numbers and all data were managed in a
secure manner.

The researcher request accessed to the existing student data from the Office of
Institutional Effectiveness, who provided data for all eligible college students who
enrolled in academic courses during the fall and spring semesters of academic years
2009-10 and 2010-11. The database identified students who enrolled during regular
registration and late registration for each semester. The database also provided all
required data for the study including academic outcomes and student demographics.
Identifying information was removed prior to data analysis to maximize confidentiality.

Furthermore, the researcher took reasonable steps to keep information private and
to ensure confidentiality regarding the responses to the questionnaire provided by late
registrants on the Virginia Beach campus. The questionnaire, along with the informed
consent document (see Appendix E for the informed consent document), were provided
to students at the Enrollment Services window when they submitted the enrollment
worksheet to register late for classes. Students had the option to complete the
questionnaire after reading the informed consent document. Once students complete the
questionnaire, they were asked to remove the attached informed consent document from
the questionnaire and place both items in a secured locked box to ensure confidentiality.
The researcher collected the informed consent documents and completed questionnaires
from the secured box at the end of each work day. The researcher removed any identifiers
from the information and stored the information in a locked filing cabinet prior to its
processing.
Research Questions and Hypotheses

Finally, data analysis was performed to examine the following research questions:

1. What is the college-wide proportion of students who register late for classes at a multi-campus community college?
   
   H1: There will be a college-wide proportion of students who register late for classes.

2. Are there demographic differences (age, gender, ethnicity/race, and academic intent) between students who register on time and those who register late?
   
   H2: There will be significant relationships between student demographics and registration type. Specifically, older non-traditional students, males, students of color, and non-curricular students will be more likely to enroll late.

3. Are there differences in the academic outcome (i.e., course grade) and retention rate (i.e., enrollment in subsequent semester) between students who register on time and students who register late?
   
   H3: There will be a significant difference between the course grade of students who register on time and those who register late (i.e., late registrants will have a lower course grade).
   
   H4: There will be a significant difference between the retention rate of students who register on time and those who register late (i.e., late registrants are significantly less likely to be retained for the subsequent semester).
4. What are the common reasons community college students register late?

H5: There will be variability in the responses of why community college students register late.

Data Analysis

The researcher, in collaboration with Dr. Michael Summers, Provost of the Virginia Beach campus, requested archived secondary data on students who enrolled late for the academic year of 2010-11 from the Office of Institutional Effectiveness. According to Royse, Thyer, Padgett, and Logan (2006), secondary data analysis may be hampered by limitations. The archival data may be outdated, unreliable, incomplete, or from an agency that is not similar. In addition, there may be limited access to the data and/or insufficient information about how the data was collected, which negatively affects validity and reliability. However, these limitations were minimized with the researcher’s prior experience and comprehensive knowledge of the institution and SIS. Furthermore, the researcher had direct access to the Office of Institutional Effectiveness and the Executive Staff members of TCC for consultation.

The initial review of the secondary data found inaccuracies in which the sample included students who enrolled late due to swapping of courses or had been re-enrolled after being dropped for financial reasons. The errors were reported to the Office of Institutional Effectiveness and a revised database was sent in which the researcher reviewed and found to consist of accurate data. To ensure confidentiality, the researcher deleted all identifying variables relating to the students including name, address, and phone numbers. The researcher then cleaned up the data by removing English as Second
Language courses, developmental courses, online and hybrid courses, and dynamic or 8-week courses.

In the following section, the statistical methods of analyses for each of the four research questions and related hypotheses are discussed.

Table 2

*Statistical Method of Analyses Used for Research Questions and Hypotheses*

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Hypotheses</th>
<th>Statistical Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What is the college-wide proportion of students who register late for classes at a multi-campus community college?</td>
<td>H1: There will be a college-wide proportion of students who register late for classes.</td>
<td>Descriptive Statistics</td>
</tr>
<tr>
<td>2. Are there demographic differences (age, gender, ethnicity/race, and academic intent) between students who register on time and those who register late?</td>
<td>H2: There will be significant relationships between student demographics and registration type. Specifically, older non-traditional students, males, students of color, and non-curricular students will be more likely to enroll late.</td>
<td>Chi-Square Tests</td>
</tr>
<tr>
<td>3. Are there differences in the academic outcome (i.e., course grade) and retention rate (i.e., enrollment in subsequent semester) between students who register on time and students who register late?</td>
<td>H3: There will be a significant difference between the course grade of students who register on time and those who register late (i.e., late registrants will have a lower course grade). H4: There will be a significant difference between the retention rate of students who register on time and those who register late (i.e., late registrants are significantly less likely to be retained for the subsequent semester).</td>
<td>MANOVA Independent t-tests</td>
</tr>
<tr>
<td>4. What are the common reasons community college students register late?</td>
<td>H5: There will be variability in the responses of why community college students register late.</td>
<td>Descriptive Statistics</td>
</tr>
</tbody>
</table>
As indicated in Table 2 which presents the analyses for each research question, descriptive analysis was applied to indicate registration behaviors of all students to identify students who registered during late registration for each of the selected fall and spring semester. Descriptive statistics were also used to describe the demographics of students who registered late including age, gender, ethnicity/race, and primary academic intent. Moreover, descriptive statistics were applied to the responses to the questionnaire to further understand the reasons why students register late. Specifically, descriptive statistics were applied to test hypotheses associated with Research Questions 1 and 4.

For Research Question 2, Chi-square tests, with an exact significance value each less than .05, were used to determine if there are differences in the demographics of students who enrolled on time and those who enrolled late. Chi-square tests were used to examine if there was a relationship or significant difference between categorical variables (Field, 2009). For the purpose of the study, the variables of student demographics, registration behaviors, and retention rates were coded into categorical variables with 2 levels (i.e. academic intent was coded “0” for curricular and “1” for non-curricular, age was coded as “0” for traditional and “1” for non-traditional, ethnicity/race was coded “0” for White/Caucasian students and “1” for students of color, gender was coded “0” for female and “1” for male, registration behaviors was coded as “0” for regular and “1” for late, retention rates was coded “0” for retained and “1” for non-retained).

According to Field (2009), chi-square tests rely on two important assumptions: “data must be independent with each person, item, or entity contributing to only one cell in the contingency table; and the expected frequencies should be greater than 5” (pp. 691-692). Furthermore, the data must be categorized according to a logical or empirical
basis. The study consists of measured variables that are independent of one another and mutually exclusive and have been logically classified into two levels. Chi-square allows the researcher to evaluate if the frequencies observed in the sample of late registrants differ significantly from the randomly selected sample derived from the student population of regular registrants. A limitation of chi-square tests is that “the sampling distribution of the test statistic has approximate chi-square distribution; therefore, the larger the sample is, the better this approximation becomes” (Field, 2009, p. 690). The study minimized the limitation since the sample size was large. However, proportionately small differences in cell frequencies can result in statistically significant associations between variables if the sample is large. To counteract the limitation, Field (2009) suggests that the researcher “closely look at row and column percentages to interpret any resulting effects” (p. 692).

For Research Question 3, a multivariate analysis of variance (MANOVA) was applied to Hypotheses 3 and 4 to measure if there was a significant difference between the academic outcome (H3) and retention rates (H4) of students who enrolled on time and those who registered late. Hypothesis 3, examined if there was a significant relationship between the semester course grades of students who registered on time and those who registered late. Semester course grades were measured as a continuous variable which ranged 5 data points from 4.0 GPA (“A” grade) to 0.0 GPA (“F”, “I” or “W” grade). A 1-way MANOVA was used to examine differences between two independent groups on the means of more than one dependent variable. MANOVA was used instead using multiple ANOVAs to reduce Type 1 error since more than one dependent variable was being examined. MANOVA takes into account the relationship between the dependent
variables and has a greater power than ANOVA to detect effects in which groups differ along a combination of dimensions or variables (Field, 2009). The assumptions for MANOVA are that the observations should be statistically independent, data should be randomly sampled from the population, homogeneity of covariance matrices exists, and that the dependent variables are normally distributed (Field, 2009).

Limitations

Existing secondary data were collected from SIS on students’ date of registration; academic outcome included semester course grade and retention included enrollment in the following semester; and student demographics included age, gender, ethnicity/race, credit load, and stated academic intent. As a current administrator at the college, the secondary data sources were accessible and easy to comprehend and use. Some limitations to using existing archival data are that the data may be outdated, unreliable, incomplete, or from an agency that is not similar. In addition, there may be limited access to the data and/or insufficient information about how the data was collected, which negatively affects validity and reliability. However, these limitations were minimized with the researcher’s prior experience and comprehensive knowledge of the institution and SIS; and the fact that the system was used across all campuses. Furthermore, the researcher had direct access to the Office of Institutional Effectiveness and the Provost of the Virginia Beach campus for consultation.

Since faculty members develop the lesson plans, course requirements, and assign the final grades for courses offered at the college, variance was present in the final course grades and completion rates of courses. In addition, course structure and evaluation may have changed each semester; however, the random assignment of students to the
comparative group should have controlled for the variance in grading, possible grade inflation, and change in structure; thereby enhancing internal validity.

The stated academic intent of students may not have been accurate due to students being required to be in an eligible curriculum to receive financial aid. Therefore, some students may have stated that they planned to complete a curricular degree when their true educational plans may have been to only complete a couple courses. In addition, prior research implies that background characteristics of late registrants may act as extraneous variables which impact their academic outcomes. These variables include poor time management, procrastination, lower levels of conscientiousness, financial difficulties, family and work responsibilities, and lack of initiative (Ford et al., 2008).
CHAPTER IV

RESULTS

The study consisted of four research questions and five hypotheses:

1. What is the college-wide proportion of students who register late for classes at a multi-campus community college?
   
   H1: There will be a college-wide proportion of students who register late for classes.

2. Are there demographic differences (age, gender, ethnicity/race, and academic intent) between students who register on time and those who register late?
   
   H2: There will be significant relationships between student demographics and registration type. Specifically, older non-traditional students, males, students of color, and non-curricular students will be more likely to enroll late.

3. Are there differences in the academic outcome (i.e., course grade) and retention rate (i.e., enrollment in subsequent semester) between students who register on time and students who register late?
   
   H3: There will be a significant difference between the course grade of students who register on time and those who register late (i.e., late registrants will have a lower course grade).
   
   H4: There will be a significant difference between the retention rate of students who register on time and those who register late (i.e., late registrants are significantly less likely to be retained for the subsequent semester).
4. What are the common reasons community college students register late?

H5: There will be variability in the responses of why community college students register late.

**Sample**

Table 3 presents the total population and sample for each semester and campus for the archival data relating to research questions one, two, and three.

**Table 3**

**Late and Regular Registrants**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Campus</th>
<th>Total Eligible Cases Per Registration Type</th>
<th>Percentage of Late Registrants</th>
<th>Randomly Selected Sample of Regular Registrants</th>
<th>Total Cases in Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Late</td>
<td>Regular</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2009</td>
<td>Chesapeake</td>
<td>504</td>
<td>5,318</td>
<td>9.4% = 9%</td>
<td>460</td>
</tr>
<tr>
<td></td>
<td>Norfolk</td>
<td>555</td>
<td>4,451</td>
<td>12.4% = 12%</td>
<td>518</td>
</tr>
<tr>
<td></td>
<td>Portsmouth</td>
<td>482</td>
<td>4,470</td>
<td>10.7% = 11%</td>
<td>479</td>
</tr>
<tr>
<td></td>
<td>Virginia Beach</td>
<td>1,279</td>
<td>13,070</td>
<td>9.7% = 10%</td>
<td>1,293</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>2,820</td>
<td>27,309</td>
<td>10.327%</td>
<td>2,750 5,570</td>
</tr>
<tr>
<td>Spring 2010</td>
<td>Chesapeake</td>
<td>516</td>
<td>5,442</td>
<td>9.4% = 9%</td>
<td>479</td>
</tr>
<tr>
<td></td>
<td>Norfolk</td>
<td>645</td>
<td>5,018</td>
<td>12.8% = 13%</td>
<td>642</td>
</tr>
<tr>
<td></td>
<td>Portsmouth</td>
<td>610</td>
<td>5,581</td>
<td>10.9% = 11%</td>
<td>610</td>
</tr>
<tr>
<td></td>
<td>Virginia Beach</td>
<td>1,216</td>
<td>13,680</td>
<td>8.8% = 9%</td>
<td>1,242</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>2,987</td>
<td>29,721</td>
<td>10.050%</td>
<td>2,973 5,960</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>Chesapeake</td>
<td>623</td>
<td>6,082</td>
<td>10.2% = 10%</td>
<td>591</td>
</tr>
<tr>
<td></td>
<td>Norfolk</td>
<td>643</td>
<td>5,144</td>
<td>12.5% = 13%</td>
<td>666</td>
</tr>
<tr>
<td></td>
<td>Portsmouth</td>
<td>619</td>
<td>6,552</td>
<td>9.4% = 9%</td>
<td>578</td>
</tr>
<tr>
<td></td>
<td>Virginia Beach</td>
<td>1,464</td>
<td>15,231</td>
<td>9.6% = 10%</td>
<td>1,487</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>3,349</td>
<td>33,009</td>
<td>10.145%</td>
<td>3,322 6,671</td>
</tr>
<tr>
<td>Spring 2011</td>
<td>Chesapeake</td>
<td>604</td>
<td>6,696</td>
<td>9.0% = 9%</td>
<td>590</td>
</tr>
<tr>
<td></td>
<td>Norfolk</td>
<td>687</td>
<td>5,785</td>
<td>11.8% = 12%</td>
<td>707</td>
</tr>
<tr>
<td></td>
<td>Portsmouth</td>
<td>634</td>
<td>7,147</td>
<td>8.8% = 9%</td>
<td>640</td>
</tr>
<tr>
<td></td>
<td>Virginia Beach</td>
<td>1,455</td>
<td>16,946</td>
<td>8.5% = 9%</td>
<td>1,534</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>3,380</td>
<td>36,574</td>
<td>9.241%</td>
<td>3,471 6,851</td>
</tr>
<tr>
<td>OVERALL</td>
<td></td>
<td>12,536</td>
<td>126,613</td>
<td>9.901%</td>
<td>12,516 25,052</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
As indicated in Table 3, out of the population of 139,149 eligible cases, the sample of 25,052 cases was formed by the two groups (late and regular) for each semester, based on the registration type. The first group consisted of all late enrolled courses totaling 12,536 cases. The second group, totaling 12,516, consisted of randomly selected courses in which the students enrolled during regular registration. The second group was randomly computer-generated by the IBM SPSS Statistics software for each campus and each semester from the eligible college-wide student population of regular registrants. The two groups were approximately equal in size to effectively compare and measure the significant differences. The sample size for the second group was based on the overall sample size and proportionate sample size by campus; participants were randomly selected to maximize random error. There were a total of 25,052 cases analyzed, with 12,516 as regular and 12,536 as late registrants. As indicated in Table 3, the fall semester of 2009 consisted of 5,570 cases, the spring semester of 2010 consisted of 5,960 cases, the fall semester of 2010 consisted of 6,671 cases, and the spring semester of 2011 consisted of 6,851 cases.

**Research Question One**

Research question one inquired about the college-wide proportion of students who registered late for classes at a multi-campus community college. Hypothesis one stated that there will be a college-wide proportion of students who register late for classes. As indicated in Table 3, out of the population of 139,149 eligible cases, approximately 9.9% of the courses were registered for by late registrants during the academic years of 2009-10 and 2010-11. During the fall semester of 2009, 10.3% of students enrolled late (Chesapeake 9%, Norfolk 12%, Portsmouth 11%, and Virginia Beach 10%). The spring
semester 2010 consisted of 10.1% of students registering late (Chesapeake 9%, Norfolk 13%, Portsmouth 11%, and Virginia Beach 9%). During the fall semester of 2010, 10.1% of students were late registrants (Chesapeake 10%, Norfolk 13%, Portsmouth 9%, and Virginia Beach 10%). The spring semester of 2011 had 9.2% of late registrants (Chesapeake 9%, Norfolk 12%, Portsmouth 9%, and Virginia Beach 9%). The campus which was found to have the greatest percentage of late registrants across the semesters was the Norfolk campus.

**Research Question Two**

Research question two asked if there were demographic differences (age, gender, ethnicity/race, and academic intent) between regular and late registrants. Hypothesis two stated there will be significant relationships between student demographics and registration type. Specifically, older non-traditional students, males, students of color, and non-curricular students will be more likely to enroll late. Table 4 presents the descriptive statistics of the demographic variables of age (non-traditional and traditional), gender (female and male), ethnicity/race (White/Caucasian students and students of color), and academic intent (non-curricular and curricular) for late and regular registrants. In the following section, the findings will be presented for each demographic variable as it relates to registration type using descriptive statistics and Pearson Chi-Square Tests. Since the sample size is considered quite large, significant Chi-Square tests are to be expected (Field, 2009); therefore, Cramer’s V was calculated to determine effect size and Goodman and Kruskal’s tau to measure how well each demographic variable predicted registration behavior. In addition, row, column and total percentages were examined during interpretation to assist in identifying the origin of any significant effects.
Table 4

**Demographic Variables in Relation to Registration Type**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Registration Type</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Regular</td>
<td>Late</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Traditional</td>
<td>4,707 (49%)</td>
<td>4,902 (51%)</td>
</tr>
<tr>
<td>Traditional</td>
<td>7,809 (50.6%)</td>
<td>7,634 (49.4%)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>7,132 (51.9%)</td>
<td>6,617 (48.1%)</td>
</tr>
<tr>
<td>Male</td>
<td>5,384 (47.6%)</td>
<td>5,918 (52.4%)</td>
</tr>
<tr>
<td>Ethnicity/Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>6,610 (55.2%)</td>
<td>5,355 (44.8%)</td>
</tr>
<tr>
<td>Students of Color</td>
<td>5,906 (45.1%)</td>
<td>7,181 (54.9%)</td>
</tr>
<tr>
<td>Academic Intent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Curricular</td>
<td>527 (41.1%)</td>
<td>756 (58.9%)</td>
</tr>
<tr>
<td>Curricular</td>
<td>11,989 (50.4%)</td>
<td>11,780 (49.6%)</td>
</tr>
</tbody>
</table>

*Note:* Percentages in parentheses indicate the proportion of applicants per group for the total sample.

As shown in Table 5, the findings for demographic variable of age indicated that an approximately equal number of traditional and non-traditional students made up each of the registrant categories. Due to the large sample size, closer examination of percentages was pertinent to better interpret the results. In total, 9,609 of the courses were enrolled by non-traditional students (38.4% of the total) with 4,707 enrolling during regular registration (49%) and 4,902 enrolling late (51%). In total, 15,443 of the courses were enrolled by traditional students (61.6% of the total) with 7,809 enrolling during regular registration (50.6%) and 7,634 enrolling late (49.4%). The Chi-Square Tests and Symmetric Measures indicated that age did have a significant effect on registration behaviors, although this effect was very weak ($\chi^2=5.924$, $p=.015$, Cramer’s $V=.015$). The Goodman and Kruskal’s tau value (.00) confirmed that age was not a predictor of registration behavior.
As shown in Table 6, the findings for the demographic variable of gender indicated that a little over half of the male students (52.4%) and a little less than half of the female students (48.1%) fell into the late registrant category. In total, 13,749 of the courses were enrolled by female students (54.9% of the total) with 7,132 enrolling during regular registration (51.9%) and 6,617 enrolling late (48.1%). In total, 11,302 of the courses were enrolled by male students (45.1% of the total) with 5,384 enrolling during regular registration (47.6%) and 5,918 enrolling late (52.4%). The Chi-Square Tests and Symmetric Measures indicated that gender did have a slight significant effect on registration behaviors, although this effect was weak ($\chi^2=44.507$, $p<.001$, Cramer's $V=.042$). The Goodman and Kruskal’s tau value (.002) confirmed that gender was not a predictor of registration behavior.
Table 6

*Gender in Relation to Registration Type*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Count</th>
<th>Expected Count</th>
<th>% within gender</th>
<th>% within registration</th>
<th>% of Total</th>
<th>Registration</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Regular</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Late</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7132</td>
<td>6869.3</td>
<td>51.9%</td>
<td>57.0%</td>
<td>28.5%</td>
<td>6617</td>
<td>13749</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5384</td>
<td>5646.7</td>
<td>47.6%</td>
<td>43.0%</td>
<td>21.5%</td>
<td>5918</td>
<td>11302</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12516</td>
<td>12516.0</td>
<td>50.0%</td>
<td>100.0%</td>
<td>50.0%</td>
<td>12535</td>
<td>25051</td>
</tr>
</tbody>
</table>

As indicated in Table 7, the findings for the demographic variable of ethnicity/race indicated that over half of the students of color (54.9%) fell in the late registrant category while less than half (44.8%) of the White/Caucasian students registered late for classes. Due to the large sample size, closer examination of percentages was pertinent to better interpret the results. In total, 11,965 of the courses were enrolled by White/Caucasian students (47.8% of the total) with 6,610 enrolling during the regular registration period (55.2%) and 5,355 enrolling late (44.8%). In total, 13,087 of the courses were enrolled by students of color (52.2% of the total) with 5,906 enrolling during the regular registration period (45.1%) and 7,181 enrolling late (54.9%).

The Chi-Square Tests and Symmetric Measures implied that ethnicity/race did have a
significant effect on registration behaviors, with somewhat stronger association and effect size than the other demographic variables, yet still small ($\chi^2=255.837$, $p<.001$, Cramer’s $V=.101$). However, the Goodman and Kruskal’s tau value (.010) indicated that ethnicity/race was not a strong predictor of registration behavior.

Table 7

*Ethnicity/Race in Relation to Registration Type*

<table>
<thead>
<tr>
<th>Ethnicity/Race</th>
<th>Registration</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Regular</td>
<td>Late</td>
</tr>
<tr>
<td>White/Caucasian Students</td>
<td>Count</td>
<td>Expected Count</td>
</tr>
<tr>
<td></td>
<td>6610</td>
<td>5977.7</td>
</tr>
<tr>
<td></td>
<td>53.5%</td>
<td>52.8%</td>
</tr>
<tr>
<td></td>
<td>26.4%</td>
<td>21.4%</td>
</tr>
<tr>
<td>Students of Color</td>
<td>Count</td>
<td>Expected Count</td>
</tr>
<tr>
<td></td>
<td>5906</td>
<td>6538.3</td>
</tr>
<tr>
<td></td>
<td>47.2%</td>
<td>54.9%</td>
</tr>
<tr>
<td></td>
<td>23.6%</td>
<td>28.7%</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>Expected Count</td>
</tr>
<tr>
<td></td>
<td>12516</td>
<td>12516.0</td>
</tr>
<tr>
<td></td>
<td>50.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>50.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

The data indicated that out of the total count of courses (25,052) used in the sample, 47.8% were enrolled by White/Caucasian students and 52.2% were enrolled by students of color. This statistical finding was opposite that of the 2011 demographic overview of TCC, which reported that 53% of students indicated they were White/Caucasian and 47% indicated they were students of color (Tidewater Community College, 2011, “Quick Facts”, para. 2). A plausible explanation may be that a higher
percentage of White/Caucasian students were enrolled in courses eliminated from the study, such as online, dual enrollment, condensed eight or 12-week classes, and accelerated dynamic sessions.

Table 8

*Academic Intent in relation to Registration Type*

<table>
<thead>
<tr>
<th>Academic Intent</th>
<th>Registration</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Regular</td>
<td>Late</td>
</tr>
<tr>
<td>Non-Curricular</td>
<td>527</td>
<td>756</td>
</tr>
<tr>
<td>Expected Count</td>
<td>641.0</td>
<td>642.0</td>
</tr>
<tr>
<td>% within academic intent</td>
<td>41.1%</td>
<td>58.9%</td>
</tr>
<tr>
<td>% within registration</td>
<td>4.2%</td>
<td>6.0%</td>
</tr>
<tr>
<td>% of Total</td>
<td>2.1%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Curricular</td>
<td>11989</td>
<td>11780</td>
</tr>
<tr>
<td>Expected Count</td>
<td>11875.0</td>
<td>11894.0</td>
</tr>
<tr>
<td>% within academic intent</td>
<td>50.4%</td>
<td>49.6%</td>
</tr>
<tr>
<td>% within registration</td>
<td>95.8%</td>
<td>94.0%</td>
</tr>
<tr>
<td>% of Total</td>
<td>47.9%</td>
<td>47.0%</td>
</tr>
<tr>
<td>Total</td>
<td>12516</td>
<td>12536</td>
</tr>
<tr>
<td>Expected Count</td>
<td>12516.0</td>
<td>12536.0</td>
</tr>
<tr>
<td>% within academic intent</td>
<td>50.0%</td>
<td>50.0%</td>
</tr>
<tr>
<td>% within registration</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>% of Total</td>
<td>50.0%</td>
<td>50.0%</td>
</tr>
</tbody>
</table>

As shown in Table 8, the findings for the demographic variable of academic intent indicated that over half of the non-curricular students (58.9%) and slightly less than half of the curricular students (49.6%) fell into the late registrant category. Due to the large sample size, closer examination of percentages was pertinent to better interpret the results. In total, 1,283 of the courses were enrolled by non-curricular students (5.1% of the total) with 527 enrolling during the regular registration period (41.1%) and 756 enrolling late (58.9%). In total, 23,769 of the courses were enrolled by curricular students (94.9% of the total) with 11,989 enrolling during regular registration (50.4%)
and 11,780 enrolling late (49.6%). The Chi-Square Tests and Symmetric Measures indicated that academic intent did have a significant effect on registration behaviors, although this effect was weak ($\chi^2=42.696$, $p<.001$, Cramer’s $V=.041$). The Goodman and Kruskal’s tau value (.002) confirmed that academic intent was not a predictor of registration behavior.

In summary, all demographic variables (age, gender, ethnicity/race, and academic intent) were statistically significant in relation to registration type; however only ethnicity/race was considered practically significant with a small effect size implying that students of color are more likely to register late for classes. The findings suggest that non-traditional aged students, male students, students of color, and non-curricular students without a stated academic intent were more likely to enroll late for classes.

**Research Question Three**

Research question three examined if there are differences in the academic outcome (i.e., course grade) and retention rate (i.e., enrollment in subsequent semester) between students who register on time and students who register late. Hypothesis three examined if there was a significant difference between the semester course grades of students who register on time and those who register late (i.e., late registrants will have a lower course grade). Semester course grades were measured as a continuous variable which ranged 5 data points from 4.0 GPA (“A” grade) to 0.0 GPA (“F”, “I” or “W” grade). Hypothesis four examined if there was a significant relationship between the retention rate of students who register on time and those who register late (i.e., late registrants are significantly less likely to be retained for the subsequent semester).
A multivariate analysis of variance (MANOVA) was applied to research question three to measure if there was a significant difference between the academic outcome and retention rates of students who enrolled on time and those who registered late. Even though the hypotheses were stated separately, the most powerful statistical test was needed to reduce Type 1 error. MANOVA was used instead using multiple ANOVAs to reduce Type 1 error since more than one dependent variable was being examined. MANOVA takes into account the relationship between the dependent variables and has a greater power than ANOVA to detect effects in which groups differ along a combination of dimensions or variables (Field, 2009). Therefore, a MANOVA was used to examine the differences between the two independent groups (late and regular registrants) on the means of the two dependent variables (academic outcome and retention rate).

As stated earlier, the assumptions for MANOVA are that the observations should be statistically independent, data should be randomly sampled from the population, homogeneity of covariance matrices exists, and that the dependent variables are normally distributed (Field, 2009). When the MANOVA was run, Box’s M test was found to be significant ($p < .001$), which indicated that the variance is not equal or homogeneous for the dependent variables. This may have been an issue in meeting the assumptions for MANOVA; however, according to Field (2009) “As a general rule, if sample sizes are equal (which they are for the two groups of registrants) then disregard Box’s test because (1) it is unstable and (2) in this situation (with large samples we would expect significance) we can assume that Hotelling’s and Pillai’s statistics are robust” (p. 604). Therefore, since the sample sizes in the study are equal, Box’s test can be ignored when testing the assumption of equal covariance for MANOVA.
The finding of the MANOVA shown in Table 9 indicated that there was a significant main effect for registration type for both academic outcome/course grade and retention rate. Pillai's trace had a value of significance (p< .001) which is less than .05 indicating that the registrant groups differ significantly with respect to the dependent variables of academic outcome and retention.

Table 9

**Effect of Registration Type on Academic Outcome and Retention Rate**

<table>
<thead>
<tr>
<th>Multivariate Tests</th>
<th>Value</th>
<th>F</th>
<th>Hypothesis df</th>
<th>Error df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>Pillai’s Trace</td>
<td>.745</td>
<td>36652.352</td>
<td>2.000</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Wilks’ Lambda</td>
<td>.255</td>
<td>36652.352</td>
<td>2.000</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Hotelling’s Trace</td>
<td>2.926</td>
<td>36652.352</td>
<td>2.000</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Roy’s Largest Root</td>
<td>2.926</td>
<td>36652.352</td>
<td>2.000</td>
<td>.000</td>
</tr>
<tr>
<td>Registration</td>
<td>Pillai’s Trace</td>
<td>.024</td>
<td>311.971</td>
<td>2.000</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Wilks’ Lambda</td>
<td>.976</td>
<td>311.971</td>
<td>2.000</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Hotelling’s Trace</td>
<td>.025</td>
<td>311.971</td>
<td>2.000</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Roy’s Largest Root</td>
<td>.025</td>
<td>311.971</td>
<td>2.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note. Observed Power of 1.000 was computed using alpha = .05

a Design: Intercept + Registration

b Exact statistic

The results of the univariate tests for the dependent variables of retention and course grade (academic outcome), listed as the tests of between-subject effects, as indicated in Table 10, show that registration is statistically significant for academic outcome (p< .001) and retention (p< .001); however, it is not practically meaningful. Therefore, other potential variables beyond registration behaviors may be contributing to the course grade and retention of students. Since statistical significance is expected for large sample sizes, a smaller sample size (10% of the original sample size) was analyzed in which a .01 eta square value was found indicating a statistical significance.
Table 10

Test of Between-Subject Effects

<table>
<thead>
<tr>
<th>Source</th>
<th>Dependent Variable</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Noncent. Parameter</th>
<th>Observed Power&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>Retention</td>
<td>78.258&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1</td>
<td>78.258</td>
<td>353.204</td>
<td>.000</td>
<td>353.204</td>
<td>1.000</td>
<td>.014</td>
</tr>
<tr>
<td></td>
<td>Grade</td>
<td>1030.638&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1</td>
<td>1030.638</td>
<td>408.835</td>
<td>.000</td>
<td>408.835</td>
<td>1.000</td>
<td>.016</td>
</tr>
<tr>
<td>Intercept</td>
<td>Retention</td>
<td>10885.994</td>
<td>1</td>
<td>10885.994</td>
<td>49132.174</td>
<td>.000</td>
<td>49132.174</td>
<td>1.000</td>
<td>.662</td>
</tr>
<tr>
<td></td>
<td>Grade</td>
<td>101697.657</td>
<td>1</td>
<td>101697.657</td>
<td>40341.524</td>
<td>.000</td>
<td>40341.524</td>
<td>1.000</td>
<td>.617</td>
</tr>
<tr>
<td>Registration</td>
<td>Retention</td>
<td>78.258</td>
<td>1</td>
<td>78.258</td>
<td>353.204</td>
<td>.000</td>
<td>353.204</td>
<td>1.000</td>
<td>.014</td>
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<tr>
<td></td>
<td>Grade</td>
<td>1030.638</td>
<td>1</td>
<td>1030.638</td>
<td>408.835</td>
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<td>408.835</td>
<td>1.000</td>
<td>.016</td>
</tr>
<tr>
<td>Error</td>
<td>Retention</td>
<td>5550.215</td>
<td>25050</td>
<td>.222</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grade</td>
<td>63148.985</td>
<td>25050</td>
<td>2.521</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Retention</td>
<td>16513.000</td>
<td>25052</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grade</td>
<td>165861.000</td>
<td>25052</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>Retention</td>
<td>5628.473</td>
<td>25051</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Grade</td>
<td>64179.624</td>
<td>25051</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note.

<sup>a</sup> R Squared=.014 (Adjusted R Squared=.014)
<sup>b</sup> R Squared=.016 (Adjusted R Squared=.016)
<sup>c</sup> Computed using alpha=.05
Table 11

*Independent t-tests for Academic Outcome and Retention Rate*

<table>
<thead>
<tr>
<th>Registration behavior</th>
<th>Mean of Dependent Variable</th>
<th>Standard Deviation of Dependent Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Course Grade</td>
<td>Retention Rate</td>
</tr>
<tr>
<td>Regular</td>
<td>2.22</td>
<td>.72</td>
</tr>
<tr>
<td>Late</td>
<td>1.81</td>
<td>.60</td>
</tr>
<tr>
<td></td>
<td>Course Grade</td>
<td>Retention Rate</td>
</tr>
<tr>
<td></td>
<td>1.568</td>
<td>.451</td>
</tr>
<tr>
<td></td>
<td>1.607</td>
<td>.489</td>
</tr>
</tbody>
</table>

Independent t-tests were also run for the dependent variables of academic outcome (course grade) and retention and with the grouping variable of registration behavior to identify where the effect lies per variable. Independent t-tests are used when there are different subjects assigned to each of the two experimental groups. As indicated in Table 11, the regular registrants had a mean course grade of 2.22, with a standard deviation of 1.568. The late registration group of had a mean course grade of 1.81, with a standard deviation of 1.607. The mean difference of the course grade was .406 with a standard error of difference of .020. The two-tailed value (p<0.001) showed a significant difference between the mean course grade of regular and late registrants. Therefore, it may be postulated that students who register late tend to have a lower academic outcomes based on course grade.

As indicated in Table 11, the regular registrants had a mean retention rate of .72, with a standard deviation of .451. The late registration group had a mean retention rate of .60, with a standard deviation of .489. The mean difference of the retention rates was .112 with a standard error of difference of .006. The two-tailed value (p<0.001) indicated
significant difference between the mean retention rates of regular and late registrants. Therefore, it may be postulated that students who register late are less likely to return the subsequent semester resulting in lower retention rates.

**Research Question Four**

In addition to examining the impact of registration behaviors on academic outcome and retention, the study also identified common reasons why community college students register late for classes. The second sample used for research question four consisted of students who registered late for the fall semester of 2011. The sample was drawn from those who registered in person at the enrollment services window on the Virginia Beach campus. They were administered the questionnaire (see Appendix C) when they submitted their enrollment worksheet. All students who initially registered after the first day of classes were not able to enroll using the computerized web-based system SIS and were required to enroll in person at the enrollment services office. The sample captured students who were registering late for any college-wide course offered in the fall semester. This sample differed from the first sample since it included students who may have enrolled in English as a Second Language program, developmental courses, online courses, and condensed eight or 12-week classes, and/or dynamic sessions, which were filtered out of the first sample.

Table 12 provides the demographic information for the 83 participants that completed and submitted the informed consent form and questionnaire administered to late registrants during the fall semester of 2011. As indicated in, the majority of the 83 participants were traditionally aged students ($n=53, 63.9\%$), male ($n=47, 56.6\%$),
working part-time \( (n=28, 33.7\%) \), and enrolling part-time \( (n=35, 42.2\%) \). Out of the 83 participants, only 38 (45.8\%) knew that the desired classes had already started.

Table 12

*Demographic Table of the Participating Late Registrants*

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>( n )</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Age at the time of the questionnaire</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional (ranging from 17-24)</td>
<td>53</td>
<td>63.9</td>
</tr>
<tr>
<td>Non-Traditional (ranging from 25-51)</td>
<td>30</td>
<td>36.1</td>
</tr>
<tr>
<td><em>Gender</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>36</td>
<td>43.4</td>
</tr>
<tr>
<td>Male</td>
<td>47</td>
<td>56.6</td>
</tr>
<tr>
<td><em>Employment of hours worked per week</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No response provided</td>
<td>13</td>
<td>15.7</td>
</tr>
<tr>
<td>Zero hours of employment listed</td>
<td>16</td>
<td>19.3</td>
</tr>
<tr>
<td>Part-Time (ranging from 6-38 hr/wk)</td>
<td>28</td>
<td>33.7</td>
</tr>
<tr>
<td>Full-Time (ranging from 40-70 hrs/wk)</td>
<td>26</td>
<td>31.3</td>
</tr>
<tr>
<td><em>Desired credits of enrollment for fall semester</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No response provided</td>
<td>18</td>
<td>21.7</td>
</tr>
<tr>
<td>Part-Time (ranging from 0-11 semester credits)</td>
<td>35</td>
<td>42.2</td>
</tr>
<tr>
<td>Full-Time (ranging from 12-16 semester credits)</td>
<td>30</td>
<td>36.1</td>
</tr>
<tr>
<td><em>Knowledge if desired classes have already started</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don’t know</td>
<td>29</td>
<td>34.9</td>
</tr>
<tr>
<td>Yes</td>
<td>38</td>
<td>45.8</td>
</tr>
<tr>
<td>No</td>
<td>16</td>
<td>19.3</td>
</tr>
</tbody>
</table>

*Note.* Total number of participants equals 83.

Table 13, includes the frequency data compiled from the responses to the questionnaire identifying possible reasons why community college students enroll late for classes. As indicated, the top four reported reasons for late registration were “I only decided in the last few days to attend college,” with 39.8\% response rate, “I’ve been waiting for my financial aid,” with 34.9\% response rate, “I wasn’t aware that classes had already started” and “I was planning to attend another college but couldn’t,” with response rates of 33.7\%. The next most common reason with 32.5\% response rate was “I tried to register earlier but the process took longer than expected,” followed by “I just put
things off until the very end” and “I was delayed due to family obligations” with response rates of 27.7%. “I was uncertain about my work schedule” had 22.9% response rate, followed by “I just arrived in town” with response rate of 19.3%. The other possible reasons related to financial issues were “I did not previously have funds to pay tuition” with response rate of 18.1% and “I was just made aware that I was eligible for financial aid or benefits” with 16.9% response rate. The least reported reasons with 3.6% response rate were “I didn’t need to register any earlier since the courses are still available” and “I thought that the lines would be shorter after classes began.”

Table 13

Frequency Table of Responses on Questionnaire

<table>
<thead>
<tr>
<th>Possible Reasons for Late Registration</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time-Line Related</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. I wasn’t aware that classes had already started</td>
<td>28</td>
<td>33.7</td>
</tr>
<tr>
<td>2. I didn’t need to register any earlier since the courses are still available</td>
<td>3</td>
<td>3.6</td>
</tr>
<tr>
<td>3. I thought that the lines would be shorter after classes began</td>
<td>3</td>
<td>3.6</td>
</tr>
<tr>
<td>4. I just put things off until the very end</td>
<td>23</td>
<td>27.7</td>
</tr>
<tr>
<td>5. I just arrived in town</td>
<td>16</td>
<td>19.3</td>
</tr>
<tr>
<td><strong>Decision-Making Reasons</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I was planning to attend another college but couldn’t</td>
<td>28</td>
<td>33.7</td>
</tr>
<tr>
<td>7. I only decided in the last few days to attend a college</td>
<td>33</td>
<td>39.8</td>
</tr>
<tr>
<td><strong>Financial Reasons</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I’ve been waiting for my financial aid</td>
<td>29</td>
<td>34.9</td>
</tr>
<tr>
<td>9. I did not previously have funds to pay tuition</td>
<td>15</td>
<td>18.1</td>
</tr>
<tr>
<td>10. I was just made aware that I was eligible for financial aid or benefits</td>
<td>14</td>
<td>16.9</td>
</tr>
<tr>
<td><strong>Enrollment Process</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. I tried to register earlier but the process took longer than expected</td>
<td>27</td>
<td>32.5</td>
</tr>
<tr>
<td>12. I’ve been waiting for my test scores</td>
<td>7</td>
<td>8.4</td>
</tr>
<tr>
<td>13. I’ve been waiting for high school diploma</td>
<td>5</td>
<td>6.0</td>
</tr>
<tr>
<td>14. I needed approval signatures to enroll</td>
<td>10</td>
<td>12.0</td>
</tr>
<tr>
<td><strong>Personal Matters</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. I did not have transportation</td>
<td>8</td>
<td>9.6</td>
</tr>
<tr>
<td>16. I did not have child care arrangements</td>
<td>7</td>
<td>8.4</td>
</tr>
<tr>
<td>17. I was uncertain about my work schedule</td>
<td>19</td>
<td>22.9</td>
</tr>
<tr>
<td>18. I was delayed due to family obligations</td>
<td>23</td>
<td>27.7</td>
</tr>
</tbody>
</table>

*Note.* Total number of participants equals 83.
Summary of Major Findings

This chapter presented the findings of the statistical analyses of the four research questions and five hypotheses. The influence of late registration on the academic outcome and retention of students at a multi-campus community college were examined over two academic years from the fall semester of 2009 until the spring semester of 2011. The demographic characteristics of late registrants were explored in relation to age, gender, ethnicity/race, and academic intent. Furthermore, possible reasons for late registration were identified.

The sample consisted of 25,052 cases with 12,536 classified as late registrants and 12,516 randomly selected and classified as regular registrants. The fall semester of 2009 consisted of 5,570 cases, the spring semester of 2010 consisted of 5,960 cases, the fall semester of 2010 consisted of 6,671 cases, and the spring semester of 2011 consisted of 6,851 cases. In response to research question one, out of the population of 139,149 eligible courses used for the study, approximately 9.9% were enrolled by late registrants during the academic years of 2009-10 and 2010-11.

In response to research question two, all demographic variables which included age, gender, ethnicity/race, and academic intent were found to be statistically significant in relation to registration type; however, only ethnicity/race was considered practically significant with a somewhat stronger association than the others and a small effect size implying that students of color are more likely to register late for classes. In response to research question three, MANOVA indicated there was a significant main effect for registration type for both academic outcome/course grade and retention rate. The mean course grade was 2.22, with a standard deviation of 1.568, for the regular registrants with
a mean retention rate of .72, with a standard deviation of .451. The late registration group had a mean course grade of 1.81, with a standard deviation of 1.607, and a mean retention rate of .60, with a standard deviation of .489. The mean difference of the course grade was .406 with a standard error of difference of .020 and the mean difference of the retention rates was .112 with a standard error of difference of .006. Therefore, it may be postulated that students who register late tend to have a lower academic outcomes based on course grade and are less likely to return the subsequent semester resulting in lower retention rates. The findings show that registration was statistically significant for academic outcome and retention; however, it was not considered practically meaningful. Hence, other potential variables beyond registration behaviors may contribute to the course grade and retention of students.

Research question four examined possible reasons why community college students may register late for classes. The most frequently reported reasons for late registration were related to late decision making on attending college, financial aid processing, lack of awareness regarding the start of classes, failed plans on attending another college, delayed processing in college procedures, habits of procrastination, family obligations, and uncertainty of work schedule.
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CHAPTER V

DISCUSSION

Nationwide, community colleges are faced with the challenge of upholding their mission of an open admissions policy, with accessibility to comprehensive, affordable education, and enhancement of cultural diversity - while being held accountable for the academic success of the students (American Association of Community Colleges, 2011). Open enrollment policies, which allow late registration, are intended to remove barriers to enrollment; however, in the long run, they may inadvertently negatively hinder students' academic success and unintentionally decrease retention rates and course completion (Belcher & Patterson, 1990; Ford et al., 2008; Hiller, 2005; Keck, 2007; Mendolia-Perez, 2004; Safer, 2009; Smith et al., 2002; Sova, 1986; Stein, 1984; Summers, 2000, 2003; Weiss, 1999, 2000). Therefore, community colleges must find a balance between open access and quality education. The effect of late registration on academic success has concerned counselors, faculty members, and administrators (Summers, 2000; Weiss, 1999; Zottos, 2005). In efforts to develop strategies and initiatives to meet the goals of accrediting agencies to improve retention rates, two-year institutions need to better understand the relationship between community college students, institutional enrollment policies, and academic success.

The overall purpose of the present study was to broaden the understanding of the implications of late registration policy on community college students and to contribute to the current literature on retention strategies using a sample from the Virginia Community College System. One of the main missions and philosophies for community colleges is the open door policy which allows access to students who may not have the
opportunity for higher learning at other types of educational institutions. In addition, the financial support of community colleges is often determined by the number of students enrolled. Therefore, eliminating the option of late registration is not usually a choice for many public two-year institutions.

Knowledge of the impact of registration behaviors on academic success could be utilized by college officials and personnel to increase retention and graduation rates in community colleges by providing services specifically for students who enroll late. The influence of the open admission policies and late enrollment practices on community college student success have been examined by several researchers (see Angelo, 1990; Belcher & Patterson, 1990; Keck, 2007; Mendolia-Perez, 2004; Perkins, 2002; Peterson, 1986; Smith et al., 2002; Sova, 1986; Stein, 1984; Summers, 2000; Weiss, 1999, 2000; Zottos, 2005). The results of these studies are mixed concerning the effect on academic success and retention of students. Some studies indicate that late registration can be detrimental to student success resulting in lower grade, higher withdrawal rates, and lower retention rates (see Belcher & Patterson, 1990; Ford et al., 2008; Hiller, 2005; Keck, 2007; Mendolia-Perez, 2004; Neighbors, 1996; Safer, 2009; Smith et al., 2002; Sova, 1986; Stein, 1984; Summers, 2000; Summers, 2003; Weiss, 1999, 2000). Others provide contradictory evidence, indicating no significant differences in the academic outcomes of regular and late registrants (see Angelo, 1990; Hillier, 2005; Perkins, 2002; Peterson, 1986; Zottos, 2005). Therefore, the question as to whether late registration has a negative impact on students' academic performance and retention remains undetermined.
Based on the recommendations for future research in the existing literature, the current study assessed the impact of late registration on the academic outcome (measured by semester course grade) and retention (measured by enrollment in the subsequent semester) of students at a multi-campus community college. Due to the lack of research adequately examining the reasons for late enrollment, this study also identified common reasons why students registered late in classes. Furthermore, the study provides recommendations for improving academic outcomes and retention rates of community college students who have the tendency to enroll late. In summary, the three overall purposes of this study were the following: (1) to investigate if there are statistical relationships between the demographics of community college students, registration behaviors, academic outcomes, and retention over a two-year period, fall 2009 – spring 2011; (2) to identify possible reasons why students register late; and (3) to suggest retention strategies and initiatives to reduce the negative impact of late enrollment.

Summary of Findings

The influence of late registration on the academic outcome and retention of students at a multi-campus community college was examined over two academic years from the fall semester of 2009 until the spring semester of 2011. The demographic characteristics of late registrants were explored in relation to age, gender, ethnicity/race, and academic intent. Furthermore, common reasons for late registration were identified. The sample consisted of 25,052 cases with 12,536 classified as late registrants and 12,516 randomly selected and classified as regular registrants. Out of the population of 139,149 eligible courses used for the study, during the academic years of 2009-10 and 2010-11, approximately 9.9% were late registrations. The percentage of late enrollments (9.9%) is
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in line with previous research, Angelo's (1990) study with 10.6%, Belcher and
Patterson's (1990) study with 12.4%, and Smith et al. (2002) with 12% registering late.

Existing research suggests that students who register late tend to be older (non-
traditional), males, non-curricular, (Belcher & Patterson, 1990; Hiller, 2005; Perkins,
2002; Safer, 2009; Summer, 2000; Weiss, 2000; Zottos, 2005) and students of color
(Belcher & Patterson, 1990; Summers, 2000; Zottos, 2005). This study supported the
previous findings, indicating that the demographic variables of age, gender,
ethnicity/race, and academic intent to be statistically significant in relation to type of
registration behavior. In comparison to traditional aged students (49.4%), non-traditional
aged students were more likely to enroll late (51%). Male students had a higher tendency
to enroll late (52.4%), as compared to female students (48.1%). Students of color were
more likely to enroll late (54.9%) than White/Caucasian students (44.8%). Students
categorized as non-curricular tend to enroll late (58.9%) in comparison to students
categorized as curricular (49.6%).

The overall findings of the study indicated that registration was statistically
significant for the academic outcome (semester course grade) and retention rate of
community college students. The mean course grade for regular registrants was 2.22,
with a standard deviation of 1.568, and a mean retention rate of .72, with a standard
deviation of .451. The late registration group had a mean course grade of 1.81, with a
standard deviation of 1.607, and a mean retention rate of .60, with a standard deviation of
.489. The mean difference of the course grade was .406 with a standard error of
difference of .020 and the mean difference of the retention rates was .112 with a standard
error of difference of .006. Therefore, it may be postulated that students who register late
tend to have a lower academic outcomes based on course grade and are less likely to return the subsequent semester resulting in lower retention rates.

These statistical findings did support the literature that late enrollment in classes may hinder academic success (see Belcher & Patterson, 1990; Ford et al., 2008; Hiller, 2005; Keck, 2007; Mendolia-Perez, 2004; Neighbors, 1996; Safer, 2009; Smith et al., 2002; Sova, 1986; Stein, 1984; Summers, 2000; Summers, 2003; Weiss, 1999, 2000). Even though other studies indicated no significant differences in the academic outcomes of regular and late registrants (see Angelo, 1990; Hillier, 2005; Perkins, 2002; Peterson, 1986; Zottos, 2005), they offered potential variables that may impact academic success such as students' background and characteristics, academic ability, college readiness, knowledge of subject matter and content, determination and motivation to successfully complete the course, and faculty/student relationships. Other confounding variables beyond registration behaviors, such as attendance, credit load, habits of procrastination, and academic environment, may be contributing to the academic success and retention of students who enroll late.

According to theoretical models of retention, variables relating to academic and social integration (Spady, 1970; Tinto, 1975), academic variables, psychological outcomes, background, and environmental variables (Astin, 1993; Bean & Metzner, 1985) have a direct effect on student retention. Sova (1986) postulated that students who register late may have lower planning skills and may be less likely to receive assistance in the enrollment process than regular registrants. Ford et al. (2008) hypothesized that late registrants have lower levels of conscientiousness and initiative, higher tendencies to
procrastinate, and less participation in the advising process. Therefore, late enrollment is one of many variables that may influence students' academic outcome and retention.

The possible reasons for registering late, as reported by community college students in the study, were related to last minute decision making about attending college, financial aid processing, lack of awareness regarding the start of classes, failed plans on attending another college, delayed processing in college procedures, and habits of procrastination. These identified reasons for late enrollment were similar to the findings of the study conducted at Miami-Dade Community College by Belcher and Patterson (1990). The top reason given for enrolling late, with 39.8% response rate, was “I only decided in the last few days to attend college” which was also the most identified reason in Belcher and Patterson’s (1990) study (response rate of 26%). The second identified reason was “I’ve been waiting for my financial aid,” with 34.9% response rate. In comparison, Belcher and Patterson’s (1990) study reported only 10% of the participants responded that financial issues such as “unsure they would have enough money” or “waiting for financial aid” were possible reasons for late enrollment. The explanation for the difference in the response rate for financial aid may be that a larger percentage of today’s community college students are receiving financial aid assistance as compared to over 20 years ago. Keck (2007) characterized the possible reasons for late registration into categories including the influence of life circumstances, financial aid process, decisions regarding transfer to a four-year institution, procrastination, and lack of interest.

In conclusion, many of the potential variables influencing academic outcome and retention are consistent with the characteristics of community college students.

Upholding an open admissions philosophy, community colleges require minimal
academic achievements, resulting in a wide range of academic and social preparation among a diverse student population (American Association of Community Colleges, 2011; American Council on Education, 2003; National Center for Education Statistics, 2003). In addition, the educational goals of students may vary according to career advancement, transfer plans, need for degree completion, and personal interest (American Association of Community Colleges, 2011; American Council on Education, 2003; National Center for Education Statistics, 2003). Previous literature has documented that the majority of community college students are older adults, are employed, enroll on a part-time basis, need developmental education, or have lower socioeconomic status and receive financial aid (Andreu, 2002; Angelo, 1990; Bean & Metzner, 1985; Belcher & Patterson, 1990; Ford, Stahl, Walker, & Ford, 2008; Hiller, 2005; Keck, 2007; Mendolia-Perez, 2004; Neighbors, 1996; Safer, 2009; Smith et al., 2002; Sorey, 2006; Sova, 1986; Stein, 1984; Summers, 2000; Weiss, 1999, 2000; Zottos, 2005). Therefore, community college students should be encouraged to enroll prior to the first day of class to reduce the potential negative influences on their academic success.

Limitations of Study

The study examined the impact of registration behaviors on academic outcomes and retention rates. The independent variable of registration behaviors was categorized as either regular or late. Regular registration included priority registration (which is the first week of registration for currently enrolled students) and regular registration which extends until the day prior to the first day of classes. The dependent variable of academic outcome was measured by the end of the semester grade for the course and retention rate was measured by enrollment in the subsequent semester. Several limitations may have
influenced the findings of the study, including categorization of registration behavior, large sample size, existing secondary data, diverse characteristics of community college students,

One limitation was that the study did not differentiate between early and regular registration and did not take into account the specific number of days after the first day of class in which students enrolled late. Therefore, students who enrolled the day prior to the first day of class were categorized as regular registrants while students who enrolled the very next day on the first day of class were considered late registrants. Both groups of students may have experienced the same negative impacts of limited course options, limited scheduling opportunities, and procrastination habits.

A large sample size was used in the study to ensure an accurate representation of the population and to increase the ability of generalizing the findings. However, since the sample size was considered quite large, significant Chi-Square tests were to be expected (Field, 2009). Cramer's V was calculated to determine effect size as well as Goodman and Kruskal's tau to measure how well each demographic variable predicted registration behavior. In addition, row, column and total percentages were examined during interpretation to assist in identifying the origin of any significant effects.

All of the demographic variables of the sample were similar in comparison to the overall reported demographics of TCC, except for ethnicity/race. The data indicated 47.8% of courses in the sample were enrolled by White/Caucasian students and 52.2% were enrolled by students of color. This statistical finding was opposite that of the 2011 demographic overview of TCC, which reported that 53% of students indicated they were White/Caucasian and 47% indicated they were students of color (Tidewater Community
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College, 2011, “Quick Facts”, para. 2). A plausible explanation may be that a higher percentage of White/Caucasian students were enrolled in courses which were eliminated from the study, such as online, dual enrollment, condensed eight or 12-week classes, and accelerated dynamic sessions.

Due to the diverse make-up of the population of community college students, and environment which is created by the open-door policy, many variables influence the academic outcomes and retention rates of students regardless of the registration behaviors. Therefore, even though the study found statistical significance, it may not be practically significant due to the various confounding variables. Community college students tend to be academically underprepared, have less specific educational and career goals, and low levels of confidence and motivation. They include first generation students who may lack the family support and knowledge about the processes of higher education. Moreover, community college students tend to be over the age of 24, work full-time with diverse work-life balance issues, have a lower socio-economic level challenged with financial obstacles, and have many family obligations (Bean & Metzner, 1985; Keck, 2007). All these factors influence academic outcomes and retention rates of students.

Implications

The present study investigated the impact of late registration on semester course grades and enrollment in subsequent semesters, the demographics of late registrants, and the common reasons why community college students enroll late. Based on the findings, several implications were deduced. The most frequently reported possible reason for late registration by community college students was the last minute decision to attend college, which implies that the open door policy, allowing students to be admitted with open
access, provides many students the opportunity to attend college and benefit from higher learning. The positive outcome is that a higher number of students begin their higher education soon after they make the decision to attend college. Community college students tend to be non-traditional students who work full-time, have family responsibilities and financial concerns, which may provide challenges in their attendance and enrollment in college. The decision to attend college may be determined by these external factors; therefore, the opportunity to enroll with open admissions and accessibility is beneficial to them. The negative outcome is that they may not be adequately prepared academically and emotionally to begin college even though they have made the decision to do so.

Procrastination was found to be one of the most common reasons why students enroll late. It may be implied that students who procrastinate tend to be less successful. Ford et al. (2008) support the explanation that personality factor of conscientiousness is positively related to academic achievement; while procrastination is negatively related. Late registrants who procrastinate and enroll late are less likely to have their choice of faculty and schedule of classes. They may end up with the less popular times of classes such as early morning or late evening; which may hinder their likelihood of attending class or being alert in class. They may miss the first day of class in which they are introduced to the course expectations and assignments. Perkins (2002) discussed the critical importance of attendance during the first day of class including review of course syllabus, learning goals and objectives, clarification of informal and formal expectations, meeting other students to form study groups and create support networks, and beginning to build a relationship with instructor. Furthermore, their late enrollment in the course
may negatively affect their relationship with the faculty member. All these variables may result in lower academic success.

**Recommendations to Counselors, Administrators, and Educators**

Based on the findings of the present investigation indicating a ten percent decrease in retention rates, it could be implied that late registration hinders the academic success and retention of community college students. However, late registrants may still have the potential to succeed with the implementation of a variety of procedures, practices, and programs. The following recommendations to counselors, administrators, and educators can be postulated based on the findings and implications of existing literature and of the present study:

**Counselors**

- Admission counselors should inform high school counselors and students of the registration periods and should encourage prospective students to apply early, begin their financial aid process as soon as possible, and meet with a career counselor if necessary. They should also inform them of the negative impact of late enrollment in college classes.

- Students should be required to meet with a college counselor prior to enrolling late for classes to receive approval and guidance. The students’ reason for late enrollment, academic preparation and college readiness, knowledge of course content, time management skills, level of motivation, and other factors, should be discussed at length during the meeting with the counselor; in addition to the hazards of late enrollment.
- College counselors should educate late registrants on the importance of the additional effort required on their part to become up-to-date on class work and assignments after missing the first day of class.

- Individual or group counseling should be required for late registrants throughout the semester to provide support and enhance skills. Topics should include time management, organizational skills, study strategies, test-taking skills, and academic planning.

**Administrators**

- A pre-enrollment orientation should be mandatory for all new incoming students, covering pertinent topics such as academic advising, career planning, support services, financial aid and payment options, degree offerings and requirements, student activities, benefits of college education, and college expectations. New students in orientation should be encouraged to enroll early for classes and be made aware of the positive advantages of early registration and the negative impacts of late enrollment.

- A specific orientation program should be provided after the first day of class for late registrants emphasizing the importance of goal setting, time management, organizational skills, and work/life balance. Peer mentors should be assigned to late registrants during the mandatory orientation program prior to their enrollment and attendance in classes.

- The admission and registration process should be easily accessible to prospective students who are able to benefit from higher education, using the latest technology such as mobile applications and sources on the internet. Instructional
information about the admission, financial aid, and registration process should be made available through the latest use of technology such as short video clips and step by step instructions.

- To reduce the number of students enrolling late for classes, institutions should offer later starting classes to allow students who decide to attend college after the first day of class to enroll without the negative impact of missing class sessions due to late registration.

- Flexible payment options for tuition and fees should be made available for students who need financial assistance and may not qualify for financial aid.

- Late enrollment should be limited to students who have successfully completed college-level courses and have demonstrated their potential to be successful. Students who place in developmental courses, have a low cumulative GPA, and have other factors that hinder success should be restricted from enrolling late.

- Currently enrolled students should receive correspondence highlighting the advantages of early advising and registration to encourage early action.

- Supplemental instructional support and learning assistance services should be available and strongly recommended for late registrants.

**Educators**

- Educators should meet with late registrants outside of class to review the course syllabus, course expectations, and discuss missed assignments or work.

- Educators are recommended to encourage and support all students, especially late registrants, to engage with their peers both in and out of the classroom.
• Educators should inform their students of upcoming registration periods and encourage students to enroll early.

Recommendations for Future Research

Based upon the limitations and finding of this study, recommendations for further research and investigation are provided. The present study did not differentiate between new and returning students, future studies could examine if there is a difference in the academic outcome and retention rates of new first time enrolling students and returning students who enroll late. Additional research could study the impact of late enrollment in on-line, developmental, or accelerated courses. The present study tracked the retention rate of students in the subsequent semester and examined students per semester as independent variables; however, longitudinal research could be conducted to track students over two or more years to analyze persistence and graduation rates and track the patterns of late registrants to examine if they continuously enroll late each semester.

The present study examined the possible reasons why students enroll late using a questionnaire; additional research could further examine the reasons using qualitative methods such as interviews and focus groups. In addition, quantitative and qualitative research could be conducted to examine why students enroll early. The present study recommends that students enrolling late must participate in an extensive counseling session to discuss the students' reasons for late enrollment and the hazards of registering after the first day of class; in addition to reviewing college success skills to promote academic success. Future research could be conducted to investigate the impact of the counseling sessions on the academic outcomes of late registrants.
Conclusions

The community college’s mission to provide accessible education with an open door policy is met with the challenge of ensuring student success. Two-year institutions must find a balance between open access and quality education. In efforts to develop strategies and initiatives to improve retention rates, higher education administrators and counselors need to better understand the relationship between community college students, institutional enrollment policies, and academic success.

Knowledge of the impact of registration behaviors on academic success could be utilized by college officials and personnel to increase retention and graduation rates in community colleges by providing services specifically for students who enroll late. The influence of late registration on the academic outcome and retention of students at a multi-campus community college was examined over two academic years from the fall semester of 2009 until the spring semester of 2011. The demographic characteristics of late registrants were explored in relation to age, gender, ethnicity/race, and academic intent. Furthermore, the common reasons for late registration were identified. The sample consisted of 25,052 cases with 12,536 classified as late registrants and 12,516 randomly selected and classified as regular registrants. The fall semester of 2009 consisted of 5,570 cases, the spring semester of 2010 consisted of 5,960 cases, the fall semester of 2010 consisted of 6,671 cases, and the spring semester of 2011 consisted of 6,851 cases.

In response to research question one, out of the population of 139,149 eligible courses used for the study, approximately 9.9% were registered for by late registrants during the academic years of 2009-10 and 2010-11. In response to research question two, all demographic variables which included age, gender, ethnicity/race, and academic
intent were found to be statistically significant in relation to registration type; however, only ethnicity/race was considered practically significant with a somewhat stronger association than the others and a small effect size implying that students of color are more likely to register late for classes. In response to research question three, there was a significant main effect for registration type for both academic outcome/course grade and retention rate. The findings show that registration is statistically significant for academic outcome and retention; however, it is not practically meaningful. Therefore, other potential variables beyond registration behaviors may be contributing to the course grade and retention of students.

Research question four examined the possible reasons why community college students may register late for classes. The most frequently reported reasons for late registration were related to last minute decision making on attending college, financial reasons, lack of awareness regarding the start of classes, failed plans to attend another college, delayed processing in college procedures, habits of procrastination, family obligations, and uncertainty of work schedule.

In conclusion, the findings revealed that registration behaviors may influence academic outcome and retention of community college students. Administrators, counselors, and faculty can make a difference in offsetting the adverse effect of late enrollment through the implementation of suggested initiatives and programs. Practices, policies, and procedures of higher education institutions should continuously be examined to provide quality support services and learning environment to students.
CHAPTER VI
MANUSCRIPT

The Influence of Late Registration on Academic Outcomes and Retention
At a Multi-Campus Community College

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regarding edits and support throughout the entire dissertation process. The author would also like to thank Judy McMillan and Alan Schwitzer for serving on the dissertation committee and Michael Summers, Provost of the Virginia Beach campus of Tidewater Community College, for his on-going support during the study. Please note, that the research reported does not reflect the views of Tidewater Community College.

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Abstract

This casual-comparative study investigated the relationships among community college student demographics, registration behaviors, academic outcomes, and retention and identified reasons why students register late. Findings suggest that non-traditional students, male students, students of color, and non-curricular students without a stated academic intent were significantly more likely to enroll late for classes; and students who enroll late tend to experience negative academic outcomes and lower retention rates. The most frequently reported reasons for late registration were also identified.

Recommendations for administrators, counselors, and educators are provided.

Keywords: Late registration, Late enrollment, Community college, Retention, Academic success
The Influence of Late Registration on Academic Outcomes and Retention 

At a Multi-Campus Community College

Today, community colleges are the largest component of the higher education system in the United States, enrolling more than 6 million students and growing rapidly in challenging economic times (American Association of Community Colleges, 2011). Community colleges expand education opportunities by offering affordable tuition, open admissions, flexible course schedules, and convenient locations to a variety of diverse students with varying educational needs (American Association of Community Colleges, 2011; American Council on Education, 2003; National Center for Education Statistics, 2003). Further, previous literature has documented that the majority of community college students are older adults, are employed, enroll on a part-time basis, need developmental education, or have a lower socioeconomic status and receive financial aid (Ford, Stahl, Walker, & Ford, 2008; Hiller, 2005; Keck, 2007; Mendolia-Perez, 2004; Safer, 2009; Zottos, 2005).

Nationwide, community colleges are challenged to uphold their mission of an open admissions policy, accessibility to high-quality, comprehensive, affordable education, and enhancement of cultural diversity to meet the changing needs of a pluralistic, democratic society- while being held accountable for the academic success of the students (American Association of Community Colleges, 2011). To support this mission, most community colleges also establish enrollment policies and procedures that permit students to register late (i.e., registration after the first day of class until the census date; American Association of Community Colleges, 2011; American Council on Education, 2003; National Center for Education Statistics, 2003). Although late
registration may increase student enrollment, it may also inadvertently hinder student success in the long run due to the effects of missed classes during the first couple weeks of school; thereby unintentionally decreasing retention rates and course completion (Ford et al., 2008; Hiller, 2005; Keck, 2007; Mendolia-Perez, 2004; Safer, 2009; Zottos, 2005).

Findings suggest that students who register late tend to be older (non-traditional), males, non-curricular, enrolled on a part-time basis (Hiller, 2005; Perkins, 2002; Safer, 2009; Weiss, 2000) and students of color (Belcher & Patterson, 1990; Summers, 2000; Zottos, 2005). The effect of late registration on academic success has concerned counselors, faculty members, and administrators (Summers, 2000; Weiss, 1999; Zottos, 2005). Therefore, community colleges must find a balance between open access and quality education and improve retention rates.

The overall purpose of the study was to broaden the understanding of the implications of late registration policy on community college students. Specifically, the purpose was to (1) investigate if there are statistical relationships between the demographics of community college students, registration behaviors, academic outcome, and retention; (2) identify possible reasons why students register late; and (3) suggest retention strategies and initiatives to reduce the negative impact of late enrollment. Three research questions were addressed: (1) Are there demographic differences (age, gender, ethnicity/race, and academic intent) between students who register on time and those who register late?; (2) Are there differences in the academic outcome (i.e., course grade) and retention rate (i.e., enrollment in subsequent semester) between students who register on time and students who register late?; and (3) What are the common reasons community college students register late?
Method

Participants

There were two samples for this study. To address the first two research questions, participants were selected from the college-wide population of new and returning students who registered in college-level, traditional face-to-face, regular 16-week session courses at a multi-campus community college (i.e., four campuses). The population consisted of community college students of various ages (non-traditional and traditional), academic intent (non-curricular and curricular), as well as diversity in gender and ethnicity/race. Each course, in which the students were enrolled, was measured independently from one another. For example, if a student received an A grade in one course and a C grade in another, the grades were not averaged but treated as independent measures.

The sample was formed of two groups of courses for each semester based on registration type, as identified using the institution’s computerized student information system. The first group consisted of all eligible courses in which the student enrolled during late registration, on or after the first day of class. To this end, all participants who could be described as late registrants and met other selected criteria were included in the first group. Out of the population of 139,149 eligible courses used for the study, approximately 9.9% were enrolled by late registrants during the academic years of 2009-10 and 2010-11. The second group consisted of randomly selected courses in which the student enrolled during regular registration, prior to the first day of class. The second group was randomly computer-generated by SPSS for each campus and each semester from the eligible college-wide student population of regular registrants. The sample size
for the second group was based on the overall sample size and proportionate sample size by campus. The sample consisted of 25,052 cases (12,536 classified as late registrants and 12,516 randomly selected and classified as regular registrants), a range of 5,570 to 6,871 participants across the four semesters included.

The second sample to explore the third research question consisted of 83 students who registered late at the enrollment services window on the largest campus at the community college for the fall semester of 2011. Table 1 provides demographics of this second sample.

Data Sources

Secondary data. The first sample was obtained from the computerized student information system database. Data included those generated from student applications (i.e., age, gender, race/ethnicity, stated academic intent) and from the registration process itself (i.e., registration behavior, retention rates). Academic outcome was calculated from course grade as posted by faculty members and was recorded per semester as a continuous variable per course, with A=4.0, B=3.0, C=2.0, D=1.0 and F, I, or W=0.0.

Late registration questionnaire. A brief questionnaire was administered to students who were in the process of registering late for classes during the first week of the semester in the fall semester of 2011. The questionnaire was adapted from Belcher and Patterson (1990) and was revised according to the feedback of subject matter experts. The short questionnaire consisted of several checklist items inquiring about the individual reasons for late registration such as “I’ve been waiting for my financial aid, the lines are shorter now, I just put things off until the very end, and I was planning to go away to school but couldn’t.”
Results

Demographic Differences and Late Registration

Significant demographic differences (age, gender, ethnicity/race, and academic intent) were found between regular and late registrants as determined by chi square tests, indicating that older non-traditional students (51%), males (52.4%), students of color (54.9%), and non-curricular students (58.9%) were more likely to enroll late. Table 2 provides demographics for both the late and regular registrants. Since the sample size was considered quite large, significant Chi-Square tests were to be expected (Field, 2009); therefore, Cramer’s V was calculated to determine effect size and Goodman and Kruskal’s tau to measure how well each demographic variable predicted registration behavior. In addition, row, column and total percentages were examined during interpretation to assist in identifying the origin of any significant effects.

Chi-square tests indicated that all the demographic variables had a significant effect on registration behaviors, age ($\chi^2=5.924, p=.015$, Cramer’s V=.015, $\tau=.00$); gender ($\chi^2=44.507, p<.001$, Cramer’s V=.042, $\tau=.002$); ethnicity/race ($\chi^2=255.837, p<.001$, Cramer’s V=.101, $\tau=.010$); and academic intent ($\chi^2=42.696, p<.001$, Cramer’s V=.041, $\tau=.002$). Only ethnicity/race was considered practically significant implying that students of color are more likely to register late for classes.

Registration Type, Academic Outcome, and Retention Rate

A multivariate analysis of variance (MANOVA) was employed to determine differences in academic outcome (i.e., semester course grade) and retention rate (i.e., enrollment in subsequent semester) based on registration type. There was a significant main effect for registration type for both academic outcome/course grade and retention
rate (Pillai’s trace= 0.745; $F= 311.971, p < .001$), although between-subjects tests indicated no practical significance ($\eta^2 = .01$). Independent t-tests indicated significant differences for both academic outcome and retention by registration type ($p < .001$). Specifically, the regular registrants had a mean course grade of 2.22 ($SD= 1.568$), and a mean retention rate of .72 ($SD= .451$). The late registrants had a mean course grade of 1.81 ($SD= 1.607$), and a mean retention rate of .60 ($SD= .489$). The mean difference of the course grade was .406 with a standard error of difference of .020 and the mean difference of the retention rates was .112 with a standard error of difference of .006.

**Reasons for Late Registration**

Table 3 includes the frequency data compiled from the responses to the questionnaire. The top four frequently reported reasons for late registration were “I only decided in the last few days to attend college,” with 39.8% response rate, “I’ve been waiting for my financial aid,” with 34.9% response rate, “I wasn’t aware that classes had already started” and “I was planning to attend another college but couldn’t,” with response rates of 33.7%.

Results indicated that older non-traditional students, males, students of color, and non-curricular students, although there was only a small effect for race/ethnicity. In addition, there was a significant main effect for registration type for both academic outcome and retention rate, although effects were not considered practically meaningful. Therefore, other potential variables beyond registration behaviors may contribute to the course grade and retention of students. Further, students who register late tend to have a lower academic outcomes based on course grade and are less likely to return the subsequent semester resulting in lower retention rates. The most frequently reported
reasons for late registration were related to late decision making on attending college, financial aid processing, lack of awareness regarding the start of classes, failed plans on attending another college, delayed processing in college procedures, habits of procrastination, family obligations, and uncertainty of work schedule.

The statistical findings of the present study supported the existing literature that late enrollment in classes may hinder academic success (see Ford et al., 2008; Hiller, 2005; Keck, 2007; Mendolia-Perez, 2004; Safer, 2009; Smith et al., 2002). Even though other studies indicated no significant differences in the academic outcomes of regular and late registrants (see Hillier, 2005; Perkins, 2002; Zottos, 2005), they offered potential variables that may impact academic success such as students' background and characteristics, academic ability, college readiness, knowledge of subject matter and content, determination and motivation to successfully complete the course, and faculty/student relationships. Other confounding variables beyond registration behaviors, such as attendance, credit load, habits of procrastination, and academic environment, may be contributing to the academic success and retention of students who enroll late.

According to theoretical models of retention, variables relating to academic and social integration (Spady, 1970; Tinto, 1975), academic variables, psychological outcomes, background, and environmental variables (Astin, 1993; Bean & Metzner, 1985) have a direct effect on student retention. Sova (1986) postulated that students who register late may have lower planning skills and may be less likely to receive assistance in the enrollment process than regular registrants. Ford et al. (2008) hypothesized that late registrants have lower levels of conscientiousness and initiative, higher tendencies to
procrastinate, and less participation in the advising process. Therefore, late enrollment is one of many variables that may influence students' academic outcome and retention.

The possible reasons for registering late, as reported by community college students in the study, were related to last minute decision making about attending college, financial aid processing, lack of awareness regarding the start of classes, failed plans on attending another college, delayed processing in college procedures, and habits of procrastination. These identified reasons for late enrollment were similar to the findings of the study conducted at Miami-Dade Community College by Belcher and Patterson (1990). The top reason given for enrolling late, with 39.8% response rate, was "I only decided in the last few days to attend college" which was also the most identified reason in Belcher and Patterson's (1990) study (response rate of 26%). The second identified reason in the present study was "I've been waiting for my financial aid," with 34.9% response rate. In comparison, Belcher and Patterson's (1990) study reported only 10% of the participants responded that financial issues such as "unsure they would have enough money" or "waiting for financial aid" were possible reasons for late enrollment. The explanation for the difference in the response rate for financial aid may be that a larger percentage of today's community college students are receiving financial aid assistance as compared to over 20 years ago. Keck (2007) characterized the possible reasons for late registration into categories including the influence of life circumstances, financial aid process, decisions regarding transfer to a four-year institution, procrastination, and lack of interest.

In conclusion, many of the potential variables influencing academic outcome and retention are consistent with the characteristics of community college students.
Upholding an open admissions philosophy, community colleges require minimal academic achievements, resulting in a wide range of academic and social preparation among a diverse student population (American Association of Community Colleges, 2011; American Council on Education, 2003; National Center for Education Statistics, 2003). In addition, the educational goals of students may vary according to career advancement, transfer plans, need for degree completion, and personal interest (American Association of Community Colleges, 2011; American Council on Education, 2003; National Center for Education Statistics, 2003). Previous literature has documented that the majority of community college students are older adults, are employed, enroll on a part-time basis, need developmental education, or have lower socioeconomic status and receive financial aid (Ford et al., 2008; Hiller, 2005; Keck, 2007; Mendolia-Perez, 2004; Safer, 2009; Zottos, 2005). Therefore, community college students should be encouraged to enroll prior to the first day of class to reduce the potential negative influences on their academic success.

Limitations of Study

The study examined the impact of registration behaviors on academic outcomes and retention rates. The independent variable of registration behaviors was categorized as either regular or late. Regular registration included priority registration (which is the first week of registration for currently enrolled students) and regular registration which extends until the day prior to the first day of classes. The dependent variable of academic outcome was measured by the end of the semester grade for the course and retention rate was measured by enrollment in the subsequent semester. Several limitations may have influenced the findings of the study, including categorization of registration behavior,
One limitation was that the study did not differentiate between early and regular registration and did not take into account the specific number of days after the first day of class in which students enrolled late. Therefore, students who enrolled the day prior to the first day of class were categorized as regular registrants while students who enrolled the very next day on the first day of class were considered late registrants. Both groups of students may have experienced the same negative impacts of limited course options, limited scheduling opportunities, and procrastination habits.

A large sample size was used in the study to ensure an accurate representation of the population and to increase the ability of generalizing the findings. However, since the sample size was considered quite large, significant Chi-Square tests were to be expected (Field, 2009). Cramer’s V and Goodman and Kruskal’s tau were computed to judge practical effects.

**Implications**

Based on these findings, several implications were deduced. The most frequently reported possible reason for late registration by community college students was the last minute decision to attend college, which implies that the open door policy, allowing students to be admitted with open access, provides many students the opportunity to attend college and benefit from higher learning. The positive outcome is that a higher number of students begin their higher education soon after they make the decision to attend college. Community college students tend to be non-traditional students who work full-time, have family responsibilities and financial concerns, which may provide
challenges in their attendance and enrollment in college. The decision to attend college may be determined by these external factors; therefore, the opportunity to enroll with open admissions and accessibility is beneficial to them. The negative outcome is that they may not be adequately prepared academically and emotionally to begin college even though they have made the decision to do so.

Procrastination was found to be one of the most common reasons why students enroll late. It may be implied that students who procrastinate tend to be less successful. Ford et al. (2008) support the explanation that personality factor of conscientiousness is positively related to academic achievement; while procrastination is negatively related. Late registrants who procrastinate and enroll late are less likely to have their choice of faculty and schedule of classes. They may end up with the less popular times of classes such as early morning or late evening; which may hinder their likelihood of attending class or being alert in class. They may miss the first day of class in which they are introduced to the course expectations and assignments. Perkins (2002) discussed the critical importance of attendance during the first day of class including review of course syllabus, learning goals and objectives, clarification of informal and formal expectations, meeting other students to form study groups and create support networks, and beginning to build a relationship with instructor. Furthermore, their late enrollment in the course may negatively affect their relationship with the faculty member. All these variables may result in lower academic success.

Due to the diverse make-up of the population of community college students, and environment which is created by the open-door policy, many variables influence the academic outcomes and retention rates of students regardless of the registration
behaviors. Therefore, even though the study found statistical significance, it may not be practically significant due to the various confounding variables. Community college students tend to be academically underprepared, have less specific educational and career goals, and low levels of confidence and motivation. They include first generation students who may lack the family support and knowledge about the processes of higher education. Moreover, community college students tend to be over the age of 24, work full-time with diverse work-life balance issues, have a lower socio-economic level challenged with financial obstacles, and have many family obligations (Bean & Metzner, 1985; Keck, 2007). All these factors influence academic outcomes and retention rates of students.

Recommendations to Counselors, Administrators, and Educators

Based on the findings of the present investigation indicating a ten percent decrease in retention rates, it could be implied that late registration hinders the academic success and retention of community college students. However, late registrants may still have the potential to succeed with the implementation of a variety procedures, practices, and programs. The following recommendations to counselors, administrators, and educators can be postulated based on the findings and implications of existing literature and of the present study:

Counselors

- Admission counselors should inform high school counselors and students of the registration periods and should encourage prospective students to apply early, begin their financial aid process as soon as possible, and meet with a career counselor if necessary. They should also inform them of the negative impact of late enrollment in college classes.
Students should be required to meet with a college counselor prior to enrolling late for classes to receive approval and guidance. The students’ reason for late enrollment, academic preparation and college readiness, knowledge of course content, time management skills, level of motivation, and other factors, should be discussed at length during the meeting with the counselor; in addition to the hazards of late enrollment.

College counselors should educate late registrants on the importance of the additional effort required on their part to become up-to-date on class work and assignments after missing the first day of class.

Individual or group counseling should be required for late registrants throughout the semester to provide support and enhance skills. Topics should include time management, organizational skills, study strategies, test-taking skills, and academic planning.

Administrators

A pre-enrollment orientation should be mandatory for all new incoming students, covering pertinent topics such as academic advising, career planning, support services, financial aid and payment options, degree offerings and requirements, student activities, benefits of college education, and college expectations. New students in orientation should be encouraged to enroll early for classes and be made aware of the positive advantages of early registration and the negative impacts of late enrollment.

A specific orientation program should be provided after the first day of class for late registrants emphasizing the importance of goal setting, time management,
organizational skills, and work/life balance. Peer mentors should be assigned to late registrants during the mandatory orientation program prior to their enrollment and attendance in classes.

- The admission and registration process should be easily accessible to prospective students who are able to benefit from higher education, using the latest technology such as mobile applications and sources on the internet. Instructional information about the admission, financial aid, and registration process should be made available through the latest use of technology such as short video clips and step by step instructions.

- To reduce the number of students enrolling late for classes, institutions should offer later starting classes to allow students who decide to attend college after the first day of class to enroll without the negative impact of missing class sessions due to late registration.

- Flexible payment options for tuition and fees should be made available for students who need financial assistance and may not qualify for financial aid.

- Late enrollment should be limited to students who have successfully completed college-level courses and have demonstrated their potential to be successful. Students who place in developmental courses, have a low cumulative GPA, and have other factors that hinder success should be restricted from enrolling late.

- Currently enrolled students should receive correspondence highlighting the advantages of early advising and registration to encourage early action.

- Supplemental instructional support and learning assistance services should be available and strongly recommended for late registrants.
Educators

- Educators should meet with late registrants outside of class to review the course syllabus, course expectations, and discuss missed assignments or work.
- Educators are recommended to encourage and support all students, especially late registrants, to engage with their peers both in and out of the classroom.
- Educators should inform their students of upcoming registration periods and encourage students to enroll early.

Recommendations for Future Research

Based upon the limitations and finding of this study, recommendations for further research and investigation are provided. The present study did not differentiate between new and returning students, future studies could examine if there is a difference in the academic outcome and retention rates of new first time enrolling students and returning students who enroll late. Additional research could study the impact of late enrollment in on-line, developmental, or accelerated courses. The present study tracked the retention rate of students in the subsequent semester and examined students per semester as independent variables; however, longitudinal research could be conducted to track students over two or more years to analyze persistence and graduation rates and track the patterns of late registrants to examine if they continuously enroll late each semester.

The present study examined the possible reasons why students enroll late using a questionnaire; additional research could further examine the reasons using qualitative methods such as interviews and focus groups. In addition, quantitative and qualitative research could be conducted to examine why students enroll early. The present study recommends that students enrolling late must participate in an extensive counseling
session to discuss the students' reasons for late enrollment and the hazards of registering after the first day of class; in addition to reviewing college success skills to promote academic success. Future research could be conducted to investigate the impact of the counseling sessions on the academic outcomes of late registrants.
### Table 1

**Demographic Table of the Participating Late Registrants**

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at the time of the questionnaire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional (ranging from 17-24)</td>
<td>53</td>
<td>63.9</td>
</tr>
<tr>
<td>Non-Traditional (ranging from 25-51)</td>
<td>30</td>
<td>36.1</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>36</td>
<td>43.4</td>
</tr>
<tr>
<td>Male</td>
<td>47</td>
<td>56.6</td>
</tr>
<tr>
<td>Employment of hours worked per week</td>
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<td></td>
</tr>
<tr>
<td>No response provided</td>
<td>13</td>
<td>15.7</td>
</tr>
<tr>
<td>Zero hours of employment listed</td>
<td>16</td>
<td>19.3</td>
</tr>
<tr>
<td>Part-Time (ranging from 6-38 hr/wk)</td>
<td>28</td>
<td>33.7</td>
</tr>
<tr>
<td>Full-Time (ranging from 40-70 hrs/wk)</td>
<td>26</td>
<td>31.3</td>
</tr>
<tr>
<td>Desired credits of enrollment for fall semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No response provided</td>
<td>18</td>
<td>21.7</td>
</tr>
<tr>
<td>Part-Time (ranging from 0-11 semester credits)</td>
<td>35</td>
<td>42.2</td>
</tr>
<tr>
<td>Full-Time (ranging from 12-16 semester credits)</td>
<td>30</td>
<td>36.1</td>
</tr>
<tr>
<td>Knowledge if desired classes have already started</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don’t know</td>
<td>29</td>
<td>34.9</td>
</tr>
<tr>
<td>Yes</td>
<td>38</td>
<td>45.8</td>
</tr>
<tr>
<td>No</td>
<td>16</td>
<td>19.3</td>
</tr>
</tbody>
</table>

*Note.* Total number of participants equals 83.
### Table 2

**Demographic Variables in Relation to Registration Type**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Registration Type</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Regular</td>
<td>Late</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Traditional</td>
<td>4,707 (49%)</td>
<td>4,902 (51%)</td>
</tr>
<tr>
<td>Traditional</td>
<td>7,809 (50.6%)</td>
<td>7,634 (49.4%)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>7,132 (51.9%)</td>
<td>6,617 (48.1%)</td>
</tr>
<tr>
<td>Male</td>
<td>5,384 (47.6%)</td>
<td>5,918 (52.4%)</td>
</tr>
<tr>
<td><strong>Ethnicity/Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>6,610 (55.2%)</td>
<td>5,355 (44.8%)</td>
</tr>
<tr>
<td>Students of Color</td>
<td>5,906 (45.1%)</td>
<td>7,181 (54.9%)</td>
</tr>
<tr>
<td><strong>Academic Intent</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Curricular</td>
<td>527 (41.1%)</td>
<td>756 (58.9%)</td>
</tr>
<tr>
<td>Curricular</td>
<td>11,989 (50.4%)</td>
<td>11,780 (49.6%)</td>
</tr>
</tbody>
</table>

*Note:* Percentages in parentheses indicate the proportion of applicants per group for the total sample.
Table 3

Independent t-tests for Academic Outcome and Retention Rate

<table>
<thead>
<tr>
<th>Registration behavior</th>
<th>Mean of Dependent Variable</th>
<th>Standard Deviation of Dependent Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Course Grade</td>
<td>Course Grade</td>
</tr>
<tr>
<td>Regular</td>
<td>2.22</td>
<td>1.568</td>
</tr>
<tr>
<td>Late</td>
<td>1.81</td>
<td>1.607</td>
</tr>
<tr>
<td></td>
<td>Retention Rate</td>
<td>Retention Rate</td>
</tr>
<tr>
<td>Regular</td>
<td>.72</td>
<td>.451</td>
</tr>
<tr>
<td>Late</td>
<td>.60</td>
<td>.489</td>
</tr>
</tbody>
</table>
Table 4

*Frequency Table of Responses on Questionnaire*

<table>
<thead>
<tr>
<th>Possible Reasons for Late Registration</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time-Line Related</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. I wasn’t aware that classes had already started</td>
<td>28</td>
<td>33.7</td>
</tr>
<tr>
<td>2. I didn’t need to register any earlier since the courses are still available</td>
<td>3</td>
<td>3.6</td>
</tr>
<tr>
<td>3. I thought that the lines would be shorter after classes began</td>
<td>3</td>
<td>3.6</td>
</tr>
<tr>
<td>4. I just put things off until the very end</td>
<td>23</td>
<td>27.7</td>
</tr>
<tr>
<td>5. I just arrived in town</td>
<td>16</td>
<td>19.3</td>
</tr>
<tr>
<td><strong>Decision-Making Reasons</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I was planning to attend another college but couldn’t</td>
<td>28</td>
<td>33.7</td>
</tr>
<tr>
<td>7. I only decided in the last few days to attend a college</td>
<td>33</td>
<td>39.8</td>
</tr>
<tr>
<td><strong>Financial Reasons</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I’ve been waiting for my financial aid</td>
<td>29</td>
<td>34.9</td>
</tr>
<tr>
<td>9. I did not previously have funds to pay tuition</td>
<td>15</td>
<td>18.1</td>
</tr>
<tr>
<td>10. I was just made aware that I was eligible for financial aid or benefits</td>
<td>14</td>
<td>16.9</td>
</tr>
<tr>
<td><strong>Enrollment Process</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. I tried to register earlier but the process took longer than expected</td>
<td>27</td>
<td>32.5</td>
</tr>
<tr>
<td>12. I’ve been waiting for my test scores</td>
<td>7</td>
<td>8.4</td>
</tr>
<tr>
<td>13. I’ve been waiting for high school diploma</td>
<td>5</td>
<td>6.0</td>
</tr>
<tr>
<td>14. I needed approval signatures to enroll</td>
<td>10</td>
<td>12.0</td>
</tr>
<tr>
<td><strong>Personal Matters</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. I did not have transportation</td>
<td>8</td>
<td>9.6</td>
</tr>
<tr>
<td>16. I did not have child care arrangements</td>
<td>7</td>
<td>8.4</td>
</tr>
<tr>
<td>17. I was uncertain about my work schedule</td>
<td>19</td>
<td>22.9</td>
</tr>
<tr>
<td>18. I was delayed due to family obligations</td>
<td>23</td>
<td>27.7</td>
</tr>
</tbody>
</table>

*Note.* Total number of participants equals 83.
REFERENCES


Mendiola-Perez, C. (2004). *The effects of early, regular, and late registration on academic success and retention of community college students.* (Doctoral
dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3124331)


Community College Research, Broome Community College. (ERIC Document Reproduction Service No. ED 275370)


LETTER OF SUPPORT FOR STUDY

April 15, 2011

Old Dominion University
Institutional Review Board
Norfolk, Virginia 23529

To Whom It May Concern,

I write to convey my support for a study that Kathy Maalouf is working on at the Virginia Beach Campus of Tidewater Community College (TCC) that involves increasing our understanding of students that enroll late.

TCC has long been focused on documenting and improving student success and I expect this study to help us better understand those students that enroll late. If we can begin to identify the correlations between student success and late enrollments we should be able to modify institutional policy and practice, if necessary, to positively impact student success.

We look forward to this work and its potential to improve student success at Tidewater Community College.

Kind regards,

Michael Summers
Provost
APPENDIX B

QUESTIONNAIRE BY BELCHER AND PATTERSON (1990)

What is your student number? 

Are you: (pick one)

adding and dropping classes that you’ve already registered for 
re-registering after your class schedule was voided
registering for Fall term classes for the first time

Have the classes you want to take already started?

yes When did they begin?
no When will they begin?
I don’t know if classes have begun

Why are you registering now? (check all that apply)

I wasn’t aware classes had already started
I’ve been waiting for my financial aid
I only decided in the last few days to attend M-DCC
I just arrived in town
I was planning to go away to school but couldn’t
I’ve been waiting on my test scores or high school diploma
I wasn’t sure until now that I would have enough money to go to school
I didn’t need to register any earlier since the schedule of times and courses I want are still be available
the lines are shorter now
I just put things off until the very end
Other (please explain)

If you were charged $25.00 for registering late, would you.

register before the deadline
register after the deadline and pay the $25.00
not register at all that semester

If you were stopped from registering after the first day of class, would you:

register before the first day
not register at all that semester

Other comments:

Institutional Research
8/30/90

18
APPENDIX C

QUESTIONNAIRE

Today's Date: _____________  Age: _____________  Gender: _____________

Are you: (pick one)

_____ Registering for fall semester classes for the first time
_____ Re-registering because your classes were dropped due to financial aid
_____ Adding or dropping classes to your current schedule

Have the classes you want to take already started?

_____ If yes, when did they begin? ________________
_____ If no, when will they begin? ________________
_____ I don't know if the classes have begun

How many hours do you work per week? _______________________________

How many credits are you registering for fall semester? __________________________

Please check the reason(s) why you are registering now:

Time Line Related

_____ I wasn't aware that classes had already started
_____ I didn’t need to register any earlier since the courses are still available
_____ I thought that the lines would be shorter after classes began
_____ I just put things off until the very end
_____ I just arrived in town

Decision-Making Reasons

_____ I was planning to attend another college but couldn’t
_____ I only decided in the last few days to attend a college

Financial Reasons

_____ I’ve been waiting for my financial aid
_____ I did not previously have funds to pay tuition
_____ I was just made aware that I was eligible for financial aid or benefits

Enrollment Process

_____ I tried to register earlier but the process took longer than expected
_____ I’ve been waiting for my test scores
_____ I’ve been waiting for high school diploma
_____ I needed approval signatures to enroll

Personal Matters

_____ I did not have transportation
_____ I did not have child care arrangements
_____ I was uncertain about my work schedule
_____ I was delayed due to family obligations

Other (please explain) ____________________________________________

Thank you for participating in the survey!

Please place the completed questionnaire in the secured box next to the window.
APPENDIX D

LETTER OF AUTHORIZATION

From: Kaiser, David [dkaiser@mdc.edu]
Sent: Monday, February 07, 2011 9:42 AM
To: Kathy Maalouf
Cc: Remley, Theodore P.; kmaal001@odu.edu
Subject: RE: Dissertation Study at TCC

Kathy,
You are granted permission to use the questions from “Who Are Late Registrants and What Will They Do when Faced with a Late Registration Fee? 1990 by Marcia Belcher and Carol Patterson” in the development of a questionnaire to be administered to students at TCC. However, I do not have validity or reliability information for the questionnaire. Good luck in your research,
-DMK

Dr. David M. Kaiser
Director of Institutional Research
Miami Dade College
300 N.E. 2nd Avenue
Miami, Florida 33132
(305) 237-7468 dkaiser@mdc.edu

Please Note: Due to Florida's very broad public records law, most written communications to or from College employees regarding College business are public records, available to the public and media upon request. Therefore, this e-mail communication may be subject to public disclosure.

From: Kathy Maalouf [mailto:kmaalouf@tcc.edul
Sent: Monday, January 31, 2011 11:29 PM
To: Kaiser, David
Cc: Remley, Theodore P.; kmaal001@odu.edu
Subject: Dissertation Study at TCC

Dr. Kaiser,
Hello! My name is Kathy Maalouf, a current doctoral student at Old Dominion University (ODU) and administrator at Tidewater Community College (TCC) in Virginia Beach, VA. I am in the process of planning my dissertation proposal in which I will examine the effects of students' registration behaviors on subsequent academic outcomes at TCC. To better understand why community college students register late, a questionnaire will be administered to late enrolling students.
After a thorough literature review, I found only one questionnaire relating to late enrollment which was developed in 1990 by Marcia Belcher and Carol Patterson at Miami Dade Community College. I am requesting permission to use the questions to assist me in the development of a questionnaire to be administered to students at TCC. In addition, would you be able to provide me with any validity or reliability information relating to Belcher and Patterson's questionnaire?

I appreciate any information that you can provide regarding Belcher and Patterson's study.

The article may be found at https://tccremote2.tcc.edu/ERICWebPortal/search/DanaInfo=.awxyCiwojHnnKs19+deta ilmini.jsp?nfpb=true& &ERICExtSearch_SearchValue_0=ED328324&ERICExtSearch _SearchType_0=no&accno=ED328324

Respectfully Submitted,

Kathy

Kathy Maalouf, MSEd
Coordinator of Support Services
Associate Professor
Tidewater Community College
Virginia Beach Campus

kmaalouf@tcc.edu
(757) 822-7214
APPENDIX E

INFORMED CONSENT DOCUMENT

OLD DOMINION UNIVERSITY

PROJECT TITLE: The influence of late registration on academic outcomes and retention at a multi-campus community college

INTRODUCTION
The purposes of this form are to give you information that may affect your decision whether to say YES or NO to participation in this research, and to record the consent of those who say YES. The research study helps to further understand the reason why students enroll late to classes at the community college.

RESEARCHERS
Dr. Danica Hays, Associate Professor of Counseling/Graduate Program Director, PhD in Counselor and Practice, Old Dominion University, Dept. of Counseling and Human Services
Kathy Maalouf, Coordinator of Support Services and doctoral student in PhD program in Counselor Education, Old Dominion University

DESCRIPTION OF RESEARCH STUDY
Several studies have been conducted looking into the impact of late registration on academic outcomes of community college students. However, no research has adequately examined the reasons why students enroll late. In the researchers’ efforts to provide recommendations to the institutional policies for open enrollment, they are examining the reason why students enroll late at the community college.

If you decide to participate, then you will join a study involving research of non-experimental design investigating the impact of late enrollment on academic outcomes. You will be asked to complete the questionnaire regarding your reasons for late enrollment.

If you say YES, then your participation will last for approximately 5 minutes to complete the questionnaire at the Enrollment Services window on the Virginia Beach Campus of Tidewater Community College. Approximately 500 new and returning students participating in initial enrollment after the first day of classes of the fall 2011 semester will be participating in this study. Your participation in the study will not affect your enrollment status.

EXCLUSIONARY CRITERIA
You should be participating in your initial enrollment for the fall 2011 semester to complete the questionnaire to the best of your knowledge. You should not have already enrolled in classes for the semester since that would keep you from participating in this study. You should not be adding or swapping courses, the questionnaire is only for initial late enrollment at the Virginia Beach Campus.
RISKS AND BENEFITS
RISKS: If you decide to participate in this study, then you may face a minimal risk of spending 5 minutes on completing the questionnaire. The researchers tried to reduce these risks by developing a concise and anonymous questionnaire. And, as with any research, there is some possibility that you may be subject to risks that have not yet been identified.

BENEFITS: The main benefit to you for participating in this study is to be involved in the contribution of better understanding of the reasons why students enroll late in classes at the community college and to assist the researchers in recommending interventions to assist late registrants in increasing their academic outcomes. Others may benefit by the information you provide through recommendations to institutional policies regarding late enrollment.

COSTS AND PAYMENTS
The researchers are unable to give you any payment for participating in this study.

NEW INFORMATION
If the researchers find new information during this study that would reasonably change your decision about participating, then they will give it to you.

CONFIDENTIALITY
The researchers will take reasonable steps to keep private information and your responses to the questionnaire confidential. The researchers will remove any identifiers from the information and will store information in a locked filing cabinet prior to its processing. The results of this study may be used in reports, presentations, and publications; but the researchers will not identify you. Of course, your records may be subpoenaed by court order or inspected by government bodies with oversight authority.

WITHDRAWAL PRIVILEGE
It is OK for you to say NO. Even if you say YES now, you are free to say NO later, and walk away or withdraw from the study -- at any time. Your decision will not affect your relationship with Tidewater Community College or Old Dominion University, or otherwise cause a loss of benefits to which you might otherwise be entitled.

COMPENSATION FOR ILLNESS AND INJURY
If you say YES, then your consent in this document does not waive any of your legal rights. However, in the event of any harm arising from this study, neither Old Dominion University nor Tidewater Community College, nor the researchers are able to give you any money, insurance coverage, free medical care, or any other compensation for such injury. In the event that you suffer injury as a result of participation in any research project, you may contact the responsible principal investigator Dr. Danica Hays at 757-683-6692 or investigator Kathy Maalouf at 757-822-7214 or Dr. George Maihafer the current IRB chair at 757-683-4520 at Old Dominion University, who will be glad to review the matter with you.
VOLUNTARY CONSENT
By signing this form, you are saying several things. You are saying that you have read this form or have had it read to you, that you are satisfied that you understand this form, the research study, and its risks and benefits. The researchers should have answered any questions you may have had about the research. If you have any questions later on, then the following researchers should be able to answer them:
Dr. Danica Hays, the responsible principal investigator, at 757-683-6692
Kathy Maalouf, investigator, at 757-822-7214

If at any time you feel pressured to participate, or if you have any questions about your rights or this form, then you should call Dr. George Maihafer, the current IRB chair, at 757-683-4520, or the Old Dominion University Office of Research, at 757-683-3460. And importantly, by signing below, you are telling the researchers YES that you agree to participate in this study. The researcher should give you a copy of this form for your records.

<table>
<thead>
<tr>
<th>Subject's Printed Name &amp; Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent / Legally Authorized Representative’s Printed Name &amp; Signature (If applicable)</td>
<td>Date</td>
</tr>
<tr>
<td>Witness' Printed Name &amp; Signature (if Applicable)</td>
<td>Date</td>
</tr>
</tbody>
</table>

INVESTIGATOR’S STATEMENT
I certify that I have explained to this subject the nature and purpose of this research, including benefits, risks, costs, and any experimental procedures. I have described the rights and protections afforded to human subjects and have done nothing to pressure, coerce, or falsely entice this subject into participating. I am aware of my obligations under state and federal laws, and promise compliance. I have answered the subject's questions and have encouraged him/her to ask additional questions at any time during the course of this study. I have witnessed the above signature(s) on this consent form.

<table>
<thead>
<tr>
<th>Investigator's Printed Name &amp; Signature</th>
<th>Date</th>
</tr>
</thead>
</table>
INFLUENCE OF LATE REGISTRATION ON ACADEMIC OUTCOMES

VITA

Kathy John Maalouf
Old Dominion University
Department of Counseling & Human Services
Norfolk, VA 23529

EDUCATION

Ph.D. Counselor Education, Old Dominion University in progress
M.S. Applied Psychology, Christopher Newport University May 2002
M.S. Education: Counseling, Old Dominion University December 1997
B.A. Psychology, University of Central Florida August 1993

PROFESSIONAL EXPERIENCE

Tidewater Community College, Norfolk, VA
   Acting Associate Vice President for Student Services September 2012-present
   Success Interim Dean of Student Services June 2006-July 2007
   Coordinator of Support Services July 2005-September 2012
   Associate Professor May 2002-May 2012
   Counselor March 2000-July 2005
   Assistant Professor March 2000-May 2002

Old Dominion University, Norfolk, VA
   Teaching Assistant, College Counseling Fall 2012
   Site Adjunct Instructor, Internship in Human Services Spring 2012-Fall 2012

PRESENTATIONS


Maalouf, K., Callahan, B., & Stafford, C. (September, 2012). Meeting The Diverse Needs of Today’s Community College Students. Presented at the National Academic Advising Association (NACADA) VA state conference in Richmond, VA.


PROFESSIONAL AFFILIATIONS

American Association of Community Colleges
American College Counseling Association
American Counseling Association
Student Affairs Administrators in Higher Education
National Academic Advising Association
Education