THE CREATION AND ASSESSMENT OF A SOCIAL INTEGRATION PREDICTIVE MODEL
FOR A LARGE SUBURBAN COMMUNITY COLLEGE

by
Bob Bade
Liberty University

A Dissertation Presented in Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education

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ABSTRACT

The purpose of this predictive correlation study was to create and assess a model of programs and activities to predict student social integration at a large suburban community college. This study’s model was based upon Tinto’s student integration theory (1975, 1987, 1993) and employed hierarchical multiple regression to analyze the data. The data for this study was archival Community College Survey of Student Engagement (CCSSE) self-report data from students at a large suburban community college in Florida. Predictor variables included participation in extended orientation programs and student success courses, participation with classmates inside and out of class on academic related projects, and participation in co-curricular student activity programs and student clubs/organizations. Control variables included sex, age, hours worked per week and caring for dependents. The criterion variable was student self reports of social integration. The model was significant \((p < .01)\) and demonstrated a medium effect size. The final overall model accounted for 14.2\% of the variation in student self-reports of their social integration. Additional community college social integration factors to be considered for future research models are discussed. Strategies to maximize social integration are provided for practitioners.

*Keywords:* Community college, social integration, student retention, orientation, student success course, socio-academic integration, student activity programs, student organizations, Community College Survey of Student Engagement, CCSSE, student integration theory.
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**List of Abbreviations**

Community College Survey of Student Engagement (CCSSE)

Cooperative Institutional Research Program (CIRP)

Input-environment-output model (I-E-O Model)

Institutional Review Board (IRB)

Statistical Package for the Social Sciences (SPSS)

Structured Equation Modeling (SEM)

Student Government Association (SGA)

Variable Inflation Factors (VIFs)
CHAPTER ONE: INTRODUCTION

Introduction

The United States ranks 16th in the world for college completion rates among those age 25-34 (American Association of Community Colleges, 2012). President Obama established a goal by the year 2020, “America will once again have the highest proportion of college graduates in the world” (Lumina Foundation, 2012, p. 11). Community college student retention plays a crucial role in achieving this goal, for community colleges serve almost half of the undergraduate students in the United States. Recent data confirms approximately eight out of 10 community college students enroll with the intentions of obtaining a formal credential or to transfer and pursue a four year degree (The Century Foundation Task Force, 2013).

Community colleges currently provide extensive access to postsecondary education; however, there are many concerns regarding student retention rates, an institution’s ability to retain a student from admission until graduation (Berger & Lyon, 2005). In 2010, 44% of students enrolled in public, two-year colleges were not retained (Habley, Valiga, McClanahan & Burkum, 2010). The cost of dropout is high for colleges, students, and society.

Financial consequences of poor community college student retention on the United States is substantial. The total taxpayer commitment for each community college degree is approximately $54,770 (Belfield & Jenkins, 2014). If the retention rate of community colleges could be improved by 50%, it is estimated 160,000 additional graduates would earn $30 billion more in career income and create $5.3 billion in additional taxpayer revenue (Schneider & Yin, 2012).

Consequences experienced by students not retained are both monetary and psychological. Monetary costs include lost wages that a student could have earned in employment during the
time the student was enrolled in college. In addition, costs to the student include the tuition, fees, books, and supplies purchased for those terms the student was enrolled. As Schneider and Yin (2011) explained “these students have paid tuition, borrowed money, and changed their lives in pursuit of a degree they will likely never earn” (p. 4). McIntosh and Rouse (2009) also identified a non-monetary cost associated with attrition. According to these researchers, unsuccessful attempts of college enrollment can have detrimental effects on a student’s psychological feelings about the cost of future investment in higher education. For these students, re-enrollment is treated like any other investment where costs are compared to benefits. These students weigh the benefits of completing a degree and their feelings of perceived lack of academic strengths and abilities (Stuart, Rios-Aquilar & Deil-Amen, 2014). Data confirms unsuccessful attempts at community college may affect students to the point where they do not feel re-enrollment is a good investment. In a study of over 14,000 community college students in 2005, it was found that large percentages of community college students drop out in their first term and the majority of these students never attend any college again (Crosta, 2013). In summary, attrition is devastating and demoralizing to students as a result of the financial and personal consequences.

Due to the high community college attrition rates and cost associated with this problem, additional research is needed. A review of the existing research and theory identifies reasons why community college students drop out. These reasons include caring for dependents, financial independence, delaying enrollment after high school, being a first-generation college student, lack of a high school diploma, enrolling part-time, and working full-time (Burns, 2010; Burrus et al., 2013; College Board, 2014). However, the study of community college dropouts is not sufficient. Tinto and Pusser (2006) explained:
Knowing why students leave does not tell us, at least not directly, why students persist . . . More importantly it does not tell institutions, at least not directly, what they can do to help students stay and succeed. In the world of action, what matters are not our theories per se, but how they help institutions address pressing practical issues of persistence. (p. 6)

Persistence can be defined as “when students remain at the institution for the duration of their studies” (Derby & Smith, 2004, p. 764). Existing research indicates that students most likely to graduate from community colleges are those who have strong high school preparation, enter community colleges immediately after high school, are from high income families, have parents who attended college, and attend college uninterrupted (Burns, 2010). Community colleges can do very little about these variables.

However, community colleges, which have very similar student body profiles to each other, can shape their environments to influence student persistence (Bailey, Calcagno, Jenkins, Kienzl, & Leinbach, 2005). Astin’s (1975, 1977, 1993) student involvement theory, Tinto’s (1975, 1987, 1993) model of student integration, and Bean and Metzner’s (1985) model for nontraditional students offer explanations for how college environments influence student persistence. In their models, Astin and Tinto stressed student social integration as one of the most important factors in retention. Later, Bean and Metzner (1985) provided a model that examined the college environment and the role of social integration on persistence of nontraditional students. In the article titled Research and Practice of Student Retention: What Next? Tinto (2007) provided researchers with a directive to focus on projects such as exploration of successful community college social integration models when he stated: “What is needed and what is not yet available is a model of institutional action that provides guidelines for the
development of effective policies and programs that institutions can reasonably employ to enhance the persistence of all their students” (pp. 6-7).

This study utilized Astin’s (1975, 1977, 1993) student involvement theory, Tinto’s (1975, 1987, 1993) integration model and Bean and Metzner’s (1985) model for nontraditional students in order to explore a model of community college programs and activities to predict social integration, which has been found to be significantly associated with retention (Bers & Smith, 1991; Deil-Amen, 2011; Karp, Hughes & O’Gara, 2008; Napoli & Wortman, 1998; Napoli & Wortman, 1996; Pascarella, Smart & Ethington, 1986; Tinto, 1997). Programs and activities assessed were extended orientation programs and student success courses, the interaction in and out of class between students on academic related projects, and participation in co-curricular student activity programs and organizations.

Chapter One provides a background of the topic. This background includes a brief summary of student social integration theories, community college retention research, and identified needs for current studies. It provides a summary of the study in this research project. Chapter Two provides a more detailed description of retention theories appropriate for this study. These include Astin’s (1975, 1977, 1993) student involvement theory, Tinto’s (1975, 1987, 1993) integration model and Bean and Metzner’s (1985) model for nontraditional students. It also provides a comprehensive review of the literature on community college student social integration. The review identified themes that are utilized as the basis for this study. Chapter Three provides a description of the design and analysis utilized for this study, and Chapter Four provides the study results. Chapter Five provides a discussion on the findings, implications, and opportunities for future community college social integration research.
Background

Community College Environments

Community colleges, compared to four year universities and colleges, typically enroll larger percentages of students with characteristics such as caring for dependents, being a first-generation college student, lack of a high school diploma, enrolling part-time, and working full-time, that are negatively associated with academic success (Burns, 2010). These characteristics explain some of the reasons for low retention rates. However, academic success and retention have also been found to vary significantly among community colleges, suggesting some colleges may have better environments to serve students and to encourage success and retention (Bailey, Jacobs, Jenkins, & Leinbach, 2003). Astin (1975, 1977, 1984, 1993), Tinto (1975, 1987, 1993), and Bean and Metzner (1985, 1987) are prominent researchers most often cited in student retention literature to explain how the college environment can influence the retention of college students.

Astin (1975, 1977, 1984, 1993) was one of the first researchers to write extensively about the importance of relationships and the time students spend in different activities on college campuses. Astin’s (1975, 1977, 1984, 1993) work highlighted the associations between student involvement in programs such as co-curricular activities with retention. However, it was Tinto’s (1975, 1987, 1993) model of student integration that provided researchers with additional constructs to explain why colleges have better success retaining students. Like Astin, Tinto’s model stresses the importance of the interaction between individuals and their college environment. Specifically, Tinto’s (1975, 1987, 1993) posited through the model of student integration that persistence is determined by students’ commitment to the institution, their social integration, and their academic integration. Commitment to the institution, according to Tinto,
refers to how motivated a student is to graduate from that particular institution. Academic integration has been operationalized (Napoli & Wortman, 1998; Pascarella et al., 1986) to include good grades, whether students are enjoying their subject materials, and if they can identify with the academic norms and values of the college. Social integration refers to how well the student feels he or she is socially fitting into the college environment as evidenced by interactions with other students and involvement in programs such as co-curricular activities. According to Tinto (1998), individuals are more likely to persist when their commitment to the institution is high and “are more likely to persist when they are either academically or socially integrated and even more likely to persist when both forms of integration occur” (p. 168).

**Community College Student Social Integration**

The research in this study focused exclusively on the social integration of community college students. Although some researchers such as Bean and Metzner (1985) provided a model and research confirming that non-traditional students differ from traditional students on social integration and student retention, overall, research has demonstrated social integration as posited by Tinto to be applicable as a key variable in community college student retention (Bers & Smith, 1991; Deil-Amen, 2011; Karp et al., 2008; Napoli & Wortman, 1998; Napoli & Wortman, 1996; Pascarella et al., 1986; Tinto, 1997).

Research also documents the association of an increase of community college student social integration as a result of student involvement in certain programs and activities. These include extended orientation programs (Cain, 2010); student success courses (Karp et al., 2008; Klein, 2013; Pascarella & Terenzini, 1991; Tighe, 2008); and co-curricular student activities, clubs, and organizations (Holmes, 2012; Smith, 2008; Songer, 2011; Schmid & Abell, 2003; Wood & Williams, 2013). Finally, research demonstrates an association between in class and out
of class work with other students on academic related projects and community college social integration (Deil-Amen, 2011; Hagedorn, Maxwell, Rodriguez, Hocevar & Fillpot, 2000; Maxwell, 2000).

Several researchers discussed the potential of increasing community college social integration as a result of student participation in a combination of programs. For example, Deil-Amen (2011) suggested there might be bridges between academic and co-curricular activities that can enhance social integration within community colleges. Karp (2011) concurred and added “what is this effect, and how do we best capitalize on it?” (p. 23). Additionally, Saenz et al. (2011) discovered community college students who demonstrate high engagement typically are connected to more than one program. Those researchers concluded “Thus, the overarching implication of our study is that community colleges can be proactive in crafting academic and social environments that create optimal conditions for engagement by encouraging the use of more student support services among students” (p. 256).

A review of the literature was completed using EBSCOhost and Google search engines. The terms of community college and two-year college along with key terms such as social integration, involvement, belonging sense of community, and engagement were used. In addition, the term model was searched with community college and two-year college. Peer-reviewed research and dissertations on a model of community college social integration are non-existent. Despite the evidence of the association of these above mentioned programs and activities on community college social integration, to date, the predictive validity of a comprehensive model including these activities and programs has yet to be investigated.

Further, research on community college students lags behind research on four-year college and university students. When Pascarella and Terenzini (1991) wrote How College
Affects Students, they noted that of the approximately 2,600 studies reviewed for the book, only 5% were about community colleges. An examination of five major higher education journals for the time period from 1990-2003 did not reveal a significant increase in the research on community colleges. During that time span, only 8% of research studies mentioned community colleges (Townsend, Donaldson & Wilson, 2004). In 2005 the work entitled Student Success in College: Creating Conditions that Matter (Kuh, Kinzie, Shuh, & Whitt, 2004) utilized qualitative research and highlighted noteworthy student engagement and retention performance in postsecondary education. However, work was exclusively based upon the practices at four-year colleges.

Researchers agree with the need for more research on community college student integration. A report on the 2009 Community College Survey of Student Engagement (CCSSE) results stated the creation of programs for students to thrive socially on-campus “requires intentional effort and planning on the part of colleges” and goes on to say “the potential for creating on campus connections is largely untapped” (McClenney, 2009, p. 1). Strayhorn (2012a) elaborated:

There are gaps that need to be filled. Despite having acquired information from a variety of sources about the myriad ways in which college students connect or plug into campus life, we have yet to discern specific attributes or experiences that are most likely to yield the outcomes we desire for students. (p. 14)

Problem Statement

The research documents a gap in the literature regarding community college student retention. While community colleges have very similar student body characteristics to each other, enrolling large percentages of students is known to be at risk of attrition (Burns, 2010),
and there is enough variation among community college retention rates to suggest there are opportunities to study community college environments and learn what facilitates student persistence (Bailey et al., 2005). Several well-documented theorists have stressed the importance of social integration as one of the elements in those environments facilitating student persistence (Astin, 1975, 1977, 1984, 1993; Tinto, 1975, 1987, 1993); however, there is currently little research explaining community college, student social integration as a result of participation in a combination of social integration programs and activities. Further, researchers (Deil-Amen, 2011; Saenz et al., 2011; Santos-George, 2012) suggested a need to study community college social integration models.

**Purpose Statement**

The purpose of this predictive, correlational study was to create and assess a model of community college social integration. Specifically, this study sought to understand how the predictor variables of student participation in extended orientation programs and student success courses, participation inside and out of class with classmates on academic projects, and participation in co-curricular student activities and organizations explained the variance in the criterion variable of student self-reports of student social integration at a large, suburban community college. Theory (Astin, 1975, 1977, 1984, 1993; Tinto, 1975, 1987, 1993) and research (Cain, 2010; Holmes, 2012; Karp et al., 2008; Klein, 2013; Pascarella & Terenzini, 1991; Smith, 2008; Songer, 2011; Schmid & Abell, 2003; Tighe, 2008; Wood & Williams, 2013) indicate participation in these programs and activities are associated with social integration of community college students. As theory (Bean & Metzner, 1985) and research (Bers & Smith, 1991; Mertes, 2013; Schuetz, 2008; Smith, 2008; Williamson-Ashe, 2009) confirm there are differences among community college student characteristics and social integration, including
student age, sex, hours worked per week, and hours taking care of dependents per week, and these characteristics were controlled for in this study.

A predictive, correlational design was employed for this quantitative study to investigate the association of variables. According to Gall, Gall, and Borg (2007), predictive correlation determines the association of predictor variables on a criterion variable. The predictive correlational design accommodated this study because it sought to examine the association of the predictor variables of community college student participation in extended orientation programs and student success courses, work with peers inside and out of class on academic projects, and participation in student activity programs and clubs/organizations on the criterion variable of student social integration.

Hierarchical regression was utilized for data analysis. Hierarchical regression requires the variables to be entered in blocks. Block one consisted of the control variables of age, sex, hours worked per week, and hours taking care of dependents per week. Block two consisted of the predictor variables of participation in extended orientations and student success courses. Block three consisted of the predictor variables of participation inside and out of class with classmates on academic projects. The fourth and final block consisted of the predictor variables of participation in co-curricular student activity programs and organizations. The criterion variable of social integration was defined as the student’s self-report of how much the college has provided the support for them to thrive socially.

The order for the predictor variables was determined by logic, theory, and research. Participation in an extended orientation program or student success course was accounted for as the first predictor in the model. Logic determines participation in these activities will occur prior to any other predictor variable and therefore, it must be the first predictor assessed in students’
social integration. Following orientation, Tinto (1993), within his writings on social integration theory, identified the classroom taking over as the center of social integration, especially for commuting community college students. Therefore, the next predictor variables to be entered into the regression were participation inside and outside of the class with classmates on academic projects. The final predictor variable entered in the hierarchical regression was participation in co-curricular student activities and organizations. Research supports these variables as the last predictor variables to be entered into the regression. Many new students do not initially become involved in co-curricular activities for a variety of reasons (Songer, 2011). An interview with the director of student activities at the location for the study confirmed approximately 80% of students who join student clubs and organizations do not do so until their second or third term of study (Sunshine College Activity Director, personal communication, October 29, 2014). Finally, research suggests co-curricular student activity involvement is influenced by the other predictor variables in this model. Extended orientation and student success course participation (Derby & Smith, 2004; Tighe, 2008) and academic related activities (Deil-Amen, 2011) have been linked to higher participation in co-curricular activities.

**Significance of the Study**

From a theoretical level, this study advances the theory and models proposed by Astin (1975, 1977, 1984, 1993), Tinto (1975, 1987, 1993) and Bean and Metzner (1985). Tinto’s model of student integration (1975, 1987, 1993) specified social integration as a vital retention construct, and it serves as the criterion variable in the current study. Astin’s theory of involvement (1975, 1977, 1984, 1993) provided the theoretical foundation for student involvement in activities and programs and served as the predictor variables in the current study. Bean and Metzner’s (1985) nontraditional model of student attrition provided the
theoretical foundation for control variables in the current study. The common theme among the three retention and attrition theories and models is the importance of peer groups and the environment on student persistence.

This study extended the research work of Deil-Amen (2011) and others (Hagedorn et al., 2000; Maxwell, 2000) who have focused on one activity/program and recognized how academic related activities such as working on class related projects with other students can lead to social integration among community college students. Furthermore, research in this study extended the evidence of programs that have an association with community college social integration and retention such as extended orientations (Cain, 2010), student success courses (Karp, et al., 2008; Pascarella & Terenzini, 1991; Tighe, 2008), co-curricular student clubs and organizations (Songer, 2011; Schmid & Abell, 2003), and other co-curricular student activities (Holmes, 2012; Smith, 2008; Wood & Williams, 2013).

From a practical standpoint, the results of this study have the potential to be utilized by practitioners to direct institutional action that provides guidelines for the development of effective policies and programs that institutions can employ to enhance the persistence of their students. While other studies on community college social integration have used a variety of assessments, this study utilized the Community College Survey of Student Engagement (CCSSE). Over 700 colleges within all 50 states have administered the CCSSE in the past two years (Center for Community College Survey of Student Engagement, 2014a). The methodology employed within this study can be replicated by others to assess social integration programming at community colleges, to evaluate best practices, and to add to the much-needed research on this topic. These practices will lead to an understanding of how community college social integration
programs and activities can best work together to enhance social integration, retention and graduation rates.

**Research Questions**

The research questions and hypotheses for this study were:

**RQ1:** Will student characteristics of age, hours worked per week, hours per week taking care of dependents, and sex significantly predict social integration at a large, suburban, community college?

**RQ2:** Will student participation in extended orientation programs and student success courses significantly predict student self-reports of social integration at a large, suburban, community college?

**RQ3:** Will student self-reports of how often they work with other students on projects during class and how often they work with classmates outside of class to prepare class assignments significantly contribute to the predictive model of students’ self-reports of social integration at a large, suburban, community college?

**RQ4:** Will student participation in co-curricular student activity programs and organizations (hours participating in college-sponsored activities and participation in student clubs and organizations) significantly contribute to the predictive model of students’ self-reports of social integration at a large, suburban, community college?

**RQ5:** Will the linear combination of student participation in extended orientation programs and student success courses, their participation with classmates inside and out of class on academic projects, and their participation in co-curricular student activity programs and organizations significantly predict students’ self-reports of social integration while controlling
for age, hours worked per week, hours per week taking care of dependents, and sex at a large, suburban, community college?

**Hypotheses**

The following were the research hypotheses:

**H1**: Student characteristics of age, hours worked per week, hours per week taking care of dependents, and sex will significantly predict social integration at a large, suburban, community college.

**H2**: Student participation in extended orientation programs and student success courses will significantly predict student self-reports of social integration at a large, suburban, community college.

**H3**: Participation with classmates inside and outside of class on academic projects will significantly contribute to the predictive model of students’ self-reports of social integration at a large, suburban, community college.

**H4**: Participation in co-curricular student activity programs and organizations will significantly contribute to the predictive model of students’ self-reports of social integration at a large, suburban, community college.

**H5**: The linear combination of student participation in extended orientation programs and student success courses, their participation with classmates inside and out of class on academic projects and their participation in co-curricular student activity programs and organizations will significantly predict students’ self-reports of social integration while controlling for age, hours worked per week, hours per week taking care of dependents, and sex at a large, suburban, community college.
The following were the null hypotheses:

**H_01**: Student characteristics of age, hours worked per week, hours per week taking care of dependents, and sex will not significantly predict social integration at a large, suburban, community college.

**H_02**: Student participation in extended orientation programs and student success courses will not significantly predict student self-reports of social integration at a large, suburban, community college.

**H_03**: Participation with classmates inside and outside of class on academic projects will not significantly contribute to the predictive model of students’ self-reports of social integration at a large, suburban, community college.

**H_04**: Participation in co-curricular student activity programs and organizations will not significantly contribute to the predictive model of students’ self-reports of social integration at a large, suburban, community college.

**H_05**: The linear combination of student participation in extended orientation programs and student success courses, their participation with classmates inside and outside of class on academic projects and their participation in co-curricular student activity programs and organizations will not significantly predict students’ self-reports of social integration while controlling for age, hours worked per week, hours per week taking care of dependents, and sex at a large, suburban, community college.

**Identification of Variables**

**Criterion Variable**

**Social integration.** Tinto (1993) stressed that social integration should be understood as a state or a perception of fit and not a collection of measured behaviors. The criterion variable in
this study was aligned with Tinto’s communication regarding how to assess social integration. It consisted of one item, which assessed students’ self-reported response of social integration. On the 2013 Community College Survey of Student Engagement, participants were asked to answer the question “How much does this college emphasize providing the support you need to thrive socially?” The response options were a four-point item Likert-type scale as follows: “Very little”, “Some”, “Quite a bit”, and “Very much”.

Control Variables

Age, hours working per week hours taking care of dependents, and sex. Petrocelli (2003) stated in hierarchical regression models, careful research accounts for static variables before entering predictor variables in subsequent steps. Research determines students bring characteristics with them prior to the start of college and therefore, these variables should be accounted for and controlled for first in a model of social integration. In this study, the control variables of age, sex, hours worked per week, and hours taking care of dependents per week were entered first into the model.

Theory and research confirm these as appropriate control variables for this study. Bean and Metzner (1985, 1987) provided a theoretical model and research evidence that non-traditional students who are older, work many hours per week, and take care of dependents do not socially integrate the same as traditional college students. Additional research specific to community college students provides further confirmation. Graham and Gisi (2000) and Schuetz (2008) found the association of community college student social integration varies by student age, hours students work per week, and time spent to take care of dependents. Finally, the literature has demonstrated that community college social integration occurs more frequently among women (Mertes, 2013; Smith, 2008).
In this study, students were asked to mark their sex. Response options were male or female. Students were asked to mark their age group from categories as follows: “18-19”, “20-21”, “22-24”, “25-29”, “30-39”, “40-49”, “50-64,” and “65+”. Students were asked, “about how many hours do you spend in a typical week working for pay?” and “about how many hours do you spend in a typical week providing care for dependents living with you? (parents, children, spouse, etc.).” To measure these variables, response options for both of these questions were “0”, “1-5 hours”, “6-10 hours”, “11-20 hours” 21-30 hours,” and “More than 30 hours.”

**Predictor Variables**

In hierarchical regression, following the control variables, predictor variables are entered in blocks. It is important that rationale be utilized on the order in which the predictor variables are entered into a model (Cohen & Cohen, 2003). Petrocelli (2003) explained predictor variables should be based on good rationale and “be dictated by the hierarchical relevance of each predictor to the criterion” (p. 14).

**Participation in extended orientation and student success courses.** The first predictor variables in this study were student participation in extended orientation programs and student success courses. Tinto (1997) acknowledged, if conducted appropriately, orientation programs and student success courses help new students make the transition to the social life of the college. The literature confirms participation in extended orientation programs and student success courses influence student social integration (Cain, 2010; Center for Community College Student Engagement, 2009; Karp et al., 2008; Pascarella & Terenzini, 1991; Tighe, 2008). Research determined participation in these activities will occur prior to any other predictor variable and therefore, must be the first predictor assessing students’ social integration.
In this study, students self-reported their first term participation in these programs. Students responded on a four-point, Likert-type response scale. The scale included answer response options of “No I did not,” “Yes but not in my first term at this college,” “Yes in my first term at this college,” and “Yes, in my first term at this college and in at least one other term at this college.”

**In class and out of class work with other students on academic related projects.** The second predictor variable for this study is student self-reports of working together with classmates in class and out of class with other students on academic related projects. Tinto (1997) believed, for many students, the classroom is the primary source of social integration. Research has demonstrated academic related activities with classmates such as working on projects together have a significant association with community college social integration (Deil-Amen, 2011; Hagedorn et al., 2000; Karp et al., 2008).

In this study, students self-reported their participation inside and outside of class with classmates on academic related projects. The response data came from two different items on the survey, and the data will be entered separately into the block. Students were asked, “In your experiences at this college during the current school year, how often have you worked with other students on projects during class?” and “In your experiences at this college during the current school year, about how often have you worked with classmates outside of class to prepare class assignments?” Students answered on a four-point, Likert-type scale. The scale provided options of “Never,” “Sometimes,” “Often,” and “Very Often.”

**Co-curricular student activity and student organization participation.** The third and final predictor variables for this study were student participation in co-curricular student activities and student clubs and organizations. Tinto (1997) believed co-curricular activities
provided additional, rich opportunities for social integration. Research confirms when community college students participate in co-curricular student clubs and organizations (Schmid & Abell, 2003; Songer, 2011) and a variety of other co-curricular activities (Holmes, 2013; Smith, 2008; Wood & Williams, 2013), they are much more likely to be socially integrated and retained.

The placement of co-curricular activity and organization participation, the final predictor variable, is based upon research. Many new students do not initially become involved in co-curricular activities for a variety of reasons (Songer, 2011). An interview with the Director of Student Activities at the location for the study confirmed approximately 80% of students who join student clubs and organizations do not do so until their second or third term of study (Sunshine College Activity Director, personal communication, October 29, 2014). Finally, research suggests co-curricular student activity involvement is associated with the other predictor variables in this model. Extended orientation and student success course participation has been associated to higher participation in co-curricular activities (Derby & Smith, 2004; Tighe, 2008).

In order to capture the full spectrum of co-curricular student involvement, two items were utilized. One question was general and asked, “About how many hours do you spend in a typical 7-day week participating in college-sponsored activities (campus publications, student government, intercollegiate or intramural sports, etc.)?” Students responded on a six-point, Likert-type scale of “None,” “1-5 hours,” “6-10 hours,” “11-20 hours,” “21-30 hours,” or “More than 30 hours.” The second question was specific to student organization participation and asked, “How often do you use student organizations.” Students responded on a four-point, Likert-type scale with the option of “Don’t know/N.A.,” “Rarely/Never,” “Sometimes,” or “Often.”
Definitions

1. *Age* - Age was defined as the current age of student (CCSSE, 2013; Schuetz, 2008).

2. *Co-curricular student activity programs & organizations* - These programs were defined as those activities that are established for and/or by students, including, but not limited to, governance, leadership, service, and cultural, social, diversity, recreational, artistic, political, and religious activities. Many of these efforts focus on programs that serve to educate, develop, or entertain club, organization, or group members, their guests, and the campus community (Dean, 2009). Involvement and membership were defined as student self-reported time spent during a typical week and their degree of use respectively.

3. *Extended orientation programs and student success classes* - Those programs and courses that facilitate the transition of new students into the institution, preparing students for the institution’s educational opportunities and student responsibilities and initiating the integration of new students into the intellectual, cultural, and social climate of the institution (Dean, 2009). Extended orientation programs are often called *structured experiences* that are half-day, whole day, or multiple day programs. Participation in orientation activities was defined as participating in those programs or courses.

4. *Hours worked per week* - Students who self-report how many hours they work per week (Bers & Smith, 1991; Schuetz, 2008; Williamson-Ashe, 2009).

5. *In class and out of class work with other students on academic related projects* – How often students report they have worked with other students on projects with classmates (Center for the Community College Survey of Student Engagement, 2013; Deil-Amen, 2011).
6. **Large community college** - A large community college was defined as a college with enrollment between 8,000-14,999 students.

7. **Sex** - Students who report either being male or female (Mertes, 2013; Schuetz, 2008; Smith, 2008).

8. **Social integration programming** - The formal activities and programs that incorporate social integration of students as a primary function. These have already been further defined specifically as extended orientation programs and student success courses with an objective of socially integrating students, and co-curricular student activity programs and organizations (Karp, 2011).

9. **Suburban** - The location of the college as servicing a suburban area (CCSSE, 2013).

10. **Taking Care of Dependents** - Students who self-report how many hours a week they provide care for dependents living with them (Center for the Community College Survey of Student Engagement, 2013; Schuetz, 2008).

**Chapter Summary**

The purpose of this predictive, correlational study was to create and assess a community college social integration model. Hierarchical regression analysis was utilized to assess the association of student self-reports of social integration with their participation in extended orientation programs and student success courses, their participation inside and outside of class with classmates on academic projects, and their participation in co-curricular student activities and student organizations at a large suburban community college. The study controlled for sex, age, hours working per week, and hours of taking care of dependents per week.

Gall et al. (2007) stated a correlation design identifies relationships between variables, specifically predictor and criterion variables. This research utilized an ex-post facto correlational
design. According to Hale and Astolfi (2014), this type of design allows a researcher to examine a relationship where it would be impossible to manipulate the predictor variables. This design is most appropriate for this study because the predictor variables of extended orientation programs and success classes, in class and out of class projects with other students, and participation in student activities and student organizations have already been in place for some time and to re-create all of these elements for an experimental study design would be near impossible.

According to Gall et al. (2007), hierarchal regression is a specific analysis which determines the strength of predictor variable association at different levels on a criterion variable. In this study, the goal was to assess community college social integration and to find out if sequential participation in the selected activities and programs significantly add to the criterion variable of student self-reports of social integration. Hierarchical regression allowed the researcher to control for variables entered in previous steps. Thus, the increase of student social integration from the participation measured on each of the variables was assessed at each step in the model while accounting for previous variables entered.

Figure 1 provides a graphic illustration of the hierarchical regression utilized for this study. After accounting for control variables, the predictor variables in order were participation in extended orientation programs and student success courses, work with other students in class and out of class on academic assignments, and participation in co-curricular student activities and organizations.
Figure 1. Large community college social integration system.

There is evidence in the literature confirming hierarchical regression was the appropriate analysis for this study. Wood and Williams (2013) utilized a hierarchical model in their study of persistence with background characteristics of participants and predictor variables such as participation in co-curricular activities. Krumre-Mancuso, Newton, Kim and Wilcox (2013) utilized hierarchical linear regression to examine a model of college success for university students that included things such as academic self-efficacy, involvement with co-curricular student activities, and emotional satisfaction with academics.
CHAPTER TWO: REVIEW OF THE LITERATURE

Introduction

The College Board (2014) stated, “despite calls for research-based evidence of institutional practices and policies to improve community college retention and completion, to date a national overview of the student success efforts of community colleges has been missing” (p. 10). A review of the theory and literature for this study indicated social integration is a strong factor in community college persistence in the United States and there is a need to examine a comprehensive model of social integration. The purpose of the current study was to examine a model of programs and activities to predict student social integration at a community college and provide practitioners with strategies to maximize social integration, thus, persistence.

This chapter provides the overview of the theory and research that provides rationale for the current study. After establishing the association between social integration and community college student persistence (Bers & Smith, 1991; Deil-Amen, 2011; Karp et al., 2008; Napoli & Wortman, 1998; Napoli & Wortman, 1996; Pascarella et al., 1986; Strauss & Volkwein, 2004; Tinto, 1997), this review will present the research on variables associated with community college social integration and establish a need to examine the variables in a comprehensive model. These variables include extended orientation programs and student success courses (Cain, 2010; Karp et al., 2008; Klein, 2013; Pascarella & Terenzini, 1991; Tighe, 2008), the interaction in and out of class between students on academic related projects (Deil-Amen, 2011; Hagedorn et al., 2000; Maxwell, 2000), and participation in co-curricular student activity programs and organizations (Burnett, 1996; Holmes, 2012; Smith, 2008; Songer, 2011; Schmid & Abell, 2003; Wood & Williams, 2013). Research will also be reviewed to discuss the
differences among community college student characteristics and social integration (Bers & Smith, 1991; Mertes, 2013; Schuetz, 2008; Smith, 2008; Williamson-Ashe, 2009).

The chapter begins with a summary of the three retention theories and models providing the foundation for the current study. Tinto’s (1975, 1987, 1993) model of student integration specified social integration as a vital retention construct, and it serves as the criterion variable in the current study. Astin’s (1975, 1977, 1984, 1993) theory of involvement provided the theoretical foundation for student involvement in activities and programs serving as the predictor variables in the current study. Bean and Metzner’s (1985) nontraditional model of student attrition provided the theoretical foundation for control variables in the current study. The common theme among the three retention and attrition theories and models is the importance of peer groups and the environment on student persistence.

**Theoretical Framework**

Until the 1970s, the study of higher education student retention and persistence was viewed almost exclusively from a psychological standpoint. Student attributes, skills, and motivations, or lack thereof, were seen as the reasons why some students persisted and others dropped out of college (Tinto, 1997, 2006-2007). In the 1970s, a shift occurred in the study of attrition, and research began to incorporate institutional environmental factors. Astin’s (1975, 1977, 1984, 1993) theory of involvement and Tinto’s (1975, 1987, 1993) student integration model were two research efforts focusing on institutional environmental factors associated with attrition. Later, Bean and Metzner (1985) expanded Tinto’s model for nontraditional students and recognized that factors external to universities and colleges were related to attrition. The research that emerged on college environments indicated student social connections are an important
retention variable. Research began to document the importance of student peer groups and the involvement of students in college activities and programs.

**Astin’s Theory of Involvement**

One of the most cited authors in the field of student retention is Astin (1975, 1987, 1993). His theory of involvement was an outgrowth of research, which attempted to connect practice to outcomes. Astin’s (1975) theory of student involvement was developed from a four-year, longitudinal study of approximately 25,000 college freshman at a variety of four-year colleges. Results indicated positive associations between retention and student behaviors such as involvement in co-curricular activities, interactions with faculty and other students, and the amount of time students were involved in formal academic related activities.

Based on his research, Astin (1999) postulated that involvement, which he defined as “the amount of physical and psychological energy that the student devotes to the academic experience” (p. 518), is associated with student development and retention. He made five involvement assumptions. First, involvement requires an investment of psychosocial and physical energy. Second, involvement is a continuous process and students vary in the amount of energy investment. Third, involvement has both qualitative and quantitative aspects. Fourth, student gains from involvement are directly proportional to the proportion of their qualitative and quantitative involvement. Finally, academic performance is correlated with involvement (Astin, 1985).

Astin (1975) postulated a student who most fully develops and who is most likely to persist is one who has a college environment facilitating opportunities for that student to spend an appropriate amount of time and energy studying, researching in the library, participating in student activities, and interacting with faculty and other students. Astin created an input-
environment-output model (I-E-O Model) to explain the impact of the college environment on a student. It is comprised of three elements. Student inputs, represented by the I in the model, are elements the student has upon entering college such as their demographics, entry test scores, and their opinions. The E in the model represents all of the environmental factors a student experiences at an institution such as the programs, policies, faculty, peers, and activities. The O in Astin’s (1985) model represents student characteristics attitudes, beliefs, and values that a student has after college graduation.

Astin (1985) illustrated the importance of measuring the institution’s environmental impact on students and he drew attention to the differences between community college and residential college and university environments. He found traditional aged (18-22) students at community colleges, when compared to traditional aged residential college students, have higher dropout rates even when accounting for their precollege characteristics. He explained that traditional aged community college students spend much less time on-campus interacting with their peer group. He purported diversity in community college student ages, high percentage of part-time enrolled students, and lack of residential facilities presented challenges to the development of social relationships (Astin, 1993). Since Astin’s (1975) initial work, research continues to demonstrate positive associations of student involvement and retention. Astin (1993) conducted a very similar study to his earlier work with another 25,000 four-year, college-entering freshman from 309 different institutions and validated the results of his original study. Other researchers continue to find positive correlations between retention and involvement, as described by Astin, at four-year colleges and universities (Pike & Kuh, 2005) and community colleges (Tovar, 2013). While Astin’s (1975, 1977, 1993) work demonstrates the retention impact of student involvement in activities and programs, additional theoretical models are
needed to more specifically describe why that involvement is so important. Pascarella and Terenzini (1991) explained, “Astin offers a general dynamic, a principal, rather than any detailed systematic description of the behaviors or phenomena being predicted, the variables presumed to influence involvement, the mechanisms by which those variables related to and influence one another…” (p. 51).

**Tinto’s Model of Student Integration**

Tinto’s (1975, 1987, 1993) model extended Astin’s (1975) theory and utilized the concept of integration to describe more specifically the positive consequences of student involvement in the college environment. Tinto (1975, 1987, 1993) described the construct of integration as a state or perception of fit and its occurrence as a result of student involvement in activities and programs. Tinto’s (1975, 1987, 1993) student integration model was influenced by the work of Cullen (Tinto & Cullen, 1973) and on the theoretical work of Spady (1970). Spady (1970) drew a parallel between suicide and attrition. Spady (1970) posited, in both cases of suicide and dropout, the individual withdraws from the social system because the individual does not internalize the values of the social system or establish strong friendships.

The importance of the social system and friendships play a central role in Tinto’s (1975, 1987, 1993) model of student integration. While Tinto (1975, 1987, 1993) recognized pre-entry attributes and external commitments influence attrition, he identifies three major sources of student departure: academic difficulties, lack of institutional and academic goal commitments, and social difficulties. Academic goals, according to Tinto, refers to how committed the student is to persist and complete their program of study. Commitment to the institution, in Tinto’s model of student integration, refers to how motivated a student is to graduate from that particular institution. Tinto (1975, 1987, 1993) described the college environment as having an academic
and a social system. He depicted the academic system as the activities involved within classrooms and labs. As such, Tinto (1975, 1987, 1993) postulated academic integration to be how well the student was academically fitting into the college environment and included evidence such as good grades, faculty and staff interactions, enjoyment of course materials, and identification with the academic norms and values of the college. The social system is made up of the daily interactions between students, faculty, and staff and thus, social integration refers to how well the student feels he or she is fitting into the college social environment. Tinto’s (1975, 1987, 1993) model of student integration encompassed both the formal extracurricular student activity involvement and informal peer interactions as a part of what he called the social system of the college.

In Tinto’s longitudinal model of student departure, compared to Astin’s (1975) I-E-O model, the additional constructs and systematic interaction of those constructs are evident. While Astin’s (1975) I-E-O model depicts a simple path of entry characteristics of students (inputs), institutional environment interaction, and outputs, Tinto’s (1975, 1987, 1993) model depicts a more complex system of how student perceptions influence commitment and persistence decisions. Within the system illustrated by Tinto, the construct of social integration provides a clear extension to Astin’s (1975) research on the effects of student involvement in the college environment.

Tinto’s theory is validated and well supported throughout the literature with a variety of populations. Tinto’s (1975) student integration model was based upon a synthesis of research on persistence predominantly from traditional aged (18-22 year old), full-time, residential students. Tinto (1997) later conducted a longitudinal study on first year students at Seattle Central Community College and validated that his model could account for about 14% of the college
student attrition. Since Tinto’s (1975) original publication of his model, the association of community college student social integration and persistence has been validated in numerous studies (Bers & Smith, 1991; Deil-Amen, 2011; Karp et al., 2008; Napoli & Wortman, 1998; Napoli & Wortman, 1996; Pascarella et al., 1986).

Despite being a well-supported theory for persistence, limitations of Tinto’s (1975, 1987, 1993) model of student integration still exist. While it is well understood that social integration is critical to persistence, the specific activities and programs to maximize social integration are not well defined. Researchers such as Karp (2011) have been critical of Tinto’s model and subsequent studies that test Tinto’s integration framework, explaining that the studies continually demonstrate that integration is related to student success but do not explain how students become integrated. There is also a lack of differentiation among the importance of social integration based on student type. Bean and Metzner (1985) later adapted Tinto’s work and address the latter limitation.

**Bean and Metzner’s Model for Nontraditional Students**

Like Tinto (1975, 1987, 1993), Bean and Metzner (1985) recognized social integration as a student retention variable in their model for non-traditional students; however, they highlighted that other factors need to be considered when examining retention. Bean and Metzner (1987) defined a nontraditional student as having some combination of these three factors: one who is older than 24, a commuting student, or a part-time student. They posited non-traditional students are more mature and less influenced by socialization than traditional students (Bean & Metzner, 1985). Thus, the importance of social integration plays a reduced role for the nontraditional students’ persistence; the institution’s academic offering is their primary concern (Bean & Metzner, 1985). External environmental variables such as finances, work commitments, and
family responsibilities play a significant role and impact the manner in which students become involved in the academic and social systems at the college.

According to Bean and Metzner (1985), nontraditional students are most likely to drop out when either academic or external environmental variables are unfavorable. For example, a nontraditional student with a high grade point average experiencing significant stress caused by work conflicts or lack of time to meet family responsibilities is likely to drop out. Bean and Metzner (1985) also posited if a nontraditional student perceived their academic program would not lead to job certainty, the student would experience stress, and it would likely cause the student to leave the institution. The decreased emphasis of social integration (Tinto, 1975, 1987, 1993) is evident in Bean and Metzner’s (1985) model illustrated in Figure 2; however, social integration still has a possible effect on academic outcomes, psychological outcomes, and intentions to leave and dropout.
Figure 2. Model of Nontraditional Undergraduate Student Attrition by John P. Bean and Barbara J. Metzner, 1985, *A Conceptual Model of Nontraditional Undergraduate Student Attrition*. Copyright 1985 by SAGE Publications Inc. Reprinted with permission.

Bean and Metzner’s (1987) work was important because it provided the first research specific to nontraditional student persistence. A few years after the conceptualization of their model, in a study of over 634 nontraditional commuter part-time commuter freshman, Bean and Metzner (1987) found 11 of the 12 paths as outlined in the model to be significant. Results suggested persistence for nontraditional students is associated more with external environmental and academic reasons than social factors. In all, Bean and Metzner (1987) found about 29% of the variance among student’s decisions to drop out were accounted for as a result of the 26
variables in their model. Although two of the variables on social integration were contributing variables in the percent of variance explained by the model, it was low grade point average, commitment to the institution, and utility of education with future employment that were the strongest contributing variables (Bean & Metzner, 1987). Recent studies that assessed the influence of Bean and Metzner’s (1985, 1987) persistence factors for community college students provide support for the model (Alley, 2011).

Bean and Metzner (1985, 1987) highlighted the importance of considering environmental factors external to the college environment when examining community college social integration and persistence. Student age, hours working per week, and time students spend to take care of dependents are all variables the literature consistently identified as important in the study of community college student social integration (Bers & Smith, 1991; Mertes, 2013; Schuetz, 2008; Smith, 2008; Williamson-Ashe, 2009).

**Summary of Theory**

The purpose of the study was to examine a model of programs and activities to predict student social integration at a community college. Tinto (1975, 1987, 1993) demonstrated the central role of social integration in persistence and thus emphasized it as an important research factor. Social integration serves as the criterion variable in the current study. Examining research factors related to social integration can provide community colleges with information on how to better retain their students. Unfortunately, Tinto’s (1975, 1987, 1993) model of student integration is limited, as he did not provide a description of student behaviors that maximize social integration. While Tinto’s (1975, 1987, 1993) work was focused on student perceptions, Astin’s (1975, 1977, 1984, 1993, 1999) work focused on specific student behaviors, and his research is among the strongest associating retention with student participation in activities and

Since Tinto’s (1975, 1987, 1993) model did not originally consider nontraditional students, Bean and Metzner’s (1985, 1987) model of nontraditional undergraduate student attrition is important as this study will focus on a community college population, and a large number of nontraditional students are enrolled in community colleges. The adaption of Tinto’s model by Bean and Metzner (1985, 1987) to account for differences of nontraditional student integration provided impetus to consider variables beyond institutional programing for this study. The predictor variables in the current study were participation in extended orientation programs and student success courses, participation with classmates in class and out of class on academic related projects, and participation in co-curricular student activities and organizations. Bean and Metzner’s (1985, 1987) research informed the addition of the control variables of sex, age, hours working per week, and hours taking care of dependents per week. The following review of literature provides additional evidence to support the inclusion of the study variables and provide a rationale for how these variables will be assessed in the current study.

**Review of the Literature**

**Community College Social Integration**

Retention models and theory (Astin, 1975, 1977, 1984, 1993; Tinto, 1975, 1987, 1993) demonstrated that social integration is a key factor in student retention, and quantitative and qualitative studies over the past three decades confirmed social integration is significantly associated with community college students’ persistence. Pascarella et al. (1986) provided one of the most robust, quantitative studies of community college social integration. Their research investigated several variables including social integration as part of a long-term retention study.
on 825 full-time community college students from 85 different community colleges. The Cooperative Institutional Research Program (CIRP) surveys were utilized to collect data. The researchers concluded Tinto’s integration model was supported. The researchers stated: “In line with the theoretical expectations based on the model, the two variables with the most consistent pattern of significant positive effects on degree persistence and degree completion were academic and social integration” (Pascarella et al, 1986, p. 65). Subsequent quantitative community college social integration studies (Schuetz, 2008; Strauss & Volkwein, 2004; Tighe, 2008; Tinto, 1997) reported similar patterns of social integration effects on persistence. A meta-analysis of quantitative studies (Napoli & Wortman, 1996) found the combined, overall effect size for social integration to be significant and “reflects the important impact social integration has on persistence/withdrawal decisions of community college students” (Napoli & Wortman, 1996, p. 3). More recent qualitative studies (Deil-Amen, 2013; Karp et al., 2008; Mertes, 2013) indicated a majority of community college students continue to be socially integrated to their institutions, and that social integration is related to persistence.

In these studies, there is a range of terminology to describe and measure social integration. The literature indicates researchers utilized Tinto’s term of social integration to understand community college student persistence (Bers & Smith, 1991; Deil-Amen, 2011; Halpin, 1990; Karp et al., 2008; Mertes, 2013; Smith, 2008); however, studies also included terms such as social engagement (Saenz et al., 2011; Schuetz, 2008), involvement (Schmidt & Abell, 2003; Tovar, 2013), sense of community (Bengfort, 2012), or belonging (Hougard, 2013; Wise, 2011). Social integration has also been measured in many different ways. Pascarella and Terenzini (1980) developed an Institutional Integration Scale that has been adapted over the years and utilized in several studies. Other studies utilized the Current Student Survey (Bers &
Smith, 1991; Williamson-Ashe, 2009), the Community College Survey of Student Engagement (Schuetz, 2008; Tighe, 2008), and the Survey of Entering Student Engagement (Klein, 2013). Given Tinto’s description of integration as a state or perception of fit (Tinto, 1987), researchers have recently utilized qualitative designs with interviews in order to better capture the experience and voice of the students in regards to their social integration (Deil-Amen, 2013; Karp et al., 2008; Mertes, 2013). Even with the range of social integration assessments, studies consistently demonstrated that students who find college environments providing social support needed to succeed in college are persisting and completing their educational goals (Bers & Smith, 1991; Deil-Amen, 2011; Karp et al., 2008; Napoli & Wortman, 1998; Napoli & Wortman, 1996; Pascarella et al., 1986; Tinto, 1997; Tovar, 2013).

**Community College Student Characteristics and Social Integration**

Despite the importance of socially supportive community college environments, there is reason to believe its prominence may vary among nontraditional students. Bean and Metzner (1987) defined a nontraditional student as one who is chiefly concerned with the institution’s academic offerings or is older than 24 years of age, a nonresidential student, a part-time student or some combination of these factors. Schuetz (2008) provided a more current definition of a nontraditional community college student as one who is older than an age of 24, of any age who takes care of a dependent, or works more than 20 hours per week. Consistent with Schuetz’s (2008) definition, researchers have documented student employment (Bers & Smith, 2008; Williamson-Ashe, 2009), age (Broschard, 2005; Graham & Gisi, 2000), and taking care of dependents (Schuetz, 2008) affect social integration of community college students. Additionally, research documents community college females socially integrate at higher rates than males (Mertes, 2013; Rahasekhara & Hirsh, 2000; Voorhees, 1987; Wang & Parker, 2011).
**Community college student employment and social integration.** There is strong evidence that student employment is negatively associated with community college student social integration and retention. While studies indicate minimal effects on academics and persistence for those community college students who work fewer than 10 hours per week (Dadgar, 2012), there is an association with attrition for those students who work more than 15 hours per week; statistics indicate working full-time is negatively associated with persistence among all categories of community college students (Levin, Hernandez & Cerven, 2010). This finding is significant when studying the community college population as compared to four-year college and university students; a much larger percentage of community college students work and a larger percentage (40%) work full-time (Phillippe & Gonzalez Sullivan, 2005).

Community college students who work a lot of hours are less engaged in campus activities (Newbold, Mehta & Forbes, 2011; Lundberg, 2004) and demonstrate lower levels of social integration. For example, in Bers and Smith’s (1991) study, although social integration was found to have a significant association with student retention, results indicated students who worked more had a tendency to be less socially integrated. Williamson-Ashe (2009) replicated the Bers and Smith (1991) study with 134 students from a Virginia community college. In the study, 51% of the students worked part-time. Like the Bers and Smith (1991) study, Williamson-Ashe (2009) concluded employment was a major variable that needs to be accounted for when assessing community college social integration.

**Community college student age and social integration.** Studies on age and community college persistence reveal inconsistent results. Some studies indicate an increase in age has a negative association with community college persistence (Hagedorn, Maxwell & Hampton, 2002). More recent studies incorporating over 20 community colleges in a sample found that
older students were more likely to persist than younger students (Porchea, Allen, Robbins, & Phelps, 2010). Some researchers (Burrus et al., 2013) postulated that while older students may have additional obligations such as work and taking care of dependents, which tend to be negatively associated with persistence, older students may also be more likely to be committed to their program of study because they understand the value of their education more than younger students.

While the research on community college student age and persistence is inconsistent, the research on community college student age and social integration is stable and demonstrated older community college students socially integrate less and in different ways than younger students. Graham and Gisi (2000) assessed whether older students differed from younger, traditional-aged students on a variety of activities. The researchers surveyed 64,647 college students at 154 colleges and found that although some nontraditional adult students are involved in traditional co-curricular social activities, only a small percentage had the time or interest to engage at the highest levels in those programs compared to the younger traditional students. Broschard’s (2005) study provided understanding of how sources for social integration may differ among traditional and nontraditional-aged community college students. Broshard (2005) found traditional students attributed their social integration to a combination of curricular and co-curricular experiences. In comparison, nontraditional students utilize the classroom almost exclusively as their source for social integration. These findings provide an indication of the need to assess a linear combination of social integration variables and the potential community colleges have to proactively craft environments and create optimal conditions for social integration among their diverse student populations.
**Taking care of dependents and social integration.** Like age, care of dependents is associated with community college student social integration. Nearly 25% of community college students have dependents, and data indicates these students leave and do not return to community colleges at much higher rates (52.2%) when compared to community college students (31.9%) who do not take care of dependents (Froehner & Gault, 2013). Community college students with dependents have demonstrated that they socially integrate at lower levels than students without dependents. Newbold et al. (2011) found that taking care of dependents was associated with lower levels of campus activity involvement. Schuetz (2008) reported similar results. In a mixed method study that combined student interviews and quantitative data from the Community College Survey of Student Engagement, Schuetz (2008) found both traditional and non-traditional students feel a sense of belonging to their community colleges. However, the sense of belonging was stronger among the traditional student group who spent fewer hours per week taking care of dependents and involved more hours per week in campus activities.

**Sex and community college student social integration.** Community college females socially integrate at better rates than male students (Mertes, 2013; Rahasekhara & Hirsh, 2000; Voorhees, 1987; Wang & Parker, 2011). Mertes (2013) explored the construct of social integration and retention of 308 community college students from a mid-sized, Midwestern community college and found social integration scores for females were higher than males. Smith (2008) found women were more integrated than men and discussed how the female students at the community college for the study might have felt integrated because of the college’s unique and long history within the rural community that surrounds it. Smith (2008) explained that female students might have a tendency to attribute part of that college social integration from feelings of being a part of the larger, rural community.
Summary of student characteristics and social integration. Theory (Astin, 1975, 1977, 1984, 1993; Tinto, 1975, 1987, 1993) and research (Bers & Smith, 1991; Deil-Amen, 2011; Karp et al., 2008; Napoli & Wortman, 1998; Napoli & Wortman, 1996; Pascarella et al., 1986; Tinto, 1997) demonstrated the association of social integration and community college persistence and illuminated that personal and external environmental factors such as age (Bean & Metzner, 1987; Broshard, 2005; Graham & Gisi, 2000), hours students work per week (Bean & Metzner, 1987; Bers & Smith, 1991; Williamson-Ashe, 2009), and hours students take care of dependents during the week (Bean & Metzner, 1987; Schuetz, 2008) influence the social integration and persistence of community college students. Research (Mertes, 2013; Rahasekhara & Hirsh, 2000; Voorhees, 1987; Wang & Parker, 2011) also indicated that sex influences social integration and persistence of community college students. These personal and external environmental factors are important to control for; however, given the strong association between social integration and persistence, researchers need to focus their attention on understanding the activities and programs within the internal institutional environment that are associated with social integration.

Community College Programs and Activities Facilitating Social Integration

Researchers will find ample studies documenting participation in specific community college activities and programs with an association of student social integration. This research includes studies on extended orientation programs (Cain, 2010); student success courses (Karp et al., 2008; Klein, 2013; Pascarella & Terenzini, 1991; Tighe, 2008); and co-curricular student activities, clubs, and organizations (Holmes, 2012; Smith, 2008; Songer, 2011; Schmid & Abell, 2003; Wood & Williams, 2013). Additionally, research demonstrates an association between in class and out of class work with other students on academic related projects and community college social integration (Deil-Amen, 2011; Hagedorn et al., 2000; Maxwell, 2000).
**Extended orientations and student success courses.** Community college student participation in extended orientation programs and student success classes influences community college social integration. Extended orientation programs and student success classes are those programs and courses facilitating the transition of new students into the institution, preparing students for the institution’s educational opportunities and student responsibilities, and initiating the integration of new students into the intellectual, cultural, and social climate of the institution (Dean, 2009). Extended orientation programs are often called *structured experiences.* Community colleges typically offer a variety of orientations including online orientations; short, one-to-two-hour, in-person orientations; and extended, in-person, half-day, whole day, or multiple day orientations (Community College Survey of Student Engagement, 2009). The review of literature indicated there are differences among student participation in the different types of orientation and community college social integration. In studies on college community college students who either attended an in-person, traditional orientation receiving generic college information only or an extended, experiential, in-person orientation with activities programmed to facilitate student social integration, Cain (2010) found student participants in the extended orientation program socially integrated at significantly higher levels.

Student success courses, taking place over an entire term, facilitate similar programming as found in extended orientations and research (Karp et al., 2008; Klein, 2013; Tighe, 2008) confirms student participation in these courses are positively associated with student social integration and student retention. Karp et al. (2008) conducted a qualitative study with forty-six students enrolled in a student success course from two Northeast, suburban community colleges on social and academic relationships, the knowledge and use of institutional services and sense of comfort on-campus. There was a strong connection between information networks and
feelings of social integration. Students attributed their social integration to activities related to the student success course. Tighe (2008) assessed the impact of a student success course on student engagement, satisfaction, academic achievement, and retention. Utilizing the Community College Survey of Student Engagement (CCSSE) for data, Tighe found the student success course participants had significantly higher levels of engagement and satisfaction with student peer relationships. Tighe also found those students who participated in the course were more likely to participate in co-curricular activities. Klein (2013) examined the impact of an orientation and enrollment in a student success course on 890 full-time community college students. The Survey of Entering Student Engagement was utilized to obtain students’ level of social integration in the early weeks of their first semester enrollment. Findings indicated students who enrolled in the success course and attended the orientation session were retained for a subsequent term at a much higher rate than those who only attended the orientation or the course. The participation in the orientation and the first year experience course was associated with a higher student sense of belonging.

**In class and out of class academic work with peers and social integration.** Following orientation, the classroom takes over as the center of social integration for most community college students, and there is strong reason to believe that in class and out of class work with classmates on academic related projects influences student social integration. Forty-six percent of community college students report they often or very often work with other students on projects during class (Center for the Community College Survey of Student Engagement, 2008). In addition, 21% report they often or very often work with classmates outside of class on academic related projects (Center for the Community College Survey of Student Engagement,

Hagedorn et al. (2000) examined peer and student faculty relations in community colleges. The study included over 1,000 students from a variety of general education courses in a suburban community college. At the beginning and end of the term, the researchers administered a survey to measure student social integration. A significant amount of the social integration was attributed to academic related activities. In Maxwell’s (2000) study, classroom surveys were distributed to over 1,000 community college students at the beginning of the term and at midterm to assess social integration. Maxwell found significant levels of social integration among community college students as a result of activities such as studying together and discussing coursework. Deil-Amen (2011) conducted a qualitative study on community college students’ social and academic integration. The research focused on the nature of integrative processes of community college students and how and why certain behaviors enhance belonging, commitment, and retention. The sample consisted of 125 students. Data was collected utilizing surveys, interviews, and observations. Social integration was documented to occur within the classroom. The importance of in-class connections for community college students was discussed. It was suggested the classroom might very well be a bridge to further academic and social involvement within community colleges that typically are limited in scope compared to four-year, residential colleges who have broader social engagement programs.

**Co-curricular student activities.** In addition to working with classmates on academic related projects, some community college students seek opportunities for social connections in co-curricular activities, and the review of literature indicated participation in these activities could strongly influence community college student social integration. An estimated 19% of
community college students participate in school related clubs and other activities (Coley, 2000). Community colleges typically offer a variety of co-curricular activities such as dances, festivals, community service projects, intramural sports, and student clubs and organizations (Dean, 2009).

The review of literature provides consistent evidence of student participation in co-curricular student clubs and organizations associated with social integration of community college students (Songer, 2011; Schmid & Abell, 2003; Wise, 2011). Songer (2011) studied community college student persistence and occupational and academic clubs. She found club participation was significantly related with student intent to persist. Among over 1,000 community college students surveyed, 25% of non-club members indicated they had either withdrawn or were intending to withdraw. For the students who were members of a community college club, only 10.9% indicated they intended not to persist. Research links the higher retention of community college student club and organization members with social integration. In a qualitative study of 20 successful community college students, Wise (2011) found most students were involved in organizations on-campus and concluded these groups “aided in their development of feeling welcomed and creating a sense of belonging to the system” (p.113).

In addition to clubs and organizations, community college students participate in other types of co-curricular activities and while the review of research demonstrates an association between community college student participation in these other types of co-curricular activities with social integration, findings have been inconsistent. Bengfort’s (2012) qualitative study examined the community college students’ campus experiences and its predictive power in explaining student persistence and sense of community. The study included participation in activities such as festivals, dances, speakers, concerts, and other student activities. The Bengfort (2012) study found student participation in these types of activities was associated with strong
feelings regarding emotional connections and membership. Several other studies demonstrate similar findings. Burnett (1996) found community college students participating in co-curricular activities were more closely connected to and identified with the college. Holmes (2012), in a qualitative study, sampled 14 community college students with structured interviews. Peer support emerged as an important theme. The researcher attributed the peer support to student participation in community service projects (Holmes, 2012). Wood and Williams (2013) found participation in intramural sports was a positive indicator of community college social integration and persistence among black, male, community college students. Wood and Williams (2013) concluded these results were indicative and that for certain groups of community college students, particular co-curricular activity programs such as intramural sports, are associated with the social integration and persistence of those students.

Not all studies, however, found significant associations of co-curricular, student activity involvement and social integration, and a review of literature indicates the types of co-curricular activities available at some community colleges may explain some of the inconsistent findings. Halpin (1990) did not find social integration was significant in a discriminate analysis of student retention at a small, rural, community college, and he concluded a lack of co-curricular student activity programs such as those that are available at other colleges and universities may have been the cause. Smith (2008) found some students were more integrated than others and discussed the higher levels of social integration among those students may have been because of the college’s activities that were conducted celebrating the college’s 40th anniversary. Smith suggested these types of activities may have been more appealing to certain students and provided rich opportunities for social integration among that particular group of students.
Student participation in a combination of social integration programs and activities.

Some community colleges may be finding ways to facilitate the social integration of students in a combination of activities and programs. The literature reviewed in this chapter examined the influence of one program or activity on community college social integration. However, the review of literature provided evidence to believe that participation in a combination of programs and activities are associated with an additive increase in community college social integration. For example, Klein (2013) found student participation in both an orientation and a student success course was associated with a higher student sense of belonging than those students who only participated in the orientation or the course. Derby and Smith (2004) and Tighe (2008) found community college student participation in student success courses was associated with participation in co-curricular student activity programs. Studies on student participation with other students on curriculum-related projects appear to demonstrate a theme of facilitating more participation in co-curricular activities (Deil-Amen, 2011; Tinto, 1997). Mertes (2013) and Deil-Amen (2011) corroborated the suggestion of building connections between curricular and co-curricular social integration among community college students. Mertes (2013) concluded: “By expanding research into these areas, a clearer picture of the true role of social integration will hopefully emerge, allowing researchers and practitioners to design interventions that have the best possible chance of success” (p. 131).

Literature Review Summary

A clear picture has yet to emerge on a community college social integration model that examines the strength of a linear combination of variables found throughout the research. Forty-four percent of students enrolled in community colleges fail to persist (Habley et al., 2010), and one reason for this retention problem is a lack of community college student social integration
(McClenney, 2009; Strayhorn 2012a). A report on the 2009 Community College Survey of Student Engagement (CCSSE) results stated the creation of programs for students to thrive socially on-campus is “largely untapped” (McClenney, 2009, p. 1). Strayhorn (2012) elaborated:

> Despite having acquired information from a variety of sources about the myriad ways in which college students connect or plug in to campus life, we have yet to discern specific attributes or experiences that are most likely to yield the outcomes we desire for students.” (p. 14)

Thus, the purpose of the current study was to create a model that examines a combination of programs and activities to better understand student social integration at a community college and provide practitioners with strategies to maximize social integration.

Theory and research informed the operationalization of the criterion variable of social integration and the predictor and control variables for the model. Tinto’s (1975, 1987, 1993) model of student integration demonstrated the central role of social integration in persistence, and thus emphasized it as an important research factor. The literature review provided further support demonstrating an association of community college social integration and persistence (Bers & Smith, 1991; Karp et. al, 2008; Napoli & Wortman, 1998; Napoli & Wortman, 1996; Pascarella et. al, 1986; Straus & Volkwein, 2004; Tinto, 1997). However, it also illuminated that there was a wide range of terminology to explain social integration and an equally broad range of social integration measurements. Recent community college social integration studies have utilized qualitative studies in order to better capture student social integration perceptions (Deil-Amen, 2013; Karp, Hughes & O’Gara, 2008; Mertes, 2013). The current study is quantitative but consistent with assessing student *perceptions* of social integration as posited by Tinto. The study utilized one item from the Community College Survey of Student Engagement to examine
students’ perceptions of fit. Specifically, participants are asked to answer the question “How much does this college emphasize providing the support you need to thrive socially?”

Bean and Metzner’s (1985) model of nontraditional undergraduate student attrition and the review of literature suggested that a model of community college programs and activities to predict student social integration needs to control for the nontraditional student characteristics of age (Graham & Gisi, 2000; Broshard, 2005), employment (Bers & Smith, 1991; Williamson-Ashe, 2009), and family responsibilities (Schuetz, 2008) of students. Additionally, research confirmed females socially integrate at higher levels than males (Mertes, 2013; Rahasekhara & Hirsh, 2000; Voorhees, 1987; Wang & Parker, 2011).

While Bean and Metzner’s (1985, 1987) work provided guidance on the control variables for the current study, Astin’s (1975, 1977, 1984, 1993, 1999) work is among the strongest, linking the positive effects of student involvement in programs and activities, and it provided the needed guidance for the predictor items in this study. The review of literature confirmed inclusion of extended orientation programs and student success courses as predictor variables in the current study. Community college student participation in these activities and programs are associated with higher levels of community college social integration (Cain, 2010; Karp et al., 2008; Klein, 2013; Tighe, 2008). Additionally, Klein (2013) found student participation in both an orientation and a student success course was associated with a higher student sense of belonging than those students who only participated in the orientation or the course. Thus, in the current study, students self-reported their participation in both extended orientation programs and enrollment in student success courses.

The review of literature provided evidence that in class as well as out of class academic-related activities with peers have a significant association with community college social
integration and therefore were included in this study as predictor variables (Deil-Amen, 2011; Hagedorn et al., 2000; Maxwell, 2000). The current study utilized two assessment items to assess how often students work with other students on academic related projects during class and outside of class.

In addition to working with classmates on academic related projects, the review of literature indicated student participation in co-curricular activities is associated with social integration. The review of literature revealed consistent results of increased social integration with participation in co-curricular clubs and organizations (Schmid, 2003; Songer, 2011; Wise, 2011). However, there was inconsistency in studies that assessed participation in other types of co-curricular activities such as festivals, dances, and speakers (Bengfort, 2012; Burnett, 1996; Halpin, 1990; Smith, 2008), and researchers attribute the inconsistency of these findings to a lack of co-curricular program opportunities that appeal to diverse students within community college study settings. The current study addressed this issue by utilizing two items to assess the co-curricular participation of students and a study setting with a very diverse offering of co-curricular activities and programs. In the current study’s assessment, one question was specific in regards to participation in student organizations. The other co-curricular activity assessment item was general and asked how much time students participate in college-sponsored activities (campus publications, student government, intercollegiate, or intramural sports, etc.). In addition, the setting for the current study addressed limitations of previous studies by providing a community college setting with a diverse co-curricular programming including student government, publications programs, community service events, family programs, intercollegiate sports, intramural sports, festivals, dances, and other recreational activities. Finally, the review of literature provided suggestions (Diel-Amen, 2011; Derby & Smith, 2004; Mertes, 2013; Tighe,
2008; Tinto, 1997) that students may benefit from increasing social integration as a result of participation in a combination curricular and co-curricular programs and activities. This current study took those suggestions and advanced the literature by examining how community college social integration programs and activities can best work together to maximize social integration. These results could then be utilized by practitioners to direct institutional action that provides guidelines for the development of effective policies and programs that institutions can employ to enhance the social integration and persistence of their students.
CHAPTER THREE: METHODOLOGY

Introduction

The purpose of this predictive, correlational study was to create a model of programs and activities to predict student social integration at a large suburban community college. The predictor variables were participation in extended orientation programs and student success courses, participation with classmates in class and out of class on academic related projects and participation in co-curricular student activities and organizations at a large suburban community college. The criterion variable of social integration was a self-report from students regarding their perceived opportunities to thrive socially at the college. The control variables were sex, age, hours working per week, and hours taking care of dependents per week.

Hierarchical regression analysis will demonstrate the association between each of the predictor variables and the criterion variable. This chapter discusses the experimental design, the research questions and hypotheses, the participants and setting for the study. The instrumentation, procedures, and data analyses are also described.

Design

The purpose of this predictive, correlational study was to create and assess a community college social integration model. Gall et al. (2007) stated a correlation design identifies relationships between variables, specifically predictor, and criterion variables. This research utilized an ex-post facto, correlational design. According to Hale and Astolfi (2014), this type of design allows a researcher to examine a relationship where it would be impossible to manipulate the predictor variables. This design was most appropriate for this study because the predictor variables of extended orientation programs and success classes, in class and out of class projects with other students, and participation in student activities and student organizations have already
been in place for some time and to re-create all of these elements for an experimental study design would be near impossible.

According to Gall et al. (2007), hierarchal regression is a specific analysis which determines the strength of predictor variable association at different levels on a criterion variable. In this study the goal was to assess community college social integration and to find out if sequential participation in the selected activities and programs significantly add to the explained variance of the criterion variable of student self-reports of social integration. Hierarchical regression allowed the researcher to control for variables entered in previous steps. Thus, the increase of student social integration from the participation measured on each of the variables was assessed at each step in the model while accounting for previous variables entered.

**Research Questions and Hypotheses**

**Research Questions**

The research questions and hypotheses for this study were:

**RQ1:** Will student characteristics of age, hours worked per week, hours per week taking care of dependents, and sex significantly predict social integration at a large, suburban, community college?

**RQ2:** Will student participation in extended orientation programs and student success courses significantly predict student self-reports of social integration at a large, suburban, community college?

**RQ3:** Will student self-reports of how often they work with other students on projects during class and how often they work with classmates outside of class to prepare class assignments significantly contribute to the predictive model of students’ self-reports of social integration at a large, suburban, community college?
RQ4: Will student participation in co-curricular student activity programs and organizations (hours participating in college-sponsored activities and participation in student clubs and organizations) significantly contribute to the predictive model of students’ self-reports of social integration at a large, suburban, community college?

RQ5: Will the linear combination of student participation in extended orientation programs and student success courses, their participation with classmates inside and out of class on academic projects, and their participation in co-curricular student activity programs and organizations significantly predict students’ self-reports of social integration while controlling for age, hours worked per week, hours per week taking care of dependents, and sex at a large, suburban, community college?

Hypotheses

The following were the research hypotheses:

H1: Student characteristics of age, hours worked per week, hours per week taking care of dependents, and sex will significantly predict social integration at a large, suburban, community college.

H2: Student participation in extended orientation programs and student success courses will significantly predict student self-reports of social integration at a large, suburban, community college.

H3: Participation with classmates inside and outside of class on academic projects will significantly contribute to the predictive model of students’ self-reports of social integration at a large, suburban, community college.
H14: Participation in co-curricular student activity programs and organizations will significantly contribute to the predictive model of students’ self-reports of social integration at a large, suburban, community college.

H15: The linear combination of student participation in extended orientation programs and student success courses, their participation with classmates inside and out of class on academic projects and their participation in co-curricular student activity programs and organizations will significantly predict students’ self-reports of social integration while controlling for age, hours worked per week, hours per week taking care of dependents, and sex at a large, suburban, community college.

The following were the null hypotheses:

H01: Student characteristics of age, hours worked per week, hours per week taking care of dependents, and sex will not significantly predict social integration at a large, suburban, community college.

H02: Student participation in extended orientation programs and student success courses will not significantly predict student self-reports of social integration at a large, suburban, community college.

H03: Participation with classmates inside and outside of class on academic projects will not significantly contribute to the predictive model of students’ self-reports of social integration at a large, suburban, community college.

H04: Participation in co-curricular student activity programs and organizations will not significantly contribute to the predictive model of students’ self-reports of social integration at a large, suburban, community college.
**Ho5:** The linear combination of student participation in extended orientation programs and student success courses, their participation with classmates inside and outside of class on academic projects and their participation in co-curricular student activity programs and organizations will not significantly predict students’ self-reports of social integration while controlling for age, hours worked per week, hours per week taking care of dependents, and sex at a large, suburban, community college.

**Participants**

This study utilized archived data from 272 students. The original data set was 330 cases. Fifty-eight cases with missing data were removed. The 272 cases with complete data for all variables were utilized for the descriptive statistics and hierarchical regression analysis. The population from which the sample was requested consisted of 61% female and a majority of white (74.3%) students. Twenty-four percent of students took classes only during the day. Nine percent took their classes exclusively in the evening. The majority (67%) took a combination of day and evening classes. The majority of students (63%) were enrolled part-time, which is classified as six credit hours or less per term. Sunshine College retains 60% of their first-time in college students from first year fall term to following year fall term (Sunshine College, 2013).

The convenience sample was obtained by following these procedures. Two weeks after the start of the 2013 spring term, Sunshine College submitted a master course file, which included names of courses, start dates, meeting days, and start times. Any courses less than 24 days in length or with three or fewer students enrolled were removed. In addition, distance learning and independent study courses were removed. A file of courses from Sunshine College was then sent to the Center for Community College Survey of Student Engagement. A random sample of Sunshine College classes, stratified by class start time was taken from all of the
courses submitted. This sampling ensured it was representative of morning, afternoon, and evening classes. It also helped maximize the sample representation of full-time and part-time students (Center for Community College Survey of Student Engagement, 2014c). This convenience sample resulted in 330 students who completed the 2013 Community College Survey of Student Engagement at a large, suburban, Florida community college.

An estimation of the needed hierarchal regression sample size using the equation $N \geq 50 + 8m$ (where $m$ is the number of independent variables) indicated a sample size of 74 ($50 + 24$) is sufficient for this study (Tabachnick & Fidell, 2007). The number of participants in this study ($N = 330$) exceeded the needed sample size.

**Setting**

Sunshine College is considered a large college with just over 10,000 students serving a suburban area. It offers the two-year, general education, Associate in Arts degree designed to transfer four-year colleges and universities. It also offers 20 two-year, Associate in Science degrees and a variety of shorter six-12 month certificate programs designed to place students directly into the workforce.

**Orientation Programming and Student Success Classes**

Students at Sunshine College have options for orientation. Some attend a traditional, on-campus, one-hour power point presentation by a member of the student development staff. Orientation topics include college policies and procedures, college services, and a surviving college session. Student social integration is not a component of these orientations.

Sunshine College also has a structured experience which is a half day orientation, titled “Get Acquainted Day” for students. The program includes presentations and activities facilitated by over 20 faculty, administrators, and staff. Administrator participants include the college
president, campus provost, and student development deans. Staff participants include all of the coordinators and directors of departments including academic advising, financial aid, career and testing services, student activities, intercollegiate athletics, multicultural student affairs, disability services, and admissions and student records. In addition, student clubs/organization leaders attend and coordinate information tables on the various activities on-campus. The day concludes with a lunch for all of the attendees. Three direct outcomes of the program are as follows: increasing awareness of student services, increasing participant’s knowledge of how to succeed academically and the development of relationships with faculty, staff, and other students. An interview with the program coordinator confirmed these critical activities/direct outcomes (Sunshine College Program Coordinator, personal communication, July 28, 2014).

In addition to these orientation programs, an orientation three-credit course titled *College Success Skills* is offered. The course is designed to help students develop more effective and efficient study skills and attitudes necessary to be successful in college. Emphasis is placed on interaction between students, study aids, listening skills, note taking, and reading techniques. Some of the class activities include interactive, get-to-know-you exercises, group scavenger hunts to learn more about campus resources, and other group experiential activities (Sunshine College Instructor, personal communication, July 28, 2014).

**Classes**

In addition to the College Success Skills, there are a variety of class options offered at Sunshine College. Classes are offered at all times during the day, week, evening, weekend, and online. The majority of traditional, in-person classes from which the sample for this study was taken meets for an average of two hours and 40 minutes during the week for 16 weeks. The majority of classrooms are set up for traditional lecture style. Traditional lecture, discussions,
simulations, and cooperative learning are instructional methods utilized by Sunshine College faculty (Sunshine College, 2013).

**Co-curricular Student Activity Programs and Organizations**

Sunshine College has strong evidence of co-curricular student activities programs and organizations. Student organizations include groups such as True Anime & Gaming, Campus Crusade for Christ, Lambda Nu (radiology and imaging science), Phi Beta Lambda (business), Phi Theta Kappa (academic honor society for two-year colleges), Psi Beta (psychology honor society), the Nightingale Nursing Club, and the Tau Upsilon Alpha National Honor Society for Human Services. The College also has a Student Government Association (SGA) whose purpose is to promote active, responsible, and cooperative citizenship through participation and self-government and to participate in the planning and implementation of co-curricular activities. The college has additional programs including cheerleading, student publications, music, a forensics team, and an academic and a competitive academic team. The college has intercollegiate men's baseball, men's basketball, women's cross-country, women's softball, and women's volleyball athletic teams. Finally, an extensive calendar of intramural sports and recreational activities including dodge ball, basketball, fitness classes, yoga, and canoe trips are available for students (Sunshine College, 2013).

**Instrumentation - The Community College Survey of Student Engagement**

Data for this study was derived from the Community College Survey of Student Engagement (CCSSE), which is administered every two years at participating institutions. CCSSE is a paper and pencil survey and is completed by students within 50 minutes during a class. The instrument was designed to be utilized by individual community colleges as a
diagnostic tool for assessing their students’ educational experiences (Community College Survey of Student Engagement, 2014a).

Since 2002, the CCSSE has been distributed over 900 times among community colleges in all 50 states. The instrument has surveyed over 2,000,000 students concerning how they spend their time on-campus and how they describe their relationships and interactions with faculty, staff, and other students. Items assess time spent on activities that the literature has demonstrated to be associated with positive outcomes within a college environment (Marti, 2010).

CCSSE follows a very structured sampling procedure and administration. A staff member at Sunshine College was identified as a CCSSE campus coordinator. The CCSSE campus coordinator sent a standardized letter informing the faculty of the classes selected about the CCSSE and scheduled a date to administer the survey. The survey was administered to students during their regularly scheduled class time in their regular classrooms. Sunshine College staff read directions for the survey to each selected class from a script. The staff distributed the CCSSE survey and number two pencils to the class. Each student signed their student report section of the survey to confirm the script of directions was read. Appendix D includes the instructions for the CCSSE administration.

At the conclusion of the class, the Sunshine College staff collected the surveys and put them into the original envelope. The CCSSE campus coordinator collected all the survey envelopes and sent those surveys to the Center for Community College Survey of Student Engagement by May, 2013 (Center for Community College survey of Student Engagement, 2013b). Approximately 90 days following receipt of the surveys, The Center for the Community College Survey of Student Engagement sent results to Sunshine College.
Once data was received, some of the data values were re-coded for the analysis in this study. Statistical Package for the Social Sciences (SPSS) Version 23 was utilized to recode the responses for item numbers 10b and 10c. The explanation for the re-coding of these items is provided in the procedure section.

**Reliability**

Reliability of the CCSSE has been documented. In test-retest reliability of CCSSE among 582 respondents, all items responses correlated between $r = .61$ to $r = .79$ (Marti, 2010). Item 10c asked students “How much does this college emphasize providing the support you need to thrive socially?” That item will be utilized as the measure for the criterion variable of student social integration in this study, and it had the highest test-retest reliability with a correlation of $r = .79$ (Marti, 2010). According to Salkind (2007), these reliability results are acceptable.

**Validity**


In this study, the CCSSE was used to capture the student self-reports of social integration and involvement within specific student integration programs and activities. Kuh (2005) identified five criteria to assist with the validity of student self-reports. These are (1) the information is known to the students; (2) the questions are clear and unambiguous; (3) the questions refer to fairly recent activities; (4) the student respondents think the questions merit a serious and thoughtful response; and (5) answering the questions does not threaten, embarrass, or
violate privacy or encourage the student to answer in socially desirable ways. The CCSSE items and administration guidelines met these five criteria of self-report validity. Focus groups and interviews confirm that students understand the CCSSE questions, have the capability to answer the questions, and are honest (Center for Community College Survey of Student Engagement, 2014a).

**Table 1.** Table 1 provides information on how the CCCSE was used to assess each variable in the study, theoretical framework, and empirical research supporting each variable.
<table>
<thead>
<tr>
<th>Theoretical Framework</th>
<th>Empirical Research</th>
<th>Variable</th>
<th>Instrument &amp; Item Number</th>
<th>Unit of Measurement</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mertes, 2013; Smith, 2008</td>
<td>Control Variable Sex</td>
<td>CCSSE 30</td>
<td>2 Item Nominal</td>
<td>Your Sex</td>
</tr>
<tr>
<td>Bean and Metzner (1985) model for nontraditional students</td>
<td>Mertes, 2013; Schuetz, 2008; Smith, 2008</td>
<td>Control Variable Age</td>
<td>CCSSE 29</td>
<td>8 Item Ordinal</td>
<td>Mark your age group</td>
</tr>
<tr>
<td>Bean and Metzner (1985) model for nontraditional students</td>
<td>Bers &amp; Smith, 1991; Graham &amp; Gisi, 2000; Schuetz, 2008; Williamson &amp; Ashe, 2009</td>
<td>Control Variable Work</td>
<td>CCSSE 14b</td>
<td>6 Item Ordinal Scale</td>
<td>About how many hours in a typical 7-day week to you spend taking care of dependents living with you” (parents, children, spouse, etc.)</td>
</tr>
<tr>
<td>Theoretical Framework</td>
<td>Empirical Research</td>
<td>Variable</td>
<td>Instrument &amp; Item Number</td>
<td>Unit of Measurement</td>
<td>Question</td>
</tr>
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</tr>
<tr>
<td>Bean and Metzner (1985) model for nontraditional students</td>
<td>Schuetz, 2008</td>
<td>Control Variable</td>
<td>CCSSE 10d</td>
<td>6 Item Ordinal Scale</td>
<td>About how many hours do you spend in a typical 7-day week providing care for dependents living with you” (parents, children, spouse, etc.)</td>
</tr>
<tr>
<td>Astin (1975, 1977, 1993) theory of involvement</td>
<td>Brawer, 1996; Cain, 2010; Community College Survey of Student Engagement, 2009; Hossler, Ziskin, &amp; Gross, 2009</td>
<td>Predictor Variable</td>
<td>CCSSE COLLQ2629</td>
<td>4 Item Ordinal Scale</td>
<td>During my first term at this college, I participated in a structured experience for new students (Sometimes called a “freshman seminar” or “first-year experience”</td>
</tr>
<tr>
<td>Astin (1975, 1977, 1993) theory of involvement</td>
<td>Karp et al., 2008; Klein, 2013; Pascarella &amp; Terenzini, 1991; Windham et al., 2014)</td>
<td>Predictor Variable</td>
<td>CCSSE COLLQ2630</td>
<td>4 Item Ordinal Scale</td>
<td>During my first term at this college, I enrolled in a student success course (such as a student development, extended orientation, student life skills, or college success course.</td>
</tr>
<tr>
<td>Theoretical Framework</td>
<td>Empirical Research</td>
<td>Variable</td>
<td>Instrument &amp; Item Number</td>
<td>Unit of Measurement</td>
<td>Question</td>
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<tr>
<td>Astin (1975, 1977, 1993) theory of involvement</td>
<td>Deil-Amen, 2011; Hagedorn et al., 2000</td>
<td>Predictor Variable</td>
<td>CCSSE 4f</td>
<td>4 Item Ordinal Scale</td>
<td>In your experience at this college during the current school year, about how often have you worked with other students on projects during class?</td>
</tr>
<tr>
<td>Astin (1975, 1977, 1993) theory of involvement</td>
<td>Deil-Amen, 2011; Hagedorn et al., 2000</td>
<td>Predictor Variable</td>
<td>CCSSE 4g</td>
<td>4 Item Ordinal Scale</td>
<td>In your experience at this college during the current school year, about how often have you worked with classmates outside of class to prepare class assignments?</td>
</tr>
<tr>
<td>Astin (1975, 1977, 1993) theory of involvement</td>
<td>Burnett, 1996; Songer, 2011; Schmid &amp; Abell, 2003</td>
<td>Predictor Variable</td>
<td>CCSSE COCURR01</td>
<td>6 Item Ordinal Scale</td>
<td>About how many hours do you spend in a typical 7-day week participating in college-sponsored activities?</td>
</tr>
</tbody>
</table>

- **Variable:** Student Participation Inside of Class with Classmates on Academic Related Projects
- **Question:** In your experience at this college during the current school year, about how often have you worked with other students on projects during class?

- **Variable:** Student Participation Outside of Class with Classmates on Academic Related Projects
- **Question:** In your experience at this college during the current school year, about how often have you worked with classmates outside of class to prepare class assignments?

- **Variable:** Co-curricular Student Activity Participation (campus publications, student government, intercollegiate or intramural sports, etc.).
- **Question:** About how many hours do you spend in a typical 7-day week participating in college-sponsored activities?
<table>
<thead>
<tr>
<th>Theoretical Framework</th>
<th>Empirical Research Variable</th>
<th>Instrument &amp; Item Number</th>
<th>Unit of Measurement</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Student Organization Participation</td>
<td>How often do you use the student organizations at your college?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Self-Report of Social Integration</td>
<td>How much does this college provide the support you need to thrive socially?</td>
<td></td>
</tr>
</tbody>
</table>
Procedures

This section provides a description of the procedures for the study. First, the procedures for obtaining approval of the study are reviewed. Next, the item recoding required of the data is described. Finally, a detailed description of the data analysis including the assumption tests, descriptive statistics, and inferential statistics regarding the hierarchical regression are provided.

Approvals

Following approval of the study proposal, a request was made to the Liberty University Institutional Review Board (IRB). Following Liberty University’s IRB approval, a request was submitted to the chair of Sunshine College’s Independent Research Review Committee. The requests included the purpose and description of the proposed study. The chair distributed the request materials to the Sunshine College Independent Research Review Committee for review. Once approved by the Sunshine College Independent Research Review Committee, the chair provided written notification of approval to the researcher. Upon written notification of approval from the Sunshine College Independent Research Review Committee to obtain data, the researcher requested Sunshine College’s 2013 CCSSE data file from the assistant dean of institutional effectiveness. The file received was an EXCEL file. The EXCEL file was uploaded into SPSS.

Item Recoding

Once data was received, some of the data values were dummy coded and re-coded for the analysis in this study. Dummy coding is a process of assigning a code to a categorical variable, converting it to a dichotomous variable (Warner, 2013). Research documents an association of higher community college social integration among females (Mertes, 2013; Schuetz, 2008;
The control variable of sex was dummy coded. Therefore, in this study, participants who answered male for sex were coded as 0 and female as 1.

For consistency in scaling and for ease of interpreting and discussion of the study correlations, SPSS 23 was utilized to recode the responses. Recoding produced positive correlations aligned with the research, theory, and hypotheses of this study. For example, students who work and take care of dependents more hours per week are predicted to socially integrate at lower levels. Item numbers 10b and 10d ask “About how many hours do you spend in a typical 7-day week working for pay?“ and “About how many hours do you spend in a typical 7-day week providing the care for dependents living with you (parents, children, spouse, etc.)?“ For both items, CCSSE codes the responses as follows: 0 = “none”, 1 = “1-5 hours”, 2 = “6-10 hours,” 3 = “11-20 hours,” 4 = “21-30 hours,” and 5 = “more than 30 hours”. The review of literature indicated community college students who work fewer hours and who have spent less time taking care of dependents are more socially integrated at their colleges. Therefore, the responses were recoded as follows: 6 = “none,” 5 = “1-5 hours,” 4 = “6-10 hours,” 3 = “11-20 hours,” 2 = “21-30 hours,” and 1 = “more than 30 hours”. CCSSE item number 29 was recoded. This item asks for participants to “mark your age group.” CCSSE codes the responses as follows: 1 = “18-19,” 2 = “20-21,” 3 = “22-24,” 4 = “25-29,” 5 = “30-39,” 6 = “40-49,” 7 = “50-64,” and 8 = “65+”. The review of literature indicated younger community college students socially integrate at higher levels (Mertes, 2013; Wang & Parker, 2011). Therefore, these responses were recoded as follows: 8 = “18-19,” 7 = “20-21,” 6 = “22-24,” 5 = “25-29,” 4 = “30-39,” 3 = “40-49,” 2 = “50-64,” and 1 = “65+”.

COLLQ2628 and item number COLLQ2630 response ratings were recoded. These two items asked “During my first term at this college, I enrolled in a structured experience for new
students (sometimes called a “freshman seminar” or first-year experience”) and “During my first term at this college, I enrolled in a student success course (such as a student development, extended orientation, student life skills, or college success course).” For both items, CCSSE provides response codes as follows 1 = “Yes, in my first term at this college,” 2 = “Yes, in my first AND in at least one other term at this college,” 3 = “Yes, but NOT in my first term at this college,” and 4 = “No, I did not.” For the current study, the items were recoded as follows: 4 = “Yes, in my first term at this college AND in at least one other term at this college,” 3 = “Yes, in my first term at this college,” 2 = “Yes, but NOT in my first term at this college,” and 1 = “No, I did not.”

All other items used in this study remained coded in alignment with CCSSE coding. This included item numbers 4f and 4g which asked students “in your experience at this college during the current school year, about how often have you worked with other student on projects during class” and “in your experience at this college during the current school year, about how often have you worked with classmates outside of class to prepared class assignments.” For both items, response codes were as follows: 1 = “Never,” 2 = “Sometimes,” 3 = “Often”, 4 = “Very Often.” Item number COCURR01 asked participants “About how many hours do you spend in a typical 7-day week participating in college-sponsored activities?” The response codes were as follows: 1 = “None,” 2 = “1-5 hours,” 3 = “6-10 hours,” 4 = “11-20 hours,” 5 = “21-30 hours,” and 6 = “More than 30 hours.” CCSSE item number USESTORG asks participants “How often do you use the student organizations at your college?” Response codes were be as follows: 1 = “Don’t Know/NA,” 2 = “Rarely/Never,” 3 = “Sometimes,” 4 = “Often.” Finally, the criterion variable of social integration was measured by item 9c, which asked participants “How much does this
college provide the support you need to thrive socially?” Response codes were as follows: 1 = “Very Little,” 2 = “Some,” 3 = “Quite a Bit,” and 4 = “Very Much”.

Data Analysis

Hierarchical regression was utilized for data analysis. Hierarchical regression allows the researcher to examine the relationship between a set of predictor variables and a criterion variable at different units of statistical analysis (Gall et al., 2007). Hierarchical regression permits the researcher to determine the order of predictor variables based upon logic, theory, and research.

In this study the goal was to assess community college social integration and to find out if sequential participation in the selected activities and programs significantly added to the criterion variable of student self-reports of social integration. Hierarchical regression allowed the researcher to control for variables entered in previous steps. Thus, the increase of student social integration from the participation measured on each of the variables was assessed at each step in the model while accounting for previous variables entered.

Limitations of this study were considered and assumptions checked prior to data analysis. First, a description of the assumption and limitations of this study were provided. Assumptions are items within the study that are assumed to be true but difficult to control. As best as possible, strategies were employed to identify and control for these assumptions. Limitations are those things about the design or methodology in the study that restrict the interpretation of the results (Gall et al., 2007).

Next, a review of the assumption tests conducted for the study is discussed. Finally, an overview of the descriptive and inferential statistics is described.
Assumption Tests

Data was screened prior to analysis for assumptions of absence of outliers, that the residual errors were normally distributed, and that there was a linear relationship between criterion variables and the dependent variable. Assumption tests were also conducted for multicollinearity, autocorrelation, and homoscedasticity of variance.

Outliers are extreme cases, and in hierarchical regression they are evaluated with respect to the dependent variable and each of the predictor variables. If found, these cases can have too strong of an impact on hierarchical regression and affect the prediction of the model (Tabachnick & Fidell, 2007). In this study, assessment items are limited in range so there was no expectation of extreme cases. However, frequency distributions of the dependent variable with each of the predictor variables enabled the researcher to screen for outliers and, if found, further analyze to assess if they should be included as representative of the intended population or discarded.

For a check on assumptions of a normal distribution of residual errors, a histogram of the residuals was created to assess the data. The observation of a symmetrical distribution was utilized to assess the assumption of normal distribution of residual errors (Tabanick & Fidell, 2007). An expected normal probability plot (Normal P-P Plot) and a quantile-quartile plot (Q-Q Plot) provided additional help to assess normality of residual errors. In these plots, a graphical representation was created of actual values and expected values. For this study, SPSS Explore was utilized to create Normal P-P and Q-Q plots for the linear combination of the predictor variables with the criterion variable of social integration. Normal P-P plots were utilized to inspect the middle area of the distribution of residual errors. The Q-Q plots were utilized to inspect the tail ends of the distribution of residual errors. The inspection of the plots revealed how much the actual value and expected values coincide, and enabled the researcher to provide
additional support that the residuals were normally distributed (Cohen, Cohen, West & Aiken, 2003).

To assess the assumption of linear relationships between the predictor variables and the criterion variable, bivariate and partial regression scatterplots were utilized. The bivariate regression plots assessed the linear relationship of each of the predictor variables and the dependent variable. The partial regression plots assessed the linear relationship of each predictor variable on the dependent variable while controlling for all of the other predictor variables in the model. Tabachnick and Fidell (2007) stated an oval shape can be detected if the variables are normally distributed and linearly related.

Autocorrelation occurs when the prediction errors (residuals) are related. This would mean that the residual errors have some pattern that might affect the strength of the hierarchical model. SPSS provides the Durbin-Watson statistic to detect autocorrelation errors. The value of the Durbin-Watson statistic has a range of 0 to 4 and as a rule; a value close to 0 indicates strong positive correlation and a value of 4 indicates strong negative correlation. According to Tabachnick and Fidell (2007), a positive autocorrelation result utilizing the Durbin-Watson statistic indicates the estimates of error variance are too small and may result in Type I error inflation. Negative autocorrelation would make the estimate too large and result in loss of power.

A correlation matrix was created to inspect the interrelationships among the variables. An SPSS output table was provided to inspect collinearity. A variable inflation factor of 10 was utilized to detect concern for correlation between any two of the predictor variables. If detected, a mean centering technique will be performed. In mean centering, instead of the regression being performed directly from the criterion variable to the predictor variable, the regression will include a subtraction of the mean score for the predictor variable (Cohen et al., 2003).
Finally, when conducting the hierarchical regression, it was important to assess the assumption of homoscedasticity. In this study, a scatterplot was provided of the studentized residuals plotted against the unstandardized predicted values. The assumption of homoscedasticity was assessed for a random rather even distribution of scores around the horizontal line (Tabachnick & Fidell, 2007).

**Descriptive Statistics**

The sample was described. Sex, hours worked per week, and hours taking care of dependents were provided by frequency and percentages. Each of the variables in this study had limited amount of responses. Therefore, frequency charts were created for each of the variables and provided a good visual representation of those responses. Medians and means were provided for those scales. Bivariate correlations were presented in a correlation matrix for a review on correlations between variables.

**Inferential Statistics**

In this study, the research questions asked, while controlling for age, hours working per week, taking care of dependents, and sex, is there significant incremental association of social integration and participation in extended orientation programs and student success courses, participation with classmates inside and outside of class on academic projects, and participation in co-curricular student activity programs and organizations? Based on those research questions, for this study, the most appropriate analysis was a hierarchal regression. Hierarchical regression analysis allowed the researcher, based upon research and theory, to input predictor variables in sequential steps during the regression and examine the relationship each of those predictor variables has at each step on the criterion variable (Brace, Kemp & Snelgar, 2012).
Hierarchical regression analysis was also appropriate for this study because of the logic regarding the predictor and control variables. In this project, student characteristics and external commitments such as sex, age, having to work, and the care of dependents were controlled and accounted for first within the model. These variables have been found to negatively affect student social integration (Graham & Gisi, 2008; Mertes, 2013; Smith, 2008; Schuetz, 2008). Logic determined students bring characteristics with them prior to the start of college and therefore, these variables were accounted for first in a model assessing student integration.

Participation in an extended orientation programs and student success courses were accounted for in the first block of the model. Student participation levels in the orientation programs and student success courses were entered as independent items in order to assess the strength of each with social integration. Logic determined that participation in these activities occur prior to any other predictor variable and therefore must be the first predictors assessed regarding students’ social integration.

Integration taking place as a result of students working with other students on academic related projects was accounted for next in the model. Student participation levels, both in class as well as out of class with classmates on academic projects, were entered as independent items in the second block of the model in order to assess the participation levels of each and their association with social integration.

The final predictor variables entered in the hierarchical regression were participation in co-curricular student activities and organizations. Research supported these variables as the last predictor variables. Many new students do not initially become involved in co-curricular activities for a variety of reasons (Songer, 2011). An interview with the director of student activities at the location for the study confirmed approximately 80% of students who join student
clubs and organizations do not do so until their second or third term of study (Sunshine College Activity Director, personal communication, October 29, 2014). Finally, research suggests co-curricular student activity involvement is influenced by the other predictor variables in this model. Extended orientation and student success course participation (Derby & Smith, 2004; Tighe, 2008) and academic related activities (Deil-Amen, 2011) have been linked to higher participation in co-curricular activities. Two independent items were utilized to assess co-curricular participation levels of students and association and their association with social integration. One item assessed participation in student organizations. The other item assessed the time students participate in other college-sponsored activities such as campus publications, student government, intercollegiate sports, and intramural sports.

A summary of the blocks and their order and data sources are provided in Table 2.
Table 2

Data Source Blocks

<table>
<thead>
<tr>
<th>Data Source Blocks</th>
<th>Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1</td>
<td>Control Variables of Sex, Work and Care of Dependents</td>
</tr>
<tr>
<td>Block 2</td>
<td>Student Participation in First-Term Extended Orientation and Student Success Courses</td>
</tr>
<tr>
<td>Block 3</td>
<td>Participation Inside and Outside of Class with Classmates on Academic Related Projects</td>
</tr>
<tr>
<td>Block 4</td>
<td>Co-curricular Student Activity Program and Organization Participation</td>
</tr>
</tbody>
</table>

Evidence in the literature confirmed hierarchical linear regression was an appropriate analysis for this study. Wood and Williams (2013) utilized a hierarchical model in their study of persistence with background characteristics of participants as well as variables such as participation in co-curricular activities. Krumrei-Mancuso et al. (2013) utilized hierarchical linear regression to examine a model of college success for university students that included things such as academic self-efficacy, involvement with co-curricular student activities, and emotional satisfaction with academics.

A p < .05 level of significance was used. In order to account for any missing response data, cases were excluded casewise in the hierarchal regression. A model summary table provided information on each level as well as the total hierarchical regression and the accompanying $R$-value, $R^2$, adjusted $R^2$, standard error of estimate, the $R^2$ change, the $F$ change, and the significance of the $F$ change. F was reported for the entire model as well as for the contribution of each variable block. This model summary provided information regarding the social integration change occurring at each step of the regression and corresponding significance.

The $R$-values, $R^2$ values, and standard error of estimate assessed the effect size. Effect size assessed how well the predictor variables in this regression predict the variability of the criterion variable of social integration. According to Green and Salkind (2011), correlation
coefficients of .10, .30, and .50 are interpreted as small, medium, and large coefficients. However, other information was utilized to determine effect. In addition to Pearson product-moment correlation, $R^2$ was utilized to assess the percentage of the criterion variable that was explained by the linear model. Finally, a regression equation was provided for predicting the criterion variable from the predictor variables with the respective percentage of predictor variable effect.

**Limitations**

Limitations of hierarchical regression can include omitted predictor variables, variation among the predictor variables, errors in variables, sampling, and simultaneous causality (Cohen et al., 2003). If possible, measures were taken to reduce these limitations in the study.

First, although a review of literature confirmed the successful practices of the social integration programming utilized for this study, not all variables that affect community college social integration were assessed in this study. There are other activities and programs which have an influence on community college student social integration. Second, variations may exist among the predictor variables that were assessed in the study. The predictor variables in this study consisted of participation in extended orientation, participation in student success courses, participation with other students on in-class and out of class academic assignments, and participation in co-curricular student activity programs and student organizations. The survey responses did not capture details regarding those activities and programs. There may be components and strategies that contribute to the effectiveness of socially integrating students within these activities and programs that were not assessed in this study.

Threat of validity in the assessment of variables is a limitation. In this study, student self responses were utilized to collect data. The five criteria outlined by Kuh (2005) to assist with the
validity of student self-reports were followed in this study in order to obtain the most valid self-
response data.

This study had a large sample of participants \((N = 272)\). The data was visually inspected
to ensure there was no one item with an irregular pattern of missing responses. Participants who
were non-responsive to any item in this study were omitted. SPSS was instructed to delete cases
casewise in order to remove those cases from the data set.

There are studies which discuss significant differences among size and type of
community colleges and their social integration programming (Halpin, 1990; Smith, 2008;
Napoli & Wortman, 1998). This study sampled students from a large suburban community
college with evidence of very strong social integration programming and therefore, the results of
this study were limited in generalization only to large suburban community colleges with
evidence of strong social integration programs.

This study accounted for simultaneous causality bias. In hierarchical regression, it is
important that rationale be utilized on the order in which the predictor variables are entered into a
model to not violate causal priority (Cohen et al., 2003). The model in this study utilized
rationale for order of predictor variables. Petrocelli (2003) stated careful researchers tend to enter
static variables of interest (e.g., sex, age) before entering dynamic variables in subsequent steps
of hierarchical models. In this study, the control variables of age, sex, hours worked per week,
and hours taking care of dependents per week were entered first into the model. Additionally,
Petrocelli (2003) explained predictor variables in subsequent steps should be based on good
rationale and “be dictated by the hierarchical relevance of each predictor to the criterion” (p. 14).
In this study, the predictor variables were based on logic and rationale in accordance with the
literature on community college social integration.
Summary

This quantitative study utilized a predictive, correlational design to investigate the association of the predictor variables of community college student participation in extended orientation programs and student success courses, work with peers inside and out of class on academic projects, and participation in student activity programs and clubs/organizations on the criterion variable of student social integration. Hierarchical regression was utilized for the data analysis.

This study utilized archived 2013 CCSSE data on 272 students from a large, suburban, community college. Following IRB approvals, data was obtained and screened prior to analysis for assumptions. Frequency charts were created for each of the variables to provide visual representation of the data. Bivariate correlations were presented in a correlation matrix to review correlations between variables.

For the hierarchical regression, a model summary table provided information on each level as well as the total hierarchical regression and the accompanying R-value, $R^2$, adjusted $R^2$, standard error of estimate, the $R^2$ change, the $F$ change, and the significance of the $F$ change. $R^2$ was utilized to assess the percentage of the criterion variable that is explained by the linear model and a regression equation were provided for predicting the criterion variable from the predictor variables with the respective percentage of predictor variable effect.
CHAPTER FOUR: RESULTS

Introduction

The purpose of this predictive, correlational study was to create and assess a model of programs and activities to predict student social integration at a large, suburban, community college. Specifically, the study sought to assess community college student self-reports of social integration and determine how much of the variation in those reports could be explained by control variables of sex, age, hours working per week, and hours taking care of dependents and sequential participation in the predictor variables of extended orientation, student success courses, participation with classmates in and out of class on academic related projects, and participation in co-curricular activities, clubs, and organizations. A hierarchical multiple regression allowed the researcher to examine the predictive validity of the variables and determine how much each variable or set of variables uniquely contributed to the prediction of the criterion variable, community college students’ social integration (Brace, Kemp, & Snelgar, 2012). This chapter provides a summary of the assumption tests conducted, descriptive statistics for each of the variables, results of the hierarchical regression, and conclusions for the study hypotheses.

Assumption Testing

Prior to conducting the hierarchical multiple regression, six assumptions were examined. These included ensuring the absence of extreme outliers, a normal distribution of residual errors, presence of homoscedasticity, absence of autocorrelation, linear relationships between the criterion variable and each of the predictor variables, and absence of multicollinearity.
Absence of Extreme Outliers

Casewise diagnostics was generated to assess any case of a standardized residual greater than ±3 standard deviations (Cook & Weisberg, 1982). In addition to Casewise diagnostics, Cook’s distance (Di) was run to identify any cases greater than one on the high or low end of the frequency (Warner, 2013). There were no cases identified as outliers.

Normally Distributed Residual Errors

To check the assumption that the residual errors were normally distributed, a histogram of the regression residuals was created. The inspection of the histogram of regression residuals in Figure 3 reflected a fairly normal distribution of scores.

![Histogram of Regression Residuals](image)

*Figure 3. Histogram of Regression Residuals*

An expected normal probability plot (Normal P-P Plot) and a quantile-quartile plot (Q-Q Plot) provided additional assessment of the normality of residual errors. The Normal P-P plot (see Figure 4) was utilized to inspect the middle area of the distribution of residual errors. The Q-Q plot (see Figure 5) was utilized to inspect the tail ends of the distribution of residual errors.
The inspection of the plots revealed the distribution was approximately normally distributed. The assumption of a normal distribution of residual errors was confirmed.

*Figure 4.* Normal Probability (P-P) Plot

*Figure 5.* Normal Quantile-Quantile (Q-Q) Plot
Homoscedasticity

Homoscedasticity is present when the residual errors are approximately the same across all values of the independent variables in the hierarchical regression. A single scatterplot of the studentized residuals against the unstandardized predicted variables, provided in Figure 6, was used to check for homoscedasticity. Inspection of the scatterplot demonstrated no gross violations of the assumption of homoscedasticity.

![Figure 6. Scatterplot of Studentized and Unstandardized Residuals](image)

Independence of Observations

The assumption of absence of autocorrelation was assessed. If present, autocorrelation indicates residual error patterns that might affect the strength of the hierarchical model. The Durbin-Watson statistic detects autocorrelation errors and has a range of 0 to 4. As a rule, a value close to 0 indicates strong positive correlation, and a value of 4 indicates strong negative correlation. The Durbin-Watson statistic for this hierarchical model was 1.8, and the assumption that no autocorrelation occurred was confirmed.
Linear Relationships

Bivariate regression plots were created on social integration and each of the predictor and control variables in the study. The plots are included in Appendix C. Each plot, although very restricted in range, provided evidence of linearity. Partial regression plots assessed the linear relationship of each predictor variable while controlling for each of the other predictor variables in the model. The partial regression plots are included in Appendix D. Linearity was deemed tenable.

Absence of Multicollinearity

There were significant correlations between control and predictor variables. However, none exceeded the cut off of .7 for multicollinearity. In addition, the Variable Inflation Factors (VIFs) are provided in Table 3. VIFs, which detect the dependence of variables on each other, did not exceed the concern limit (10) of correlation between any two of the predictor variables in the final hierarchical regression model. The assumption of absence of multicollinearity was confirmed.
Table 3

*Variable Inflation Rates*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Variable Inflation Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1.372</td>
</tr>
<tr>
<td>Sex</td>
<td>1.094</td>
</tr>
<tr>
<td>Hours Working Per Week</td>
<td>1.077</td>
</tr>
<tr>
<td>Taking Care of Dependents</td>
<td>1.380</td>
</tr>
<tr>
<td>Extended Orientations</td>
<td>1.129</td>
</tr>
<tr>
<td>Student Success Course</td>
<td>1.086</td>
</tr>
<tr>
<td>Working With Classmates in Class</td>
<td>1.404</td>
</tr>
<tr>
<td>Working with Classmates Out of Class</td>
<td>1.399</td>
</tr>
<tr>
<td>Participation in Co-Curricular Activities</td>
<td>1.305</td>
</tr>
<tr>
<td>Participation in Student Clubs/Organizations</td>
<td>1.353</td>
</tr>
</tbody>
</table>

**Summary of Assumption Tests**

All six hierarchical regression assumptions were examined. There were no violations on any of the six assumptions. A decision was made to compute the descriptive statistics and to conduct the hierarchical regression analysis as planned. The original data set was 330 cases. Fifty-eight cases with missing data were removed. The 272 cases with complete data for all variables were utilized for the descriptive statistics and hierarchical regression analysis.
Descriptive Statistics

In this section, the descriptive statistics are provided. Frequency tables on each of the variables in the study are presented. This section also includes a correlation matrix chart of all the variables in the study.

Frequency Tables

**Sex and age.** After removal of cases with missing data, the sample consisted of 272 participants. The control variable of sex was dummy coded. Participants who answered male for sex were coded as 0 and female as 1. Forty-four percent \( (n = 119) \) were male, and fifty-six percent \( (n = 153) \) were female. Table 4 provides information on the age of students in the sample. Responses for age were coded as follows: 8 = “18-19,” 7 = “20-21,” 6 = “22-24,” 5 = “25-29,” 4 = “30-39,” 3 = “40-49,” 2 = “50-64,” and 1 = “65+”. The majority \( (n = 153, 56.2\%) \) of the students were between the ages of 18-24.
Table 4

*Age Responses*

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-19</td>
<td>64</td>
<td>23.5</td>
</tr>
<tr>
<td>20-21</td>
<td>59</td>
<td>21.7</td>
</tr>
<tr>
<td>22-24</td>
<td>30</td>
<td>11.0</td>
</tr>
<tr>
<td>25-29</td>
<td>30</td>
<td>11.0</td>
</tr>
<tr>
<td>30-39</td>
<td>44</td>
<td>16.2</td>
</tr>
<tr>
<td>40-49</td>
<td>26</td>
<td>9.6</td>
</tr>
<tr>
<td>50-64</td>
<td>19</td>
<td>7.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>272</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

**Hours Working Per Week.** Students were asked how many hours they spent in a typical seven-day week working for pay. For consistency in scaling and for ease of interpretation and discussion, SPSS was utilized to recode the responses. The review of literature indicated community college students who work fewer hours are more socially integrated at their colleges. Therefore, the responses were recoded as follows: 6 = “none,” 5 = “1-5 hours,” 4 = “6-10 hours,” 3 = “11-20 hours,” 2 = “21-30 hours,” and 1 = “more than 30 hours.” CCSSE item number 29 will be recoded.

The median of the sample was 5.0 (1-5 hours). Table 5 provides the data summary of student responses on how many hours they reported working per week. About a third (n = 78, 28.7%) of the students in the sample reported working more than 30 hours during a typical week.
while approximately a third \( (n = 89, 32.7\%) \) reported not working any hours during a typical week.

Table 5

*Hours Working Per Week*

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 30 Hours</td>
<td>78</td>
<td>28.7</td>
</tr>
<tr>
<td>21-30 Hours</td>
<td>9</td>
<td>3.3</td>
</tr>
<tr>
<td>11-20 Hours</td>
<td>13</td>
<td>4.8</td>
</tr>
<tr>
<td>6-10 Hours</td>
<td>31</td>
<td>11.4</td>
</tr>
<tr>
<td>1-5 Hours</td>
<td>52</td>
<td>19.1</td>
</tr>
<tr>
<td>None</td>
<td>89</td>
<td>32.7</td>
</tr>
</tbody>
</table>

**Taking Care of Dependents.** Students were asked about how many hours they spend in a typical seven-day week providing the care for dependents living with them (parents, children, spouse, etc.). Again, for consistency in scaling and for ease of interpretation and discussion, SPSS was utilized to recode the responses. The review of literature indicated community college students who spend less hours taking care of dependents are more socially integrated at their colleges. Therefore, responses were coded as follows: 6 = “none,” 5 = “1-5 hours,” 4 = “6-10 hours,” 3 = “11-20 hours,” 2 = “21-30 hours,” and 1 = “more than 30 hours.” The median of the sample \( (N = 272) \) was 5.0 (1-5 hours). Table 6 provides a summary of the student responses for taking care of dependents. Forty percent of the students \( (n = 109) \) in the sample reported not having to take care of a dependent during the week while about 25 percent \( (n = 69, 25.4\%) \) of those sampled reported taking care of a dependent more than 30 hours during a typical week.
Participation in extended orientations. Students were asked if they had enrolled in an extended orientation. The responses were coded as follows: 4 = “Yes, in my first term at this college AND in at least one other term at this college,” 3 = “Yes, in my first term at this college,” 2 = “Yes, but NOT in my first term at this college,” and 1 = “No, I did not.” The median of the sample was 1.0 (did not take an orientation). Table 7 provides the summary of student participation in an extended orientation. A little over 20% (n = 55, 20.2%) of the students participated in an extended orientation during their first term. The majority (n = 205, 75.4%) reported not taking an extended orientation and another 3.7% (n = 10) reported that they participated in their first term and another term.
Table 7

*Participation in Extended Orientation*

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>None Taken</td>
<td>205</td>
<td>75.4</td>
</tr>
<tr>
<td>Participated but NOT in First Term</td>
<td>2</td>
<td>.7</td>
</tr>
<tr>
<td>Participated in First Term</td>
<td>55</td>
<td>20.2</td>
</tr>
<tr>
<td>Participated in First Term and Another Term</td>
<td>10</td>
<td>3.7</td>
</tr>
<tr>
<td>Total</td>
<td>272</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Participation in Student Success Courses.** Students were asked if they had enrolled in a student success course. The responses were coded as follows: 4 = “Yes, in my first term at this college AND in at least one other term at this college,” 3 = “Yes, in my first term at this college,” 2 = “Yes, but NOT in my first term at this college,” and 1 = “No, I did not.” The median of the sample was 1.0 (did not take a class). Table 8 provides a summary of data for participation in a student success course. The majority \((n = 231, 84.9\%)\) had not taken a student success course. Approximately nine percent enrolled in a student success course during their first term \((n = 25, 9.2\%)\), and a few percent \((n = 5, 1.8\%)\) enrolled in their first term and another term.
Table 8

*Participation in Student Success Course*

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Taken</td>
<td>231</td>
<td>84.9</td>
</tr>
<tr>
<td>Enrolled in Course But Not in First Term</td>
<td>11</td>
<td>4.0</td>
</tr>
<tr>
<td>Enrolled in Course in First Term</td>
<td>25</td>
<td>9.2</td>
</tr>
<tr>
<td>Enrolled in Course First Term And in Another Term</td>
<td>5</td>
<td>1.8</td>
</tr>
</tbody>
</table>

**Work with classmates in class on academic related projects.** Students in the sample were asked during the current school year, about how often they had worked with other students on projects during class. The item response codes were as follows: 1 = “Never,” 2 = “Sometimes,” 3 = “Often,” 4 = “Very Often”. The median of the sample (N = 272) was 2.0 (sometimes). Table 9 provides the responses of students on working with classmates in class on academic related projects. The majority of students reported they sometimes (n = 101, 37.1%) or often (n = 88, 32.4%) worked with classmates in class on academic related projects. Only 17.3% (n = 47) responded they never worked with classmates and 13.2% (n = 36) indicated they very often worked with classmates.
Table 9

**Working With Classmates on Academic Related Projects**

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>47</td>
<td>17.3</td>
</tr>
<tr>
<td>Sometimes</td>
<td>101</td>
<td>37.1</td>
</tr>
<tr>
<td>Often</td>
<td>88</td>
<td>32.4</td>
</tr>
<tr>
<td>Very Often</td>
<td>36</td>
<td>13.2</td>
</tr>
</tbody>
</table>

**Working with classmates out of class on academic related projects.** Students in the sample were asked during the current school year, about how often they had worked with classmates outside of class to prepare class assignments. Item response codes were as follows: 1 = “Never,” 2 = “Sometimes,” 3 = “Often,” 4 = “Very Often.” The median of the sample (N = 272) was 2.0 (sometimes). Table 10 provides a summary of responses regarding students work with classmates out of class on academic related projects. There was a fairly equal percent of students who reported they either *never* (n = 89, 32.7%), *sometimes* (n = 84, 30.9%), or *often* (n = 71, 26.1%) worked with classmates out of class on academic projects. Another 10.3% (n = 28) reported they *very often* worked with classmates out of class on academic related projects.
Table 10

*Working with Classmates Out of Class on Academic Related Projects*

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>89</td>
<td>32.7</td>
</tr>
<tr>
<td>Sometimes</td>
<td>84</td>
<td>30.9</td>
</tr>
<tr>
<td>Often</td>
<td>71</td>
<td>26.1</td>
</tr>
<tr>
<td>Very Often</td>
<td>28</td>
<td>10.3</td>
</tr>
</tbody>
</table>

**Student Club Participation.** Participants were asked how often they use the student organizations at the college. Responses were coded as follows: 1 = “Don’t Know/NA,” 2 = “Rarely/Never,” 3 = “Sometimes,” 4 = “Often.” Table 11 provides student responses regarding their participation in student clubs and organizations. The median of the sample was 2.0 (rarely/never). Approximately 24.3% (n = 66) reported that they *sometimes* or *often* participated. Close to half (n = 144, 52.9%) reported they *rarely/never* participate and 22.8% (n = 62) reported they *don’t know/N.A.*
Table 11

Participation in Student Clubs/Organizations

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Don't Know/N.A.</td>
<td>62</td>
<td>22.8</td>
</tr>
<tr>
<td>Rarely/Never</td>
<td>144</td>
<td>52.9</td>
</tr>
<tr>
<td>Sometimes</td>
<td>49</td>
<td>18.0</td>
</tr>
<tr>
<td>Often</td>
<td>17</td>
<td>6.3</td>
</tr>
</tbody>
</table>

Participation in co-curricular activities. Participants were asked how many hours they spend in a typical seven-day week participating in college-sponsored co-curricular activities. The responses were coded as follows: 1 = “None,” 2 = “1-5 hours,” 3 = “6-10 hours,” 4 = “11-20 hours,” 5 = “21-30 hours,” and 6 = “More than 30 hours.” Table 12 provides a summary of student participation in co-curricular activities. The median was 1 (none). The majority (n = 207, 76.1%) reported they did not participate. Approximately 17% (n = 47, 17.3%) reported one to five hours of participation per week, 4% (n = 11) reported six-10 hours of participation per week, and 2.5% (n = 7) reported participating 11 or more hours per week.
Table 12

*Weekly Hours Participating in Co-curricular Activities*

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>207</td>
<td>76.1</td>
</tr>
<tr>
<td>1-5 Hours</td>
<td>47</td>
<td>17.3</td>
</tr>
<tr>
<td>6-10 Hours</td>
<td>11</td>
<td>4.0</td>
</tr>
<tr>
<td>11-20 Hours</td>
<td>2</td>
<td>.7</td>
</tr>
<tr>
<td>21-30 Hours</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td>More Than 30 Hours</td>
<td>2</td>
<td>.7</td>
</tr>
</tbody>
</table>

**Self-reports of social integration.** Participants were asked how much the college provides the support they need to thrive socially. Responses were coded as follows: 1 = “Very Little,” 2 = “Some,” 3 = “Quite a Bit,” and 4 = “Very Much.” Table 13 provides the summary of student self-report social integration responses. The median was 2.0 (*some*). Approximately 27% (*n* = 74, 27.2%) reported *very little*, 36% (*n* = 99, 36.4%) reported *some*, 24% (*n* = 66, 24.3%) reported *quite a bit* and 12% (*n* = 33, 12.1%) reported *very much*. 
Correlations

Table 14 displays the Pearson product-moment intercorrelations among the criterion variable and the ten control and predictor variables. An examination of variables revealed that all were significantly associated with the criterion variable of student self-reports of social integration with the exception of hours working per week and working with classmates out of class on academic projects. Student self-reports of social integration were positively and significantly associated at the $p < .01$ levels with age ($r = .21$), participation in a student success course ($r = .16$), participation in co-curricular activities ($r = .19$), and participation in student clubs and organizations ($r = .23$). These findings indicated that the younger aged students, students who participated in a student success course, and students who participated at higher levels in co-curricular activities and clubs and organizations reported higher social integration. Additionally, self-reports of social integration were positively and significantly associated at the $p < .05$ levels with sex ($r = .10$), care of dependents ($r = .15$), participation in extended orientation ($r = .12$), and working in class with other students on academic related projects ($r = .12$). These findings indicated that females, those who spent fewer hours per week taking care of dependents, and those who participated more in extended orientations reported higher social integration.

Table 13

Student Self-Report of Social Integration

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Little</td>
<td>74</td>
<td>27.2</td>
</tr>
<tr>
<td>Some</td>
<td>99</td>
<td>36.4</td>
</tr>
<tr>
<td>Quite a Bit</td>
<td>66</td>
<td>24.3</td>
</tr>
<tr>
<td>Very Much</td>
<td>33</td>
<td>12.1</td>
</tr>
</tbody>
</table>
integration. Other strong and positive associations included those between age and hours working per week \((r = .21, p < .01)\) and participation in an extended orientation with participation in student clubs and organizations \((r = .21, p < .01)\). These associations indicated that older students reported working more hours per week and those students who participated in an extended orientation were associated with higher levels of student club and organization participation. Age was also a strong, positive association with taking care of dependents \((r = .47, p < .01)\). This association indicated that older students reporting taking care of dependents more hours per week.
Table 14

*Pearson Product-Moment Correlations among the Variables (N = 272)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Social Integration</th>
<th>Age</th>
<th>Sex</th>
<th>Work</th>
<th>Care of Dependents</th>
<th>Extended Orientation</th>
<th>Student Success Course</th>
<th>Working with Classmates In Class</th>
<th>Working with Classmates Out of Class</th>
<th>Co-curricular Activities</th>
<th>Student Clubs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Report of Social Integration</td>
<td>1</td>
<td>.211**</td>
<td>.101*</td>
<td>.063</td>
<td>.149*</td>
<td>.120*</td>
<td>.159**</td>
<td>.118*</td>
<td>.060</td>
<td>.186**</td>
<td>.231**</td>
</tr>
<tr>
<td>Age</td>
<td>.211**</td>
<td>1</td>
<td>-.046</td>
<td>.207**</td>
<td>.472**</td>
<td>.096*</td>
<td>.010</td>
<td>-.040</td>
<td>-.086</td>
<td>.043</td>
<td>.008</td>
</tr>
<tr>
<td>Sex</td>
<td>.101*</td>
<td>-.046</td>
<td>1</td>
<td>.071</td>
<td>-.201**</td>
<td>-.102</td>
<td>.108*</td>
<td>.124*</td>
<td>.139*</td>
<td>-.024</td>
<td>.038</td>
</tr>
<tr>
<td>Work</td>
<td>.063</td>
<td>.207**</td>
<td>.071</td>
<td>1</td>
<td>.013</td>
<td>-.024</td>
<td>.070</td>
<td>-.005</td>
<td>-.061</td>
<td>-.071</td>
<td>-.054</td>
</tr>
<tr>
<td>Dependents</td>
<td>.149*</td>
<td>.472**</td>
<td>-.201**</td>
<td>.013</td>
<td>1</td>
<td>.165**</td>
<td>-.034</td>
<td>-.083</td>
<td>-.082</td>
<td>-.001</td>
<td>-.011</td>
</tr>
<tr>
<td>Extended Orientation</td>
<td>.120*</td>
<td>.096</td>
<td>-.102*</td>
<td>-.024</td>
<td>.165**</td>
<td>1</td>
<td>.192**</td>
<td>-.008</td>
<td>-.011</td>
<td>.145*</td>
<td>.214**</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (1-tailed).**

*Correlation is significant at the 0.05 level (1-tailed).
<table>
<thead>
<tr>
<th>Variable</th>
<th>Social Integration</th>
<th>Age</th>
<th>Sex</th>
<th>Work</th>
<th>Care of Dependents</th>
<th>Extended Orientation</th>
<th>Student Success Course</th>
<th>Working with Classmates In Class</th>
<th>Working with Classmates Out of Class</th>
<th>Co-curricular Activities</th>
<th>Student Clubs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Success Course</td>
<td>.159**</td>
<td>.010</td>
<td>.108*</td>
<td>.070</td>
<td>-.034</td>
<td>.192**</td>
<td>1</td>
<td>.042</td>
<td>.028</td>
<td>.039</td>
<td>.175**</td>
</tr>
<tr>
<td>Work with Classmates in Class</td>
<td>.118*</td>
<td>-.040</td>
<td>.124*</td>
<td>-.005</td>
<td>-.083</td>
<td>-.008</td>
<td>.042</td>
<td>1</td>
<td>.515**</td>
<td>.163**</td>
<td>.174**</td>
</tr>
<tr>
<td>Work with Classmates Out of Class</td>
<td>.060</td>
<td>-.086</td>
<td>.139*</td>
<td>-.061</td>
<td>-.082</td>
<td>-.011</td>
<td>.028</td>
<td>.515**</td>
<td>1</td>
<td>.156**</td>
<td>.092</td>
</tr>
<tr>
<td>Co-curricular Activities</td>
<td>.186**</td>
<td>.043</td>
<td>-.024</td>
<td>-.071</td>
<td>-.001</td>
<td>.145*</td>
<td>.039</td>
<td>.163**</td>
<td>.156**</td>
<td>1</td>
<td>.455**</td>
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<tr>
<td>Student Clubs</td>
<td>.231**</td>
<td>.008</td>
<td>.038</td>
<td>-.054</td>
<td>-.011</td>
<td>.214**</td>
<td>.175**</td>
<td>.174**</td>
<td>.092</td>
<td>.455**</td>
<td>1</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (1-tailed).
* Correlation is significant at the 0.05 level (1-tailed).
The Hierarchical Regression

The hypotheses for this study were tested using a four-block, hierarchical regression model. In this section, data for each of the four-blocks in the hierarchical regression is provided. Next, data on the complete model is summarized. Finally, a regression equation based on the regression model data is formulated and a summary of the null hypothesis decision-making is provided.

First Block of Hierarchical Regression: Sex, Age, Hours of Work per Week and Taking Care of Dependents

The first null hypothesis (H₀₁) stated student characteristics of age, hours worked per week, hours per week taking care of dependents, and sex would not significantly predict social integration at a large, suburban community college. The linear combination of age, hours worked per week, hours per week taking care of dependents, and sex accounted for 6.4% of the variation ($R^2 = .064$) in student self-reports of their social integration. The first model was significant, $F (4, 267) = 4.527, p = .001$. The first null hypothesis (H₀₁) was rejected.

Table 15 provides the unique contributions of each variable in the first block of the hierarchical regression. Age ($\beta = .17, p < .05$) and sex ($\beta = .13, p < .05$) were the two control variables that made the most significant individual contribution to the model. These findings indicated that being a younger student and a female was positively and significantly associated with higher self-reports of social integration.
Table 15

*Block One of the Hierarchical Regression Model Predicting Social Integration Based on Age, Sex, Hours Worked Per Week and Hours Per Week Taking Care of Dependents (N=272)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.084</td>
<td>.035</td>
<td>.168</td>
<td>2.438</td>
<td>.015</td>
</tr>
<tr>
<td>Sex</td>
<td>.250</td>
<td>.119</td>
<td>.127</td>
<td>2.092</td>
<td>.034</td>
</tr>
<tr>
<td>Hours Working Per Week</td>
<td>.008</td>
<td>.029</td>
<td>.018</td>
<td>.294</td>
<td>.739</td>
</tr>
<tr>
<td>Weekly Hours Taking Care of Dependents</td>
<td>.044</td>
<td>.032</td>
<td>.094</td>
<td>1.370</td>
<td>.177</td>
</tr>
</tbody>
</table>

Second Block of Hierarchical Regression: Participation in Extended Orientations and Student Success Courses

Model two contained the control variables of sex, age, hours working per week, and hours taking care of dependents and added the predictor variables of participation in extended orientation and participation in a student success course. Overall, model two accounted for 9.1% of the variation ($R^2 = .091$) in student self-reports of their social integration. The second model was significant, $F(6, 265) = 4.399, p = .001$. Moreover, after controlling for age, hours worked per week, hours per week taking care of dependents, and sex, the addition of student participation in extended orientation programs and student success courses led to a significant increase in $R^2$ of .091, $F(2, 265) = 3.942, p = .021$. This finding indicated that by adding participation in extended orientation and participation in student success courses, an additional 9.1% of the variability in student self-reports of social integration could be explained. The second null hypothesis ($H_02$), which stated student participation in extended orientation programs and student success courses would not significantly predict student self-reports of social integration at a large, suburban community college, was rejected.

Table 16 provides the coefficients for the variables in the second block of the hierarchical regression. Sex ($\beta = .12, p = .05$), age ($\beta = .16, p < .05$), and student success course participation ($\beta = .13, p < .05$) still individually, significantly contributed to the model. This finding indicated that females, younger-aged students, and those students who participated in student success courses were more likely to have higher levels of reported social integration. No other variable individually contributed in this block of the regression at a significant level.
Table 16

Block Two of the Hierarchical Regression Model Predicting Social Integration Adding Participation in Extended Orientation and Participation in Student Success Course (N=272)

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE$</th>
<th>$B$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.082</td>
<td>.034</td>
<td>.164</td>
<td>2.402</td>
<td>.017</td>
</tr>
<tr>
<td>Sex</td>
<td>.235</td>
<td>.119</td>
<td>.119</td>
<td>1.968</td>
<td>.050</td>
</tr>
<tr>
<td>Hours Working Per Week</td>
<td>.006</td>
<td>.029</td>
<td>.012</td>
<td>.198</td>
<td>.843</td>
</tr>
<tr>
<td>Weekly Hours Taking Care of Dependents</td>
<td>.041</td>
<td>.032</td>
<td>.087</td>
<td>1.263</td>
<td>.208</td>
</tr>
<tr>
<td>Participation in Extended Orientation</td>
<td>.080</td>
<td>.064</td>
<td>.077</td>
<td>1.259</td>
<td>.209</td>
</tr>
<tr>
<td>Participation in Student Success Course</td>
<td>.183</td>
<td>.084</td>
<td>.132</td>
<td>2.188</td>
<td>.030</td>
</tr>
</tbody>
</table>

*Notes.* Dependent Variable = Student Self-Report of Social Integration, Full Model: $F(6, 265) = 4.399, p = .001$. $R^2 = .091 \cdot \Delta^2 = .027, p = .0$
Third Block of the Hierarchical Regression: Working With Classmates in Class and Out of Class on Academic Related Projects

The third block of the regression included the control variables of sex, age, hours working per week, hours taking care of dependents per week, and predictor variables of participation in extended orientation and student success courses and added the predictor variables of working with classmates in class and out of class on academic related projects. Overall, model three accounted for 10.3% of the variation in student self-reports of their social integration. The third model was significant, $F(8, 262) = 3.79, p < .001$. However, after controlling for age, hours worked per week, hours per week taking care of dependents, sex, student participation in extended orientation programs, and student success courses, the addition of working with classmates on projects during class and outside of class to prepare class assignments did not lead to a statistically significant increase in the variance explained in the criterion variable of student self-reports of social integration ($R^2 = .103, p = .154$). The third null hypothesis ($H_{03}$), which stated that participation with classmates inside and out of class on academic projects would not significantly contribute to the predictive model of students’ self-reports of social integration at a large, suburban community college, was not rejected.

Table 17 provides the coefficients of the variables for the third block of the hierarchical regression. Several variables were individual significant contributors to the model. As in model two, age ($\beta = .17, p < .05$) and participation in a student success course ($\beta = .13, p < .05$) significantly contributed to the model. This finding indicated that younger-aged students and those students who participated in student success courses were more likely to have higher levels...
of reported social integration. No other variables made a significant individual contribution to the third model.
Table 17

*Block Three of the Hierarchical Regression Model Predicting Social Integration Adding Working with Classmates in Class on Academic Related Projects and Working with Classmates Out of Class on Academic Related Projects (N=272)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE$</th>
<th>$\beta$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.083</td>
<td>.034</td>
<td>.165</td>
<td>2.424</td>
<td>.016</td>
</tr>
<tr>
<td>Sex</td>
<td>.208</td>
<td>.120</td>
<td>.106</td>
<td>1.736</td>
<td>.084</td>
</tr>
<tr>
<td>Working</td>
<td>.007</td>
<td>.029</td>
<td>.014</td>
<td>.230</td>
<td>.818</td>
</tr>
<tr>
<td>Dependents</td>
<td>.044</td>
<td>.032</td>
<td>.093</td>
<td>1.363</td>
<td>.174</td>
</tr>
<tr>
<td>Orientation</td>
<td>.079</td>
<td>.063</td>
<td>.076</td>
<td>1.248</td>
<td>.213</td>
</tr>
<tr>
<td>Student Success Course</td>
<td>.179</td>
<td>.084</td>
<td>.129</td>
<td>2.142</td>
<td>.033</td>
</tr>
<tr>
<td>Working with Classmates In Class</td>
<td>.116</td>
<td>.072</td>
<td>.110</td>
<td>1.604</td>
<td>.110</td>
</tr>
<tr>
<td>Working with Classmates Out of Class</td>
<td>.009</td>
<td>.068</td>
<td>.009</td>
<td>.131</td>
<td>.896</td>
</tr>
</tbody>
</table>


Fourth Block of the Hierarchical Regression: Participation in Co-Curricular Activities and Student Clubs and Organizations

The fourth null hypothesis (H04) stated that participation in co-curricular student activity programs and student clubs and organizations would not significantly contribute to the predictive model of students’ self-reports of social integration at a large, suburban community college. After controlling for age, hours worked per week, hours per week taking care of dependents, sex, student participation in extended orientation programs and student success courses, and working with classmates in class and out of class on academic related projects, participation in co-curricular activities and student clubs and organizations contributed a significant increase in $R^2$ of $0.039 (F (2, 263) = 5.87, p = .003)$. This result indicated that after controlling for the previous control and predictor variables, participation in co-curricular activities and student clubs and organizations explained an additional 3.9% of the variability of student self-reports of social integration. The fourth null hypothesis (H04) was rejected. Table 18 provides the coefficients of the variables for the fourth block of the hierarchical regression. A few variables were individual significant contributors to the model. Age ($\beta = 15$, $p = .023$) and participation in student clubs and organizations ($\beta = .14$, $p = .031$) significantly contributed to the model. This meant that younger students and those involved at higher levels in student clubs and organizations reported significantly higher levels of social integration.
Table 18

*Block Four of the Hierarchical Regression Model Predicting Social Integration Adding Participation in Co-Curricular Activities and Participation in Student Clubs/Organizations (N=272)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE$</th>
<th>$β$</th>
<th>$T$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.077</td>
<td>.034</td>
<td>.154</td>
<td>2.294</td>
<td>.023</td>
</tr>
<tr>
<td>Sex</td>
<td>.210</td>
<td>.118</td>
<td>.106</td>
<td>1.774</td>
<td>.077</td>
</tr>
<tr>
<td>Hours Working Per Week</td>
<td>.014</td>
<td>.028</td>
<td>.030</td>
<td>.510</td>
<td>.611</td>
</tr>
<tr>
<td>Taking Care of Dependents</td>
<td>.048</td>
<td>.032</td>
<td>.103</td>
<td>1.526</td>
<td>.128</td>
</tr>
<tr>
<td>Extended Orientation</td>
<td>.036</td>
<td>.064</td>
<td>.034</td>
<td>.562</td>
<td>.575</td>
</tr>
<tr>
<td>Student Success Course</td>
<td>.151</td>
<td>.083</td>
<td>.109</td>
<td>1.821</td>
<td>.070</td>
</tr>
<tr>
<td>Working with Classmates In Class</td>
<td>.079</td>
<td>.072</td>
<td>.074</td>
<td>1.095</td>
<td>.275</td>
</tr>
<tr>
<td>Working with Classmates Out of Class</td>
<td>.000</td>
<td>.067</td>
<td>.000</td>
<td>-.006</td>
<td>.995</td>
</tr>
<tr>
<td>Participation in Co-curricular Activities</td>
<td>.119</td>
<td>.080</td>
<td>.097</td>
<td>1.479</td>
<td>.140</td>
</tr>
<tr>
<td>Participation in Student Clubs/Organizations</td>
<td>.175</td>
<td>.081</td>
<td>.145</td>
<td>2.171</td>
<td>.031</td>
</tr>
</tbody>
</table>

Entire Model

The fifth and final null hypothesis (H₀5) stated that the linear combination of student participation in extended orientation programs and student success courses, their participation with classmates inside and outside of class on academic projects, and their participation in co-curricular student activities and clubs/organizations would not significantly predict students’ self-reports of social integration while controlling for age, hours worked per week, hours per week taking care of dependents, and sex at a large suburban community college. The model was significant, \( F (10, 261) = 4.320, p < .001 \). The null hypothesis was rejected. The correlation coefficient of the entire model was Multiple \( R \) equals .377. Cohen’s (2003) table of effect size magnitudes indicates an \( R \) of .30 to .50 is a medium to large effect size. Therefore, it is concluded that the model in this study demonstrated a medium effect size. The final overall model accounted for 14.2% of the variation \( (R^2 = .142) \) in student self-reports of their social integration.

The Regression Equation

The constant \( (B = .520) \) and regression weights for each of the variables in Table 20 provided the data to formulate a regression equation for the model. The regression equation for predicting student self-reports of social integration from the current study was as follows:

\[
\text{student self-reports of social integration} = .520 \text{ (constant)} + .077 \text{ (age)} + .210 \text{ (sex)} + .014 \text{ (hours working per week)} + .048 \text{ (weekly hours taking care of dependents)} + .036 \text{ (participation in extended orientation)} + .151 \text{ (participation in a student success course)} = .079 \text{ (working with classmates in class on academic related projects)} + .000 \text{ (working with classmates out of class on academic related projects)} + .019 \text{ (weekly hours participating in co-curricular activities)} + .175 \text{ (participation in student clubs/organizations)}. 
\]

As can be noted from the equation, the three
variables with the strongest regression weights were sex ($\beta = .210$), participation in student clubs/organizations ($\beta = .175$), and participation in a student success course ($\beta = .151$).

**Hypotheses**

In summary, data from 272 students was used to assess the factors that influence self-reports of social integration. Four of the five null hypotheses were rejected. The tested null hypotheses, results, and conclusions are summarized in Table 19.
Table 19
Summary of Null Hypothesis

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Result</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>(H₀₁): Student characteristics of age, hours worked per week, hours per week taking care of dependents, and sex will not significantly predict social integration at a large, suburban community college</td>
<td>The linear combination of age, hours worked per week, hours per week taking care of dependents, and sex accounted for 6.4% of the variation ($R^2 = .064$) in student self-reports of their social integration. The first model was significant, $F(4, 267) = 4.527, p = .001$</td>
<td>Rejected</td>
</tr>
<tr>
<td>(H₀₂): Student participation in extended orientation programs and student success courses will not significantly predict student self-reports of social integration at a large, suburban community college</td>
<td>After controlling for age, hours worked per week, hours per week taking care of dependents, and sex, the addition of student participation in extended orientation programs and student success courses led to a significant increase in $R^2$ of .027, $F(2, 265) = 3.942, p = .021$</td>
<td>Rejected</td>
</tr>
<tr>
<td>(H₀₃): Participation with classmates inside and outside of class on academic projects will not significantly contribute to the predictive model of students’ self-reports of social integration at a large, suburban community college</td>
<td>After controlling for age, hours worked per week, hours per week taking care of dependents, sex, and student participation in extended orientation programs and student success courses, the addition of working with classmates on projects during class and outside of class to prepare class assignments did not lead to a statistically significant increase in $R^2$ of .013, $F(2, 263) = .1884, p = .154$</td>
<td>Fail to Reject</td>
</tr>
<tr>
<td>Null Hypothesis</td>
<td>Result</td>
<td>Decision</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>(H₀⁴): Participation in co-curricular student activity programs and organizations will not significantly contribute to the predictive model of students’ self-reports of social integration at a large, suburban community college</td>
<td>After controlling for age, hours worked per week, hours per week taking care of dependents, sex, student participation in extended orientation programs and student success courses, and working with classmates in class and out of class on academic related projects, participation in co-curricular activities and student clubs and organizations contributed a significant increase in $R^2$ of 0.039, $F(2, 263) = 5.871, p = .003$.</td>
<td>Rejected</td>
</tr>
<tr>
<td>(H₀⁵) The linear combination of student participation in extended orientation programs and student success courses, their participation with classmates inside and outside of class on academic projects, and their participation in co-curricular student activity programs and organizations will not significantly predict students’ self-reports of social integration while controlling for age, hours worked per week, hours per week taking care of dependents, and sex at a large, suburban community college</td>
<td>The final overall model accounted for 14.2% of the variation ($R^2 = 0.142$) in student self-reports of their social integration. The fourth model was significant, $F (10, 261) = 4.320, p = .000$</td>
<td>Rejected</td>
</tr>
</tbody>
</table>
CHAPTER FIVE: DISCUSSION

Introduction

The purpose of this predictive, correlational study was to create and assess a model of control variables, programs, and activities to predict student social integration at a large, suburban community college. Specifically, the researcher sought to understand how the predictor variables of student participation in extended orientation programs and student success courses, participation inside and outside of class with classmates on academic projects, and participation in co-curricular student activities and organizations explained the variance in the criterion variable of student self-reports of social integration. Theorists (Astin, 1975, 1977, 1984, 1993; Tinto, 1975, 1987, 1993) and researchers (Ali & Leeds, 2008; Cain, 2010; Holmes, 2012; Karp et al., 2008; Klein, 2013; Pascarella & Terenzini, 1991; Smith, 2008; Songer, 2011; Schmid & Abell, 2003; Tighe, 2008; Wood & Williams, 2013) have purposed that participation in these types of programs and activities are associated with social integration, but more research was needed to understand the potential of increasing community college social integration as a result of student participation in a combination of programs and activities (Deil-Amen, 2011; Karp, 2011; Saenz et al., 2011). Moreover, theorists (Bean & Metzner, 1985) and researchers (Bers & Smith, 1991; Mertes, 2013; Schuetz, 2008; Smith, 2008; Williamson-Ashe, 2009) confirm that student characteristics may influence social integration. Therefore, the characteristics of student age, sex, hours worked per week, and hours taking care of dependents per week were controlled for in this study. Chapter Five provides a review of the study purpose and design. Next, a summary of the hierarchical regression and findings for each variable in the study are discussed. Prior to the conclusion, research and practical implications and study limitations are summarized.
Hierarchical Regression Summary and Discussion

This study utilized a convenience sample of archived Community College Survey of Student Engagement (CCSSE) data of 330 students from a large, suburban community college. The data was collected from the CCSSE survey administered at the site in 2013. The archived data was provided to the researcher in 2015. Cases with missing data on any of the variables in the study were removed. The final sample data analyzed for the study consisted of 272 cases.

A predictive, correlational design was employed to study as it was deemed most appropriate to determine the association of predictor variables on a criterion variable (Gall et al., 2007), and a hierarchal regression was used as the analysis strategy, which determines the strength of predictor variable’s association at different levels on a criterion variable (Gall et al., 2007). This analysis strategy was regarded as acceptable as the goal of this study was to assess community college social integration and discover if sequential participation in the selected activities and programs significantly add to the explained variance in the criterion variable of student self-reports of social integration. The hierarchical regression allowed the researcher to control for variables entered in previous blocks. Thus, the increase of student social integration from the participation measured on the variables was assessed at each block in the model while accounting for previous variables entered (Gall et al., 2007).

Control variables of age, sex, hours worked per week, and hours per week taking care of dependents were entered into the first block of the regression. These control variables accounted for 6.4% of the variation in student self-reports of social integration and the results were significant ($p < .01$). Age ($\beta = .17, p < .05$) and sex ($\beta = .13, p < .05$) were the two significant, individual contributing variables in the first block of the regression. These findings meant that,
when assessing only the control variables, females and younger students were associated with significantly higher self-reports of social integration than males and older students.

In the second block of the hierarchical regression, student participation in extended orientations and student success courses were added to the model. In the second block these two variables accounted for an additional 2.7% of the variation in student self-reports of social integration, and it was significant \( (p < .05) \). Participation in a student success course was a significant, individual, contributing variable in the second block of the regression model \( (\beta = .14, p < .05) \). Age \( (\beta = .17, p < .05) \), and sex \( (\beta = .12, p < .05) \) continued as significant, individual, contributing variables in the second block of the regression.

In the third block of the hierarchical regression, data on how much students reported participating with other students in class and out of class on academic related projects was added to the model. Only an additional 1.3% of variation in student self-reports of social integration was explained in the model when these variables were added, and these two predictor variables did not significantly contribute to the model in that third block.

In the fourth block of the hierarchical regression, weekly hours participating in co-curricular activities and participation in clubs and organizations were added to the model. The fourth block of the hierarchical regression did significantly contribute an additional 3.9% of the explanation in variance of student self-reports of social integration \( (p < .01) \). Participation in co-curricular activities was not a significant individual variable in this block of the regression \( (\beta = .10, p = .14) \); however, participation in student clubs and organizations was a significant individual contributing variable \( (\beta = .15, p < .05) \). Age \( (\beta = .15, p < .05) \) and continued as a significant individual contributing variable in the fourth block of the regression.
The entire linear model of the hierarchical regression in this study was significant ($p < .01$) and explained a total of 14.2% of the variance in student self-reports of social integration. The variables with the strongest regression weights, thus which made the strongest individual contribution in explaining the variance of social integration, in the final model were age ($\beta = .15, p < .05$), participation in student clubs/organizations ($\beta = .15, p < .05$), and participation in a student success course ($\beta = .11, p = .07$).

Figure 1 in Chapter One provided a graphic illustration of the model used and tested by the hierarchical regression in this study. The first block in the figure consisted of the control variables of age, sex, hours worked per week, and hours taking care of dependents. After the control variables, the figure illustrated that the predictor variable blocks were examined in order of logical progression, which were participation in extended orientation programs and student success courses, work with other students in class and out of class on academic assignments, and participation in co-curricular student activities and organizations.

The results of this study provided information about the validity of this model and how each of the blocks of variables was associated with social integration. While three of the variable blocks were significantly associated with social integration, the third block of hierarchical regression, which consisted of the variables of working with classmates on academic related projects, did not provide a significant explanation of variance in self-reported social integration. While this block of variables did not make a significant contribution, the block of variables may still be critical to the overall model considering Deil-Amen’s (2011) qualitative results on community college student social integration and the association between this block of variables and other predictor variables (see Figure 9). Deil-Amen (2011) suggested academic related behaviors might be a bridge to further forms of social involvement. In this study, the Pearson’s $r$
analyses completed during the assumption testing indicated a mild association between the academic related variables in the third block of the regression with the next block of variables. Specifically, the third block variable of working with classmates in class on academic related activities was significantly associated with the fourth block variable of participation in co-curricular activities \((r = .16, p < .01)\) and with the fourth block variable of participation in student clubs and organizations \((r = .16, p < .01)\). Additionally, the third block variable of working with classmates out of class on academic projects was significantly associated with the fourth block variable of participation in co-curricular activities \((r = .17, p < .01)\). Therefore, Figure 7 illustrates the third block variables of working with classmates on academic related activities as a possible bridge to other social integration activities and programs.
Figure 7. Revised Large Suburban Community College Social Integration Model
Astin’s (1975, 1977, 1984, 1993) and Tinto’s (1975, 1987, 1993) retention models stressed the importance of the interaction between individuals within their college environments. However, until this study, there was no comprehensive model that assessed community college social integration from sequential participation in selected activities and programs. By demonstrating the predictive validity of how much each set of programs and activities uniquely contributed to the variance in social integration, it provided an extension to previous research (Cain, 2010; Holmes, 2012; Karp, et al., 2008; Pascarella & Terenzini, 1991; Songer, 2011; Schmid & Abell, 2003; Smith, 2008; Tighe, 2008; Wood & Williams, 2013) that had studied individual community college social integration programs and activities and its impact on community college social integration. The findings were consistent with Bean and Metzner’s (1985) model and research (Bean & Metzner, 1987; Broschard, 2005; Graham & Gisi, 2000; Mertes, 2013; Rajasekhara & Hirsh, 2000; Schuetz, 2008; Voorhees, 1987; Wang & Parker, 2011), confirming traditional students who are younger and have less responsibilities to take care of dependents socially integrate at higher levels than older students and those with more family responsibilities. Moreover, quantitative date provided within the model in this study extended qualitative research that has recognized how academic related activities, such as working on class related projects with other students, can act as a conduit for other social integration activities among community college students (Deil-Amen, 2011). Finally, the model data in the present study provided support to researchers’ suggestions that social integration among community college students can be enhanced as a result of student participation in a combination of academic and co-curricular activities and programs (Karp, 2011; Mertes, 2013).
Research Implications

In order to fully understand the results of the community college social integration model and provide direction on future research, a discussion on individual variables within the model is needed. This study sought to understand how the predictor variables of student participation in extended orientation programs and student success courses, participation inside and outside of class with classmates on academic projects, and participation in co-curricular student activities and student club/organizations and control variables of student age, sex, hours worked per week, and hours taking care of dependents per week explained the variance in the criterion variable of student self-reports of social integration. This section provides a summary, discussion, and research implications for the variables of age, sex, hours working per week, hours per week taking care of dependents, and working with other students on academic related projects.

Age

In the current study, 41 percent of the students were older than 24, and age was significant in all four-blocks of the hierarchical regression. Age had a moderate weight in the final regression model ($\beta = .15$). By itself as a variable, age was significantly associated with social integration ($r = .21, p < .01$), indicating that younger students reported significantly higher levels of social integration than older students. These findings are aligned with the Bean and Metzner (1985) postulation that social integration plays a reduced role for older, nontraditional-aged students. In addition, the findings in the current study are consistent with previous research, indicating older community college students socially integrate at lower levels than younger students (Broschard, 2005; Graham & Gisi, 2000). However, whereas Broschard’s (2005) study found nontraditional-aged students tend to socially integrate from working with classmates on academic related activities and not from co-curricular activities, the current study found no
significant associations of student age and the variables of working with other students on class related projects or with participation levels in co-curricular activities and club/organizations. One plausible explanation is participation goals. Research has found older students might participate in things such as co-curricular activities and clubs/organizations less for social integration benefits and more for career enhancement benefits (Fairshild, 2003). Social integration research investigating participation goals of older nontraditional and younger traditional students may provide useful information on this topic.

Sex

In the current study, the results for sex indicated females socially integrate at higher levels than males ($r = .10, p < .05$). Sex was the highest weighted coefficient in the final hierarchical regression model ($\beta = .21$). By itself as a variable, sex was significantly associated with weekly hours taking care of dependents ($r = .20, p < .01$), with higher levels of working with classmates in class ($r = .12, p < .05$), and working with classmates out of class on academic related projects ($r = .14, p < .01$). These findings indicated females reported higher rates of taking care of dependents and more work with classmates.

The results in this study are consistent with previous studies. Mertes (2014) and Smith (2008) found that females socially integrate at higher rates than males. Smith (2008) attributed higher levels of female social integration to co-curricular student activity programs that were more conducive for female participants. However, in this study, there were no significant associations between sex and participation levels in co-curricular activities and clubs/organizations. In this study, the criterion variable data was derived from a question that asked “how much this college provides the support for you to thrive socially?” It is plausible males may differ from females in the degree to which they attribute their college helping them to
thrive socially. Despite similar participation levels in social integration activities and programs, males may conform to gender expectations (Rudman & Glick, 2010) and tend not to attribute the help of the college for their social integration as much as females. Future community college, social integration, phenomenological studies examining male participation in co-curricular activities and clubs/organizations could provide valuable information on this topic.

**Hours Working Per Week**

As a single variable, hours working per week did not demonstrate a significant association with self-reports of social integration and was not a strong, weighted variable in the final model ($\beta = .03$). More research is needed within community college environments to find out if social integration is only affected for those students working a certain amount of hours per week, and if on campus employment should be taken into account when assessing employment and social integration.

The non-emergence of hours working per week as a significant individual variable in the social integration model was surprising, as past research found employment to be a variable negatively associated with community college social integration (Bers & Smith, 1991; Williamson-Ashe, 2009). Employment has also been associated with lower student participation levels in community college social integration programs and activities (Newbold et al., 2011; Lundberg, 2004; Lima, 2014). However, in this study, the only significant association of work with predictor or control variables was that with age ($r = .21, p < .01$), indicating that older students reported working more hours per week.

In this study, there was a bi-modal distribution of student self-reports on hours working per week. Fifty-two percent reported working five hours or less per week, and 32% reported working 30 or more hours per week. To determine if social integration may have differed
significantly between students who worked 30 or more hours per week and those who worked five or less hours per week, an equal variances t-test was performed on the social integration means of the two groups. The t-test failed to reveal a statistically reliable difference between the student self-reported social integration means of those working more than 30 hours ($M = 2.16$, $SD = 1.00$) and those who worked less than five hours per week ($M = 2.24$, $SD = .97$), $t (270) = .67$, $p = .75$.

One plausible contributing factor of why hours working per week did not emerge as a significant, individual variable in the current study was that student on-campus employment was not taken into account. The executive director of human resources confirmed that Sunshine College annually employs about 90 students. It is plausible some of the students who work on-campus were surveyed in the current study. Previous research on community college student employment has indicated students who work a lot of hours are less engaged in campus activities and are less socially integrated (Bers & Smith, 1991; Newbold et al., 2011; Lundberg, 2004; Lima 2014; Williamson-Ashe, 2009). However, these studies have focused on off-campus employment. Astin (1975, 1993) found on campus employment had a positive and significant association with student social integration at the institution. A search on community college on-campus employment did not produce any peer-reviewed research on the association of on-campus employment and student social integration. Recent research on this topic exists for university environments. Watson (2013), in a qualitative study, found on-campus employment was an opportunity for students to socially connect with their campus university environments. More research is needed within community college environments to find out if on-campus employment should be taken into account when assessing work and social integration.
**Hours Taking Care of Dependents**

More research is also needed on community college co-curricular activities and programs tailored toward students with dependents to fully understand social integration among this population of students. The current study data was very consistent with national community college data in that 25 percent of students reported taking care of a dependent more than 30 hours per week (Froehner & Gault, 2013). By itself as a variable, reported hours of taking care of dependents was significantly associated with self-reports of social integration ($r = .15, p < .05$). The results indicated that students who reported more hours per week taking care of dependents reported lower levels of social integration. These results are not surprising. In previous studies, community college students with dependents demonstrated they socially integrate on lower levels than those students without dependents (Newbold et al., 2011; Schuetz, 2008).

In the current study, once the other control and predictor variables were accounted for in the hierarchical regression, taking care of dependents did not emerge as a significant variable in the model. Reported hours of taking care of dependents, by itself as a variable, was not significant in any block of the hierarchical regression. It was a moderately weighted variable in the final model ($\beta = .10$). In this study, it was surprising that reported hours taking care of dependents was not significantly associated with lower levels of participation in co-curricular activities. However, the site of the current study has a diversity of co-curricular activities including a “Kids n Sibs” program, which encourages students to bring their children to the events. It is plausible programs such as this may facilitate higher co-curricular activity participation levels and social integration among students who take care of dependents.

Comparative research on social integration from community college settings with different co-
curricular programs available to students with dependents is an area that needs to be further investigated.

**Working with Classmates in Class and Working with Classmates Out of Class**

In this study, 46 percent of students reported they *often or very often* work with other students on projects during class. As explained earlier, results of the regression indicated working with classmates in class on academic related projects demonstrated a mild weight in the final model ($\beta = .08$). By itself as a variable, it was significantly associated with working with classmates out of class on academic related projects ($r = .52, p < .01$), weekly hours participating in co-curricular activities ($r = .16, p < .01$), and participating in student clubs and organizations ($r = .17, p < .01$). These findings indicated those students who reported higher levels of working with classmates on academic-related projects reported higher levels of participation in the other activities. These findings are consistent with research suggesting in class connections for community college students may be a bridge to further academic and social involvement within community colleges (Deil-Amen, 2011).

Like working with students in class on academic related projects, the data in the current study is consistent with other research and suggests working with classmates out of class may also be a bridge to additional social involvement within community colleges (Deil-Amen, 2011). Although working with classmates out of class on academic-related projects by itself did not demonstrate a significant relationship with self-reports of social integration, it was significantly associated with sex ($r = .14, p < .05$), indicating that females tended to report higher levels of working with classmates out of class on academic related projects more than males. Working with classmates out of class on academic related projects was also significantly associated with other predictor variables, suggesting it can be a conduit and help students socially connect in
other ways. These other predictor variable associations included working with students in class on academic related projects \( (r = .52, p < .01) \) and weekly hours participating in co-curricular activities \( (r = .16, p < .01) \).

More sophisticated measures of social integration and flexible regression models would assist to better understand the influence of working with classmates on academic-related activities and social integration of community college students. For example, Milem and Berger (1997) described a cycle that explained initial student involvement in something has an effect on student perceptions, which then affects their subsequent behaviors. Thus, a student who makes social connections while working with other students on academic-related projects can lead to feelings of acceptance and make students more likely to seek out opportunities to participate in co-curricular activities. More sophisticated survey measures could capture student perceptions such as those described by Milem and Berger (1997). In addition, Structured Equation Modeling (SEM) is a more flexible analysis to deal with a system of regression equations (Nachtigall, Kroehne, Funke, & Steyer, 2003) to provide a deeper understanding of the social integration cycles such as that which Milem and Berger (1997) described.

**Summary of Research Implications**

Most of the findings in this study were consistent with past research. The control variables of age, sex, and hours taking care of dependents were consistent with previous research, indicating that females, younger students, and those who have less responsibilities to take care of dependents report higher levels of community college social integration (Bean & Metzner, 1987; Broshard, 2005; Graham & Gisi, Mertes, 2013; Rajasekhara & Hirsh, 2000; Schuetz, 2008; Voorhees, 1987; Wang & Parker, 2011). Additionally, the findings that student participation with other students on academic-related activities as a possible conduit to
participation in other social integration programs such as co-curricular activities and clubs was consistent with past research and community college social integration studies with flexible regression models will assist with future research on this topic (Deil-Amen, 2011).

In the current study, the finding that employment did not emerge as a significant variable associated with community college social integration was inconsistent with previous research (Bers & Smith, 1991; Williamson-Ashe, 2009), and future research should assess if only full-time off-campus employment is a barrier to social integration and if on-campus employment is of benefit to community college student social integration. Several other inconsistent findings with previous research emerged in the discussion of data regarding the social integration model. These included a lack of significant differences in co-curricular activity and club/organization participation levels among men and women, older and younger students, and those with differences in responsibilities to take care of dependents. Phenomenological studies that examine participation in co-curricular activities and clubs and comparative research on social integration from community college settings with different co-curricular student activity programs, clubs, and organizations available to students are needed to better understand these topics.

Practical Implications

Although the model in the current study accounted for only 14.2% of variability in student self-reports of social integration, it demonstrated the linear combination of student participation in extended orientation programs and student success courses, participation with classmates inside and outside of class on academic projects, and participation in co-curricular student activity programs and organizations has the ability to significantly predict student self-reports of social integration. While 86% of unexplained variability in student self-reports of social integration indicates there are many other variables to explore and deeper investigation
into the nuances of the variables assessed within this study, the current study model provides a few specific implications for community college administrators and educators. Community colleges seeking to create environments for student social integration are encouraged to employ the following recommendations.

**Participation in Extended Orientation Programs**

Participation in extended orientation programs was low (20%). Although it was not weighted heavily in the final model ($\beta = .03$) by itself as a variable, participation in extended orientations was significantly associated with student self-reports of social integration ($r = .12, p < .05$). Participation in extended orientations was also significantly associated with the two highest weighted predictor variables in the regression model. Specifically, participation in extended orientations was moderately associated with participation in student success courses ($r = .19, p < .01$) and participation in student clubs/organizations ($r = .21, p < .01$), indicating that those students who participated in extended orientations participated at significantly higher rates in student success courses and student clubs/organizations. Based on the association of participation in extended orientation programs with the participation levels in these other programs, colleges should consider requiring these extended orientation programs for their new students.

**Participation in Student Success Courses**

Requiring the enrollment into a student success course is also recommended. Participation in student success courses was significantly associated with student self-reports of social integration ($r = .16, p < .01$), and colleges seeking to improve social integration among their students need to consider methods to enroll more students in these courses. Participation in student success courses was a significant, individual, contributing variable when first entered in
the second block of the regression, and it was the second strongest contributing variable ($\beta = .11$) in the final model. As research indicated community college student success courses that take place over an entire term and have primary outcomes of facilitating student interaction are found to be positively associated with student social integration, these results were consistent and confirmed the previous research (Karp et al., 2008; Lafferty, 2015; Klein, 2013; Tighe, 2008).

Following orientation, student success courses bolster the transition of new students into the institution, preparing them, not only for the institution’s educational opportunities, but also initiating the integration of those students into social climate of the institution (Dean, 2009). This warrants a recommendation that community college administrators should employ policies requiring new students to enroll in these courses during their first term. Some very successful community colleges have required student success courses with outstanding results. Valencia College in Orlando, Florida, winner of the 2011 prestigious Aspen Award as the best community college in the nation based on student retention and completion, implemented a Start Right Program which consists of mandatory orientation and a required student success course (McClenney & Dare, 2013).

**Participation in Co-curricular Student Activities and Student Clubs/Organizations**

Educators can utilize higher enrollments in student success courses to increase student participation in co-curricular student activities and in clubs/organizations. Nationally, an estimated 20% of community college students participate in school related clubs and other activities (Center for Community College Survey of Student Engagement, 2015). In this study, 23.8% of the students reported some involvement in co-curricular activities ranging from one to five hours per week to more than 30 hours per week, and 24% of students reported they sometimes or often participate in student clubs and organizations. Interestingly, there were no
significant relationships between student characteristics of age, sex, hours working per week, or hours taking care of dependents and participation in co-curricular activities or student clubs and organizations.

Participation in student clubs and organizations was the strongest variable in the final model of prediction for student social integration ($\beta = .15$), and this data supports Tinto’s (1993) premise that becoming a member in groups such as student clubs and organizations provides a very strong social integration support system. The findings of a strong association between social integration and participation in student clubs and organizations are consistent with past research (Songer, 2011; Schmid, 2003; Wise, 2011). In this study, the emergence of participation in clubs and organizations as a stronger variable than involvement in other co-curricular activities is understandable. Participation in co-curricular activities such as festivals, dances or other co-curricular events may facilitate some social interaction between students that is beneficial to community college social integration, but it is not nearly as strong as the social integration derived from membership in clubs and organizations.

However, even though participation in co-curricular activities and student clubs and organizations was higher than the norm at the site of this study (Center for Community College Survey of Student Engagement, 2015), approximately 75% of students reported no participation in co-curricular activities. Research has found academic demands, lack of interest, and feelings of comfort as barriers to students participating in co-curricular activities (Tan & Pope, 2007). Components in student success courses can be strategically utilized to facilitate participation in academic related student clubs and organizations. For example, research has found lack of interest and feelings of discomfort as barriers to student participation in co-curricular activities, clubs, and organizations (Tan & Pope, 2007). Educators should incorporate career assessments
into the student success course curriculums and utilize the results of those assessments to help students develop a co-curricular plan, which would include participation in those student activities and clubs and organizations aligned with their career interests. Additionally, educators should invite student activity directors and student leaders of clubs and organizations to visit and engage with students in the student success courses to establish higher comfort levels regarding these groups and promote membership.

**Limitations**

Additional recommendations for educators will be derived from better developed models of community college social integration. This section reviews limitations of the current study and research recommendations that will lead to stronger predictive models of community college social integration.

The quantity of the predictor variables in the current study was a limitation in that they only accounted for a little more than 14% of the variance in student self-reports of social integration. This indicates other variables that affect community college social integration were not included within the present study model. As stated by Astin (1993),

The environment encompasses everything that happens to a student during the course of an educational program that might conceivably influence the outcomes under consideration. The environment thus includes not only the programs, personnel, curricula, teaching practices, and facilities that we consider to be part of any educational program but also the social and institutional climate in which the program operates.

(p.81)

Some of the elements that should be assessed in future community college social integration models are relationships with faculty and staff (Braxton et al., 2011), the availability and usage
of facilities that promote informal social integration such as fitness centers and cafeterias (Lane & Perozzi, 2014; Miller, 2011), participation in college social media (Strayhorn, 2012a; Lester & Perini, 2010), and institutional climate (Braxton et al., 2011).

In addition to missing variables, the current study utilized an instrument that had limitations. Although CCSSE follows the five criteria identified by Kuh (2005) to assist with the validity of student self-reports, when participants self-report, there is a tendency for them to respond in socially desirable ways (Donaldson & Grant-Vallone, 2002). As such, future researchers may consider direct observation of students. Also, the survey responses in this study were a limitation because they did not capture details regarding the variables. For example, employment is one of the variables in the current study that could be delineated further to account for social integration variability. The non-emergence of hours working per week as a significant, individual predictor in the study’s social integration model was surprising as past research found employment to be a variable negatively associated with community college social integration (Bers & Smith, 1991; Williamson-Ashe, 2009). However, in this study and previous studies (Bers & Smith, 1991; Williamson-Ashe, 2009), on-campus and off-campus employment was grouped and assessed together despite findings that on campus employment may actually be of great benefit to social integration (Astin, 1975; 1993). This may have attributed to some of the conflicting results in the current study regarding employment and how it is associated with community college social integration. More research is needed within community college environments to find out if on-campus employment should be taken into account and assessed separately when researching employment and social integration.

Furthermore, additional research is needed on community college, co-curricular activities tailored toward students with dependents to fully understand social integration among this
population of students. In this study, once the other control and predictor variables were accounted for in the hierarchical regression, taking care of dependents did not emerge as a significant variable in the model. Comparative research should be conducted on student social integration from community college settings with different co-curricular programs available to students with dependents. This research may provide support that certain co-curricular activities are important sources of social integration for students who take care of dependents.

Moreover, external validity, which refers to the extent the findings of this study can be applied to other settings (Gall et al., 2007), is an important discussion in regards to limitations. The review of literature identified previous studies which conveyed significant differences among size and type of community colleges and their social integration programming (Halpin, 1990; Smith, 2008; Napoli & Wortman, 1998). This study sampled students from a large, suburban community college with evidence of very strong social integration programming and therefore, the results of this study are limited in generalization only to large, suburban community colleges with evidence of strong social integration programs.

Finally, other forms of predictive analysis and experimental study designs are needed in community college social integration research. More flexible regression models such as structured equation modeling would help understand the dynamics of things such as working with classmates on academic related activities and how participation in those activities affect subsequent student behaviors which then influences ensuing involvement in other social integration programs and activities. It is also imperative to have experimental design studies on community college social integration programs. The model in this study found significant associations between students’ self-reports of social integration with variables such as
participation in student success courses and participation in student clubs and organizations. Only experimental designs can determine cause and effect.

**Conclusion**

Researchers have asked for studies assessing student participation in a combination of programs and activities (Karp 2011; Saenz et al., 2011). Practitioners can utilize the results of such studies to shape the academic and social environments and enhance student retention. Until this study, there was no peer-reviewed or dissertation research creating and assessing a model of community college student social integration, only studies examining individual activities and programs. These individual programs and activities that had been studied included extended orientation programs and student success courses (Cain, 2010; Karp, Hughes & O’Gara, 2008; Klein, 2013; Pascarella & Terenzini, 1991; Tighe, 2008), the interaction in and out of class between students on academic related projects (Deil-Amen, 2011; Hagedorn, Maxwell, Rodriguez, Hocevar & Fillpot, 2000; Maxwell, 2000), and participation in co-curricular student activity programs and organizations (Burnett, 1996; Holmes, 2012; Smith, 2008; Songer, 2011; Schmid & Abell, 2003; Wood & Williams, 2013). The gap in the literature was closed with the results of this study. A community college social integration model at a large, suburban community college has been assessed utilizing all of the above mentioned activities and programs as variables and was able to explain

Although the results of the current study model modestly accounted for 14.2% of the variation in student self-reports of social integration, it is a successful first step in the research on a community college social integration model. Future research on social integration models should assess variations of the predictor variables that were assessed in the study. The predictor variables in this study utilized survey data and responses did not capture details regarding
activities and programs. In addition, not all social integration predictor variables were included in the present study. Variables such as facility usage of gyms, cafeterias, and student unions; institutional climate; and use of social media are variables worthy of consideration within a community college predictive social integration model. Finally, more robust measures of social integration and structured equation modeling would help better understand dynamics that occur among community college student social integration variables.
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Appendix A

Permission for Usage of Illustration of Bean and Metzner (1985) Conceptual Model of Nontraditional Undergraduate Student Attrition.

Good Morning, I am a Liberty University doctoral candidate working on my dissertation research on social integration of community college students. I would like permission to utilize Bean and Metzner's (1985) figure of their conceptual model of nontraditional undergraduate student attrition as it appears on page 491 of the Review of Educational Research Journal Vol. 55, No. 4 (Winter, 1985), pp. 485-540. I have been informed the Review of Educational Research is published by SAGE on behalf of AERA, and to contact you regarding this copyright permission. Please let me know the proper procedures to request this permission.

Thank you,
Bob
Appendix B

CCSSE Survey Administration Script

**CCSSE Survey Administration Script**

[Read the script to the class and follow the bracketed instructions.]

Good [morning/afternoon/evening]. My name is [Name], and I am here to administer the Community College Survey of Student Engagement (CCSSE), a research initiative of the Center for Community College Student Engagement at the University of Texas at Austin. This survey is conducted at community and technical colleges across North America, and the data collected from the survey are being used to improve the community college student experience. Your answers will help this college understand your experience and improve programs and services for all students.

Participation in this survey is entirely voluntary. There are no penalties for choosing not to participate or for stopping your participation at any time. Your decision will not affect your grade in this or any other class or your reputation within our college. However, the information you provide will help our college—and other colleges across the country—to improve their services.

If you are under the age of 18, **please do not complete the survey**; however, please remain in the classroom during the administration.
If you have completed the survey in another class, you are welcome, but not required, to take the survey again; however, should you opt not to take the survey again, please remain in the classroom during the administration.

[Provide each student with the following: Program Code Sheet, Special-Focus Items/Custom Survey Items Sheets, CCSSE Survey, and a #2 pencil.]

[Show students the CCSSE Survey.] The survey booklet has questions on both sides of the page.

[Turn to page 7 of the survey and show students the Program Code Sheet.] Turn to page 7 of the survey, and look at item #37. You will need the Program Code Sheet to respond to this item.

[Turn to the final page of the survey.] Turn to the last page of the survey, and look at item #38. As you can see, it asks for your student identification number. Please enter the number, without hyphens or spaces, starting in column one. While providing your student ID number is optional, we encourage you to provide it to enable us in furthering knowledge about how our college can best promote student success. Please rest assured that your individual responses to this survey will remain confidential and will only be seen by the University of Texas at Austin research team and selected administrators and faculty at this college.

[Remain on the final page of the survey and show students the Special-Focus Items/Custom Survey Items Sheets.] Now look at the shaded box on the right-hand side of the page, labeled Additional Items. You will need the additional items sheets printed on
colored paper to answer these items. **Do not mark your answers on the colored additional items sheets**, but rather mark your responses on the back page of the survey booklet.

As you complete this survey, please remember that you are responding based on your experiences at THIS college during THIS academic year, and **not only about this particular class**. You may only use a #2 pencil, **no pens**, to fill in the circles. Please fill in the circles completely; do not use X’s or check marks.

We expect it to take no more than 45 minutes to complete this survey, but it may take up the entire class period. If you have any questions after you finish, feel free to contact the Center for Community College Student Engagement at 512-471-6807. We appreciate your participation.

[When all students are finished, or when time has run out, collect survey materials from students.]
Appendix C

Bi-Variate Regression Plots

![Bi-Variate Regression Plot of Social Integration and Age](image)

*Figure 8. Bi-Variate Regression Plot of Social Integration and Age*
Figure 9. Bi-Variate Regression Plot of Social Integration and Sex

$y = 2.1 + 0.2x$

$R^2$ Linear = 0.010
Figure 10. Bi-Variate Regression Plot of Social Integration and Work

\[ y = 2.1 + 0.03x \]

\( R^2 \text{ Linear} = 0.004 \)
Figure 11. Bi-Variate Regression Plot of Social Integration and Care of Dependents
Figure 12. Bi-Variate Regression Plot of Social Integration and Participation in Extended Orientation
Figure 13. Bi-Variate Regression Plot of Social Integration and Participation in Student Success Course
Figure 14. Bi-Variate Regression Plot of Social Integration and Work with Classmates In Class with Classmates
Figure 15. Bi-Variate Regression Plot of Social Integration and Work with Classmates Outside of Class with Classmates
Figure 16. Bi-Variate Regression Plot of Social Integration and Participation in Co-Curricular Activities
Figure 17. Bi-Variate Regression Plot of Social Integration and Participation in Student Organizations
Appendix D

Partial Regression Plots

Figure 18. Partial Regression Plot of Social Integration and Sex
Figure 19. Partial Regression Plot of Social Integration and Age
Figure 20. Partial Regression Plot of Social Integration and Work
Figure 21. Partial Regression Plot of Social Integration and Care of Dependents
Figure 22. Partial Regression Plot of Social Integration and Participation in Extended Orientation
Figure 23. Partial Regression Plot of Social Integration and Participation in Student Success Course
Figure 24. Partial Regression Plot of Social Integration and Work Out of Class with Classmates
Figure 25. Partial Regression Plot of Social Integration and Work with Classmates In Class
Figure 26. Partial Regression Plot of Social Integration and Participation in Co-Curricular Activities
Figure 27. Partial Regression Plot of Social Integration and Participation in Student Organizations